

On Dennett’s: ‘Consciousness Explained’

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Abstract

In this paper, we apply mathematics to some of the ideas presented in DC Dennett’s book: “On Consciousness. We see that such an approach can explain how the human mind and consciousness evolved. We use electrical engineer to devise a circuit of the mind.

Keywords: Consciousness; Astrothoology Math; Evolution; Mind.

Introduction

DC Dennett has written a book wherein he describes the functioning of the human mind. His description is in words. In this paper, I put numbers and functions and math to how I think the mind works. We will see how the sense evolved to meet the universal signal. A knowledge of AT Math is helpful from my previous papers on Astrothoology. We begin with the familiar Clairnaut equation.

Clairnaut Differential Equation

$$d^2E/dt^2-G=0$$

$$\iint d^2E/dt^2 = \iint G$$

$$E=G^3/3$$

$$E=(6.67)^3/3=0.9891=\sqrt{\pi}=\text{Power}$$

$$@E=0 \text{ Minimum}$$

$$0=G^3/3=(1-\ln \pi)^7$$

$$=(-0.1447)^7$$

$$=0.000001330 \sim 0$$

$$\text{Now, } 2^{21}/2 \times G = 0.6994 \sim 7$$

$$1/7 = \text{Economic Multiplier}$$

$$1/6.997 = 14.29\%$$

$$= 1/7$$

$$e^{1429} = 1.1536 = 1/0.866 = 1/\sin 60^\circ$$

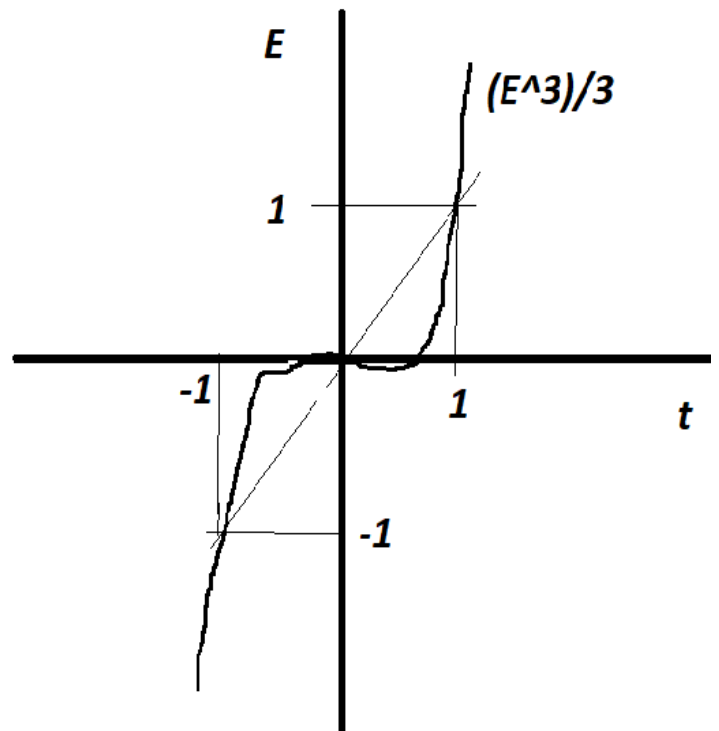


Figure 1. Plot of $E^3/3$ Noe minimum is at $t=0$ where $-1 < t < 1$
Univ. Signal $= 1/\sqrt{3}$

$1/\pi = \text{freq of the human mind}$

$$s = 4/3 = |E||t| \sin \theta$$

$$4/3 = E(\pi) \sin \theta$$

$$4/3 (1/\pi) = \sin \theta$$

$$0.4244 = \sin \theta$$

$$\theta = 25.1 = \text{Period T}$$

$$= 0.4383 \text{ rads}$$

Continuing:

