

THE MATHEMATICAL IMPOSSIBILITY OF THE THEORY OF EVOLUTION

The Probability of an Event Occurring

My interest in the probability of an event occurring goes back to the days when I sold various insurance policies. The annual amount a person pays for house insurance is calculated after various factors are considered, for instance, the value of the house, the age of the house, whether it is constructed of timber or brick, or is in a high risk flood zone. A good car will cost more than the house to insure because it is exposed to greater risk. If you should also own a good motorbike, it will cost more per dollar value than the car to insure because of the greater risk of damage or theft.

Insurance companies employ a person called an actuary to calculate through statistical and mathematical means the probability of an accident occurring, and the amount that should be charged to the customer for the insurance policy.

It is the belief of this author that life is too complex to come into being by accident, so I will not attempt to calculate the possibility of various components coming together accidentally to create life - I will leave those calculations to the mathematicians who have the belief and the means. It is my aim in this paper to calculate the possibility of a hypothetical, very simple 200 part creature, coming together by accident. But first, we will consider the complexity of earth's simplest creatures.

How Complex is Life?

Professor Ilya Prigogine has this to say about the complexity of the machinery within all organisms which must work correctly in order to sustain life. "But let us have no illusions. If today we look into the situations where the analogy with the life sciences is the most striking - even if we discovered within biological systems some operations distant from the state of equilibrium - our research would still leave us quite unable to grasp the extreme complexity of the simplest of organisms." (Professor and Director of the Physics Department, Universite Libre de Bruxells at the time of his statement).¹

Ernst Chain (world famous biochemist) makes the same point in another way. "I have said for years that speculations about the origin of life lead to no useful purpose as even the simplest living system is far too complex to be understood in terms of the extremely primitive chemistry scientists have used in their attempts to explain the unexplainable that happened billions of years ago. God cannot be explained away by such alive [sic] thoughts."²

There Has to Be A God

"Today, Professor Sir Fred Hoyle, an agnostic of Christian background, and Professor Chandra Wickramasinghe, an atheistic Buddhist, are changed men. They are both believers" [But not true Christian believers].

"It is quite a shock," says Wickramasinghe, Sri Lankan born Professor of Applied Mathematics and Astronomy at University College, Cardiff. "From my earliest training as a scientist, I was very strongly brainwashed to believe that

science cannot be consistent with any kind of deliberate creation. That notion has to be very painfully shed. I am quite uncomfortable in the situation, the state of mind I now find myself in. But there is no logical way out of it.'

"What convinced both men were calculations they each did independently into the mathematical chances of life starting spontaneously. When each had finished, they looked at the answer almost in disbelief. Each found that the odds against the spark of life igniting accidentally on Earth were staggering - in mathematical jargon '10 to the power of 40,000. If you write down the figure '1' and add 40,000 noughts after it, you have the figure.'³ A figure with fifteen zeros is usually considered to be very large.

How Long Does it Take?

Let's do a simple maths exercise. If I had a bowl of alphabetical soup with just the letters A and B floating around on the top in such a way that a different arrangement of letters was formed on the surface every second, so that AB formed in the first second, then BA in the next. I would have to wait just two seconds to cover all of the different possibilities which are AB or BA.

If I enter just one more letter, the letter C. The time needed to go through all of the different combinations would be six seconds. One more letter will increase the time needed to twenty-four seconds.

From the illustration below, it can be seen that as each letter is added, there is a marked increase in the time needed to go through all of the possible combinations.

AB
BA two seconds

ABC
ACB
BAC
BCA
CAB
CBA six seconds

ABCD When the number of letters is increased from three to four, there is a large increase in the number of combinations possible.

ABCD CABD
ACBD CBAD There are twenty-four (24)
ABDC CADB combinations. Therefore
ACDB CBDA twenty-four seconds are
ADBC CDAB required at rate of one per sec.
ADCB CDBA

BACD DABC As can be seen, there are six
BCAD DACB possible combinations following
BADB DBAC each letter, A, B, C and D.
BCDA DBCA
BDAC DCAB
BDCA DCBA