$$1/\pi = s \cdot t$$

$$1/\pi = Et^2 \sin \theta$$

$$Et^2 \sin \theta - 1/t = 1/\sqrt{3}$$

$$Et^2 \sin \theta - 1/t - 1/\sqrt{3} = 0$$

$$(1)(\pi)^2 \sin \theta - 1 - 1/\sqrt{3} = 0$$

$$\pi^2 \sin \theta = 1.5773$$

$$\sin \theta = 1.593$$

$$\theta = 9.17^\circ = 0.16 \text{ rads}$$

$$90^\circ - 9.17 = 0.80829 = 1 / (0.1234567)$$

$$(0.1430)^7 = 1.226$$

$$1/1.266 = 2.04 \sim 2 = L = \text{Reaction Time}$$

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

$$t^2 - t - 2 = 0$$

$$t = 2; -1$$

Prime Numbers by Gauss

$$\lim_{x \rightarrow \infty} \pi(x) / [x / \ln x] = 1$$

$$12 / [31/31] = 3.49 \sim 3.5$$

$$SE = SE'$$

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

$$5 = 5$$

$$t = 0; 3$$

Fro reaction time $t = 0.200 \text{ sec}$

$$E = 1/t = 1/0.2 = 5$$

$$t^2 - t - 1 = E = 12/t = 1/0.2 = 5$$

$$t^2 - t - 6$$

$$t = 3; -2$$

$$\Delta E = 1/\Delta t$$

$$\Delta E \cdot \Delta t = 1$$

$$5 \cdot \Delta t = 1$$

$$5(0.2) = 1$$

True!

Moment of Creation

$$\text{Mom.} = F \times d$$

$$t = f \times d$$

$$1 = F d(1/t)$$

$$1 = (2.666)d(5)$$

$$d = 0.75 = 3/4 = 1/s$$

$$st = 1$$

$$s = 1/t = E$$

$$E = s = E \sin \theta$$

$$1 = 1 \sin \theta$$

$$\theta = \pi/2$$

$$s = E \sin \theta$$

$$4/3(1/5) = t \sin \theta$$

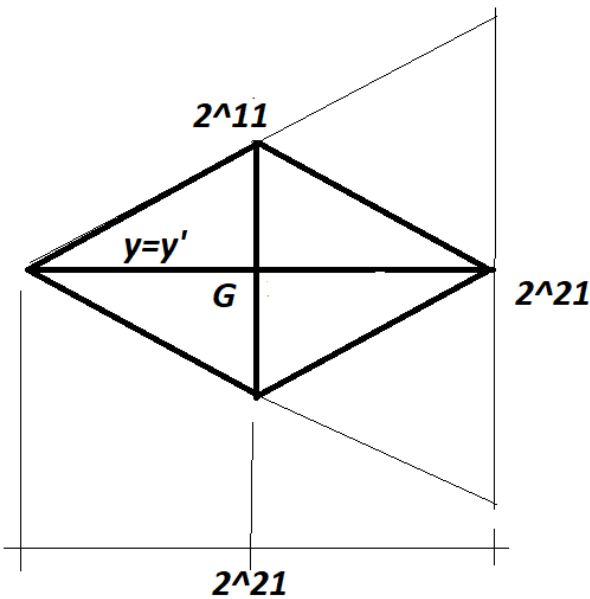


Figure 2. The Mind as a binominal tree

$$v = d/t$$

$$3 = (2^{21})/t$$

$$t = 6.990 \sim 7$$

$$1/t = E = 1/7 = 0.1430$$

$$0.2666/2.666=1/10$$

$$F=(1)\sin\theta$$

$$F=\sin\theta$$

$$\sin^2\theta+\cos^2\theta=1$$

$$\text{Let } \sin \theta=\cos \theta$$

$$2\sin^2 \theta=1$$

$$\sin =1/\sqrt{2}$$

$$(\sin \theta)^\prime=\cos \theta$$

$$(\sin \pi)=0=\cos \theta$$

$$\theta=\pi/2$$

$$\text{Consciousness}=\int t^2-t-1=E$$

$$2t^3/3-t^2/2-t=E$$

$$t^2-3/4t-1=1/\sqrt{3}$$

$$t^2-0.75t-1.577=0$$

$$t=0.852; 1.852$$

$$E=1/t=54; 1.174$$

$$PE=Mc^2$$

$$54=M(8.9)=6.00$$

$$PE=Mc^2$$

$$1.174=M (8.9)$$

$$M=0.1307$$

$$A=1/2bh$$

$$A=2 \times 1/2 bh$$

$$A=bh$$

$$2^{11} \times 2^{21}/2$$

$$=2.14175$$

$$2.14175/3=23.830$$

$$\text{Ln } 23.03=3.136\sim\pi$$

$$y=y^\prime$$

$$\text{Ln } t=1/t$$

$$1/t=1/3.136\sim 1/\pi=\text{freq}$$

For the four triangles:

$$2 \times 1/\pi=2/\pi=0.6366=t_0 \text{ Moment of Creation}$$

$$t^2-t-1=0$$

$$|D|=4 \quad E=11 \Rightarrow 11 \text{ dimensions}$$

$$\text{Eigenvalue } =3 \quad E=5 \Rightarrow SE=SE^\prime$$

$$\text{Eigen Vector}=\sqrt{3} \quad E=2.67 \Rightarrow \text{S.F.}$$

$$P=i^2R^2$$

$$=(4/3)^2(2.67)$$

$$=4.78$$

$$=1/231$$

$$=Fdt$$

$$1/21=2.67(2^{21})(t)$$

$$t=85$$

$$E=1/t=1/0.85$$

$$=117.6$$

Π Senses

$$F=Ma$$

$$2.67=M(1/\sqrt{2})=3.776=1/265$$

$$F=Ma$$

$$2.67=117.6a$$

$$a=1/44=2.27$$

$$265/227=116.6=\text{Mass of the periodic table}$$

$$V=iR$$

$$=(4/3)(-2)=-8/3$$

$$F=-ks$$

$$=-/83=-0.4233s$$

$$s=6.3=1/0.1587$$

$$=1/[1-\sin 1]$$

$$=1-\csc 60^\circ$$

$$=1/\text{Moment}$$

$$=1/t=E$$

$$\Pi \text{ senses}=2.67=SF$$

The Concept of Multiple Drafts of Consciousness

$$\text{Consciousness}=\sin^2 \theta +\cos^2 \theta=1 =t=[1/(1-\text{Ln } t)]$$

$$t=1=(1-\text{Ln } t)^{-7}$$

$$t=1/(1-\text{Ln } t)^7$$

$$(1-\text{Ln } t)^{7/7}=1^{1/7}$$

$$1-\text{Ln } t=1$$

$$\text{Ln } t=0$$

$$t=1$$

$$=\Sigma \text{Senses}=1/\pi +\pi+\sqrt{0.666}+4+\sqrt{3}=1.0008$$

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

$$E=(1-\text{Ln } t)^7=-1 \text{ @ } t=1$$

$$=\sqrt{3}$$

$$\text{Freq}=1/T=1/(1/t)=t=1$$

Universal Signal is the inverse $=1/\sqrt{3}$

$$E=(1-\text{Ln } t)$$

The Mind is tuned to the universal signal.

Temporal Window

$$358 \text{ msec}-200 \text{ msec}=1580 \text{ msec}=1-\sin 1$$

$$1 \leq t \leq \pi$$

$$(1-\sin 1)^7=(1-\text{Ln } t)^7$$

$$E=(1-\text{Ln } t) \\ = (1-\text{Ln } 1)=1$$

$$(1-0.8414)^7=279=1/358 = 1/t=E$$

$$\text{Sin } 1=\text{Ln } t$$

$$E=(1-\text{Ln } t) \\ = (1-\text{Ln } \pi) \\ = -0.1447$$

$$t=232 \quad E=431$$

$$t=1/E=-6.909$$

$$358 \text{ msec}-200 \text{ msec}=1580 \text{ msec}=1-\sin 1$$

$$\text{Period } T=251.6 \quad 1/T=397$$

$$(1-\sin 1)^7=(1-\text{Ln } t)^7$$

$$\Delta t=691-397 \text{ msec} \\ =294 \sim 300 \text{ Speech Act.}$$

$$(1-0.8414)^7=279=1/358 = 1/t=E$$

$$E=(1-\text{Ln } t)^7 \\ = (1-\text{Ln } (294))^7 \\ =502.6 \sim 500 \text{ msec which is equal to the reaction time for a touch.}$$

$$\Delta E=232-(1/358) \\ =0.232-2.7932 \\ =256.1$$

The Mind is a magnetic field with $L=2$ Henries

$$E=(1-\text{Ln } t)^7 \\ = (1-\text{Ln } 256.1) \\ =595 \sim 6$$

$$\text{Ln } 2=0.693 \sim 7$$

$$t=1.681$$

$$(1-\text{Ln } (294))0.693$$

$$1.681^2-1.681-1=0.1447=E \sim 1/7$$

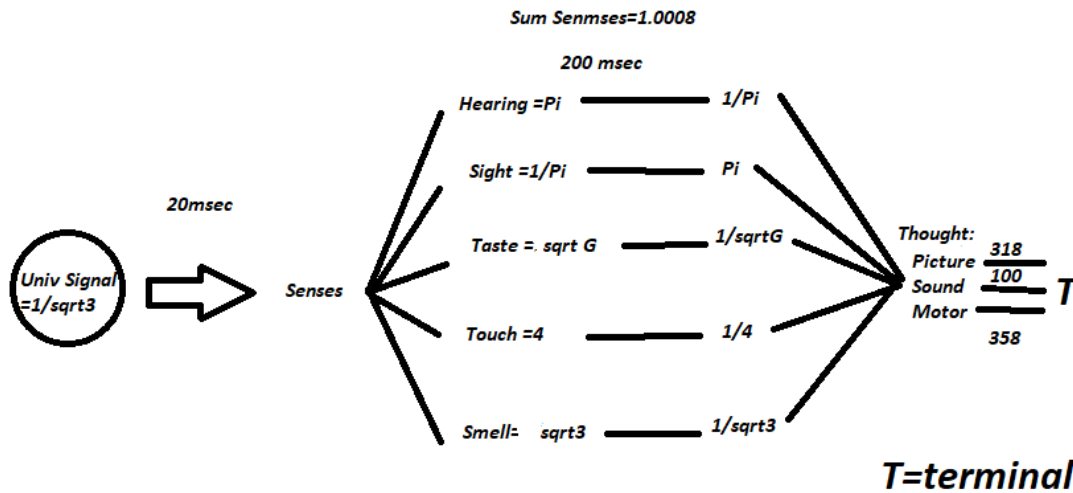


Figure 3. Reaction Times

$$20+200+318=538 \quad \text{Pictures}$$

$$380 \text{ Hz} = \text{Light}$$

$$1-0.380=-0.62=\text{Ln } 0.538$$

$$20+200+100=320 \sim 318=1/\pi \quad \text{Speech}$$

$20+200+358=570=1/\sqrt{3}$ Smell/Memory /Motor

$E=1-\ln(0.538)=1.619\sim 1.6183$ Golden Mean

$t=1/E=0.617\sim 0.618=(-1)=i=j$

$0.020+1+0.200+0.358=157.8=\pi/2=90^\circ$ Real -Imaginary

$V=\sin 60 +j(\pi/2)$

$=0.866+970$

$=183/6$

$1/V=1/183.6=0.5444$

$0.5444/\sqrt{3}=0.31446\sim \pi=1/E=t$

The Senses

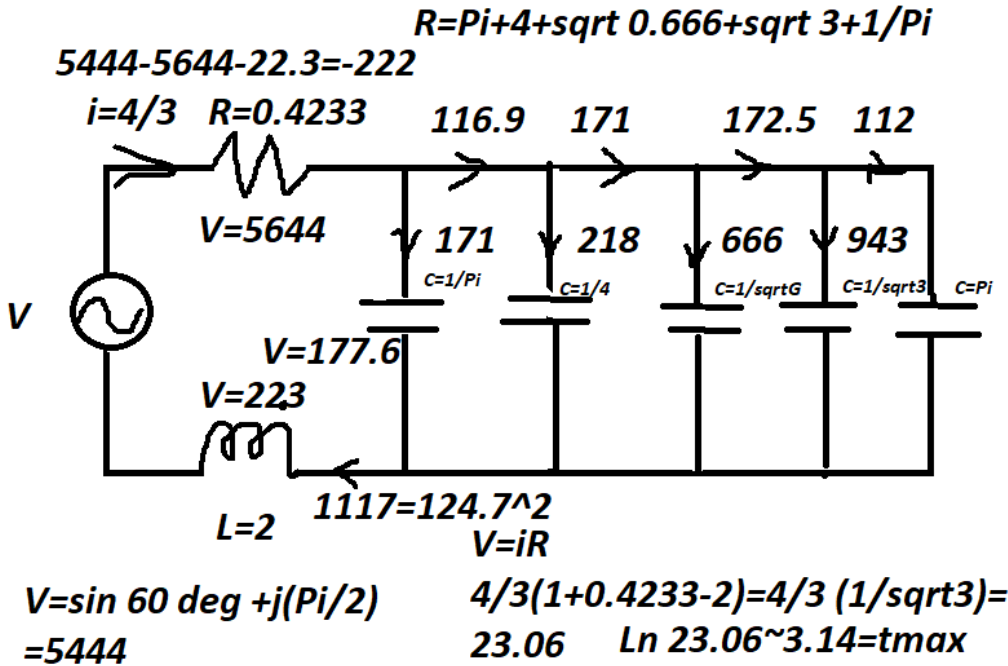


Figure 4. Senses Circuit

Note:

Amps across inductor $=1117=1/c^2$

$P=i^2R$

$1.776=(4/3)^2 \times R$

$R=1$

$=\Sigma$ Senses

Reaction Times:

$1\text{Amp}=1$ Coulomb/sec

$t=1.602/A$

Hearing $1.602/171=93.7+220=314=\pi$

Touch $1.602/218=734+220=954$

Taste $1.602/666=240+220=460$

Smell $1.602/943=170+220=390$

Sight $1.602/1115=144+220=364$

Range of reaction times:

$314\leq t\leq 954$

$\Delta t=(1-\ln t)^{-7}$

$t_{min}=(1-\ln .314)^{-7}$
 $=8857$

$1/t=E=112.8$

$t_{max}=(1-\ln .954)=471$

$1/t=E=21.23$

$\Delta E=112.8-21.23=1350=1/74$

Motor: $220+358=578$ msec= $1/\sqrt{3}$ =Univ.Signal

$E=(1-\ln t)^7$

$t=(1-\ln 578)^{1/7}$

$=1353$ Cf 1350

$E=1/t=1/1350=0.738\sim 74$

$E=73.8=(1-\ln t)^7$

$73.8^{1/7}=(1-\ln t)$

$0.8486=\ln t$

$t=23.365$

$\sim \ln \pi = \text{Mass}$

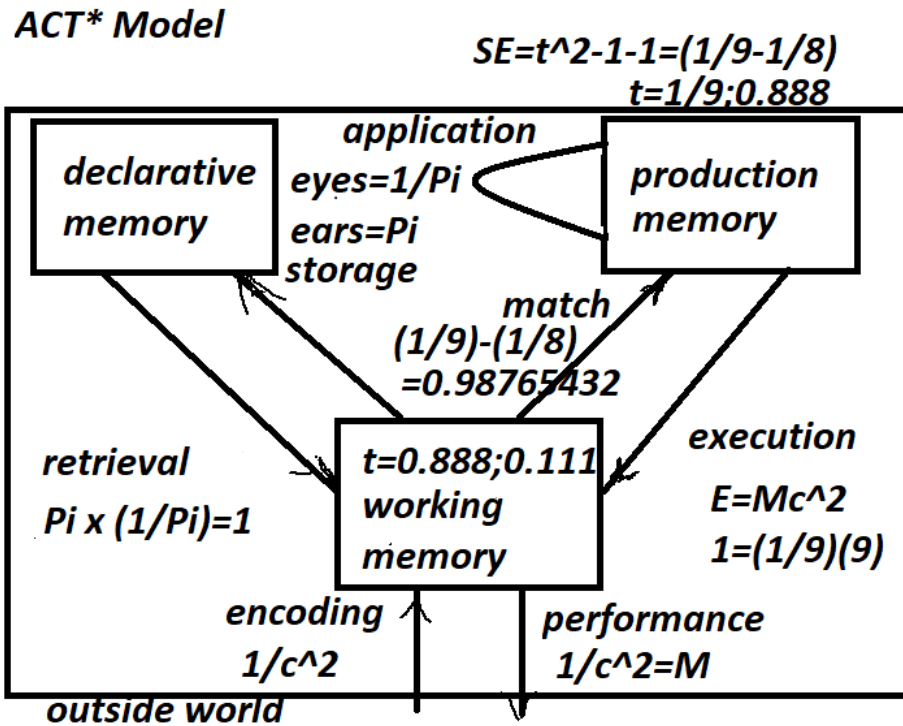


Figure 5. Note: Input and output from the brain is $1/c^2=Mass$

Now for the evolution of human consciousness:

Human Functions=5 Senses

R=1

P=i²R

177=(4/3)²(1)

P=VA

1777=V A

177=V(\$/3)

V=4/3

V=ir

4/3=(4/3)(1)

Universal Circuit:

V=ir

(4/3)(0.4233)=3.14

V=iR

=(4/3)(1/π)=0.4233

V=iR

=(4/3)(2)=8/3

V_T=3.14+0.4244-8/3=89.84=2.997²=c²

Now:

$$R_T = \pi = 1/\pi + 4 + \sqrt{(0.666) + \sqrt{3}} = 1.0008 \sim 1$$

Multiple Drafts of Consciousness= Senses= Consciousness

$$E = (1 - \ln t)^7 = 1 = \sin^2 \theta + \cos^2 \theta$$

t=1

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

$\theta = 45^\circ$

$$E = (1 - \ln 1)^7 = 1 = \sin^2 \theta + \cos^2 \theta = 1$$

$$2 \sin^2 \theta = 1$$

$$\sin \theta = 1/\sqrt{2}$$

$$\theta = 45^\circ$$

$$Mind = (1 - \ln t)^7$$

Let $t = \pi$

$$Mind = (1 - \ln \pi)^7 = 0.000001330$$

1330 = Internal Clock.

Now from the Circuit of the senses:

$$5644 - 5444 = 0200 \text{ msec} = 0.2$$

$$1/0.2 = 5 = E$$

$$SE=SE'$$

$$\Delta E=17/2=0.8493$$

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

$$PE=Mc^2$$

$$\text{Let } t=3$$

$$17/2=Mc^2$$

$$5=5=E$$

$$M=946$$

Consider the input to the Mind as $1/c^2$

$$M=Ln t$$

$$E=Mc^2$$

$$t=257.6$$

$$1=Mc^2$$

Equations of consciousness:

$$M=1/c^2$$

$$\sin^2 \theta + \cos^2 \theta = 1 = t = (1 - Ln t)^7$$

$$1/c^2 = \text{Mass} = 1/0.8982 = 0.1113$$

$$t = 1 - (1 - Ln t)^{-7}$$

$$1/E = Ln t$$

$$1 - 1^7 = 0 = (-Ln t)^{-7}$$

$$E1/E = 946$$

$$0.857^{1/7} = (-Ln t)^{-1/7}$$

$$E = 1057 = (-70 \text{ mV}) + (35 \text{ mV}) = \text{PE of a nerve cell.}$$

$$33.99 = (-Ln t)^{-1}$$

$$1/V = M$$

$$Ln t = -1/33.99 = 294.2$$

$$1/E = Ln t$$

$$E = (1 - Ln t)^7$$

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

$$E = 251.6 = \text{Period T}$$

$$0 = Ln t$$

$$= 1/\text{freq}$$

$$t = 1$$

$$\text{freq} = 1/397 = 1/4 = \text{Touch} \Rightarrow \text{Pleasure and Pain}$$

Now for the reaction time of the senses:

$$E = (1 - Ln t)$$

$$\text{Motor } 338 \text{ msec}$$

$$1 \leq t \leq \pi$$

$$\text{Sight } 318$$

$$E = (1 - Ln 1) = 251.6$$

$$\text{Hearing } 100$$

$$t = 397$$

$$\text{Taste} = 460$$

$$E = (1 - Ln t)$$

$$\text{Touch } 954$$

$$= -0.1447$$

$$\Sigma 2190/5 = 438 = \text{Average.}$$

$$t = 6.31$$

$$20 + 200 + 438 = 658$$

$$\Delta t = 691 - 397 = 294 = \text{Speech Act } 100 + 200 = 300 \text{ msec}$$

Range

The Mind as a magnetic field:

$$t_{\min} = (1 - Ln 0.318)^7 = 589$$

$$L = 2$$

$$t_{\max} = (1 - Ln 0.954)^{7-936}$$

$$Ln 2 = 0.693 \sim 7$$

$$\Delta t = 588$$

$$(1 - Ln 0.294)^{0.693} = \sqrt{3}$$

$$E_{\min} = 1/589 = 16977$$

$$= \text{Smell}$$

$$E_{\max} = 1/936 = 1.0683$$

So we have evolution working on the four F's (Flight Feed, Fight; ; Mate)

Sight =65%
 Taste=17%
 Smell=12%
 Hearing (Language)=6.5%
 Touch =5%
 $65\%+17\%+12\%+6.5\%+5\%=105=(-70+35)mV$
 $Touch = e^{105} = 4 = |D|$
 $Smell = \sqrt{3} = \text{Eigen vector}$
 $\Sigma Senses = 1 = \text{Consciousness}$
 $\Delta V = -70 + 35 = 105mV$
 $V = iR$
 $105.0 = (4/3)(R)$
 $R = 2625 = 1/380 \text{ Hz Light} = 1/\text{Sight} = 1/t$
 $t = \pi \text{ Hearingfreq} = 1/\pi$
 $Taste = \sqrt{0.666} = \sqrt{G}$
 $G = 1/150 = \text{Language group.}$

$\theta = 60^\circ = \pi/3$
 $1/c = 3 = 1/\text{Eigen value}$
 $t^2 - t - 1$
 $= 3^2 - 3 - 1 = 5 \Rightarrow SE = SE'$

- Sight=64% Mate (Sex) (5.1%) ; Feed (16.7%); Flight or Flee (friend or foe)(42.2%)
- Hearing (Language) =65% Feed (16.7%); Mate (5.1%); Fight; Flee (42.2%)
- Taste= 16.7% Feed.
- Smell =12% Taste (Feed)
- Touch =5.1% Mate (Pleasure or pain)

So, we have sight, hearing, touch, smell, and taste- evolved.
 Humans had ape sized brains for 3.5 my

$1/t = E = 286$

$E = (1 - \ln t)^7$
 $286 = (1 - \ln t)^7$
 $286^{1/7} = 1 - \ln t$

$0.1443 = 1 - \ln t$

$t = 2.3065$

$\ln 23.065 = 3.138 \sim \pi \Rightarrow \text{Sight}$

The Human brain increased in size by 4 x's at 2.5 mya

$M = 4$

$K.E. = 1/2 Mv^2$
 $= 1/2(4)(1/\sqrt{2})^2$
 $= 1 = t = E$

$= \sin^2 \theta - \cos^2 \theta = 1 \text{ Consciousness}$

$t/M = 1/4 = 2.5 \text{ mya}$

$KE/M = 1/4 \Rightarrow \text{Touch} \Rightarrow \text{Pleasure vs pain.}$

$t = 6 \text{ mya}$

$E = 1/6 = 1.67 \Rightarrow \text{Taste} \Rightarrow \text{Feed.}$

Language (Hearing) 150,000 ya

$\sqrt{1/G}$
 $= 1/150,000 = 1/t = E$

$E = 6.66 = G$

$t = 10,000 \text{ ya} \Rightarrow \text{Cooking}$
 $E = 1/10,000 = 0.0001$

$12\% \Rightarrow \text{smell} \Rightarrow \sqrt{3}$

$E = 1/\sqrt{3} \times 1/12\% = 20.78$

$E = 1/t = 1/481$

$E = (1 - \ln 0.481)^7$
 $= 146 \sim 150 = 1/G$

Cooking 150,000 ya

So, the equations for Consciousness are Cusack's Consciousness Equations:

1. $E = 1/t = 1 \text{ freq} = 1/\pi$ Sight
2. $\sin^2 \theta + \cos^2 \theta = 1$
3. $\theta = \pi/4$ Hearing/Touch
4. $t = KE = 1/2 Mv^2 = 1$
5. $t = E = (1/t \cdot 1/x) = (1 + \ln t)^7 = 1/G$ Taste
6. $\Sigma Senses = 1 = 0.8275 + 0.1t$ Smell
7. $\lim_{x \rightarrow \infty} \pi(x) / [x / \ln x] = 1$
8. $\Pi Senses = 1 = (1 - \ln t)^7 / (1 - \pi(x) \ln t)$
9. $\Pi Senses / \Sigma Senses = MG$

There are 9 simultaneous equations and 9 unknowns.

Dennett writes on evolution. He cites the third principle of evolution: Differential fitness": the number of copies of an element [HUMANS] that are created In a given time varies [T=0.418] , depending on interactions between the features of that element [CONSCIOUSNESS] (whatever it is that makes it different from other elements) and features of the environment [THE UNIVERSE] in which it persist. [MY ADDITIONS] The equation of consciousness in part is:

$E = (1 - \ln t)$

$1/t = (1 - \ln t)$

$t^{-1} = (1 - \ln t)$

Derivative

$-t^{-2} / -2 = 0 - (1/t)$

$1/2t^2 = 1/t$

$1/2t = 1$

$2t = 1$

$2t - 1 = 0$

Derivative of the golden mean parabola at the minimum. Everything beautiful is the product of the Golden Mean Parabola, from architecture to cooking aroma.

So, $t^2 - t - 1 = 0$

$(\sqrt{3})^2 - \sqrt{3} - 1 = 2.67 = SF = \Pi Senses.$

Now, for the multiple drafts concept of Dennett:

$$E^7=(1-\text{Ln } t)^7$$

$$t=0.418$$

$$(1/t)^7=(1-\text{Ln } t)^7$$

$$E=(1-\text{Ln}0.418)^7$$

$$=1.7298$$

$$(t^{-1})^7=(1-\text{Ln } t)^7$$

$$\sim\sqrt{3}$$

$$7/6(-t^2/2)^6=(0-7/t)^6$$

This is the inverse of the Universal Signal $=1/\sqrt{3}$.

$$7/6(1/2t)^6=1^6$$

Human consciousness evolved to meet its environment.

$$M(2t)^6=1^6$$

Consciousness

$$2Mt-1=0$$

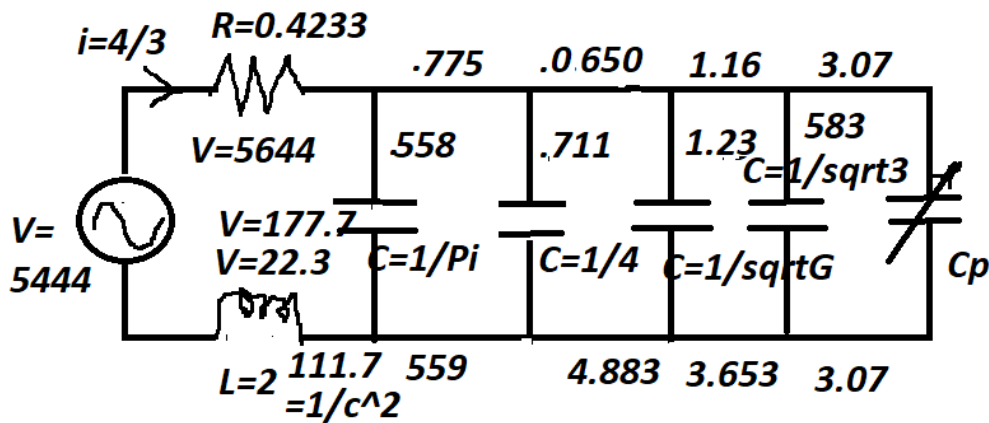
$t=1.618$; $-0.618 t$ cannot be negative. So, $t=1.618$

$$2(7/6)-1=0$$

$$E^7=(1-\text{Ln } 1.618)^7$$

$$2.333t-1=0$$

$$E^7=518^7=1.0007\sim 1$$



$$V=iR \quad 177.7=3.07(R)$$

$$R=57.88 = 1 \text{ rad} \quad 1/\sqrt{3} = \text{Universal Signal}$$

$$C=1/\sqrt{3}$$

Figure 6. Circuit showing plasticity of the brain with the rightmost capacitor.

Note: The current $1/c^2$ is the signal going into the ACT* Model above crossing the Inductor (Mind $L=2$) $y=y' = 2$
 Σ Plasticity + Σ Senses = $1 + 1 = 2 = L = \text{Mind} = y \Rightarrow y=y'$
 $1/c^2 = E/c^2 = M \quad E=Mc^2$
 $1/c^2 = 1/9 = 0.11111111$. These are the nine equations with nine unknowns all equal to one.

Conclusion

We have seen that mathematics applied to Dennett's theory is helpful. The numbers all work to end in the evolution of the sense and consciousness.

References

1. Dennett, DC. Consciousness Explained. Back Bay Books, NY 1991.