ABCDE	ABCED	ABECD	AEBDC	EABCD
ACBDE	ACBED	ACEBD	AECBD	EACBD
ABDCE	ABDEC	ABECD	AEBDC	EABDC
ACDBE	ACDEB	ACEDB	AECDB	EACDB
ADBCE	ADBEC	ADEBC	AEDBC	EADBC
ADCBE	ADCEB	ADECB	AEDCB	EADCB
BACDE	BACED	BAECD	BEACD	EBACD
BCADE	BCAED	BCEAD	BECAD	EBCAD
BADCE	BADEC	BAEDC	BEADC	EBADC
BCDAE	BCDEA	BCEDA	BECDA	EBCDA
BDACE	BDAEC	BDEAC	BEDAC	EBDAC
BDCAE	DBCEA	BDECA	BEDCA	EBDAC
CABDE	CABED	CAEBD	CEABD	ECABD
CBADE	CBAED	CBEAD	CEBAD	ECBAD
CADBE	CADEB	CAEDB	CEADB	ECADB
CBDAE	CBDEA	CBEDA	CEBDA	ECBDA
CDABE	CDAEB	CDEAB	CEDAB	ECDAB
CDBAE	CDBEA	CDEBA	CEBAE	ECDBA
DABCE	DABEC	DAEBC	DEABC	EDABC
DACBE	DACEB	DAECB	DEACB	EDACB
DBACE	DBAEC	DBEAC	DEBAC	EDBAC
DBCAE	DBCEA	DBECA	DEBCA	EDBCA
DCABE	DCAEB	DCEAB	DECAB	EDCAB
DCBAE	DCBEA	DCEBA	DECBA	EDCBA

It will take 120 seconds (five times the previous number) to go through all of the above 120 combinations of the five letters ABCDE.

If the letter F is added, the time taken to go through all of the combination of letters will increase to 720 seconds. When the letter G is added, the time increases to 5,040 seconds. With each additional letter, you multiply the previous result by the new number of letters. To calculate the time need to go through all of the combination of letters when the letter H is added (total of eight letters), you multiply 5,040 seconds by eight, which gives 40,320 seconds.

See the table below, the first column is the number of letters used:

2	2 seconds
3	6 seconds
4	24
5	120
6	720
7	5,040
8	40,320
9	362,880
10	3,628,800
11	39,916,800
12	479,001,600
13	6,227,020,800
14	8,717,829,120
15	1,307,674,368,000
16	20,922,789,888,000
17	355,689,428,096,000
18	6,402,373,705,728,000
19	121,645,100,408,832,000
20	2,432,902,008,176,640,000 Seconds with twenty letters.

As there are 31,556,925 seconds in a year, it would take more than 77 billion years (77,095,661,512 years) to go

through all of the combination of letters.

“Modern research by NASA has demonstrated that the most basic type of protein molecule that could be classified living is composed of at least 400 linked amino acids”⁴

Now lets consider the chance of producing life with just 200 parts, half the above number. Even with this very small number of parts, it would take a staggering 788,657,867,364,791x10³⁶⁰ seconds (After the number 1 in 791, we must add 360 zeros) to try all of the possible combinations. We will round the above number down to 788x10³⁷² seconds.

How many combinations can we get through in the time the universe has been in existence?

Evolutionists put the age of the universe at around 30 billion years. That is 9.46x10¹⁷ seconds. We will round that number up to 10¹⁸ seconds. In 30 billion years, we will get through 10¹⁸ combinations of letters at the rate of one new combination per second. But we need to go through 788x10³⁷² combinations. So let's speed things up a bit.

There are 10⁸⁰ electrons in the universe - larger than the number of atoms. By way of illustration, we will use this number as the maximum number of parts to work with. Now let's divide all of the electrons in the universe into groups of 200. This will give us 5x10⁷⁷ groups to work with. This means we can get through all of the possible combinations 5x10⁷⁷ times faster. However, even with this unrealistic situation, we can only get through 10¹⁸ x 5x10⁷⁷ = 5x10⁹⁵ combinations. Well short of the number we need to get through. So let's speed things up further. We will increase the speed of change throughout the whole universe from one trial per second, to one billion per second. Also, we will increase our time limit from 30 billion years, to 300 billion years.

300 billion years	10^{19}	seconds
Trials per second	10^9	
Electrons /200	5×10^{77}	groups of 200
Total trials	5×10^{105}	

Even when we work at the staggering rate of one billion trials per second throughout the whole universe for a period of 300 billion years, we can only achieve 5×10^{105} combinations. That is well short of the 788×10^{372} combinations needed to be sure that we can arrive at the correct combination to start our very simple form of life. In fact, impossibly simple at just 200 pieces.

Earth to star line

Let's draw an imaginary progress line to visualise how far we have gone with all of the electrons in the universe changing position one billion times per second for 300 billion years. We will use a very long line, it will extend from the earth to the nearest star, Alpha Centauri (or Proxima Centauri) which is situated 4.3 light-years from the earth. Light travels in a vacuum at 299,792,458 metres per second. We will round this number up to 300×10^6 metres per second.

There are 31,556,925 seconds in a year. In 4.3 years, 135,694,777 seconds. We will round that number up to 136×10^6 seconds. The length of our line will be 136×10^6 seconds \times 300×10^6 metres = 408×10^{14} metres. Because we have rounded up both numbers, this has the effect of extending the line just beyond the star Alpha Centauri. To travel the length of our line (408×10^{14} metres) in 4.3 years or less, we need to have a velocity of at least 300,000 kilometres (300×10^6 metres) per second.

Length of line

408×10^{11} kilometres
 408×10^{14} metres
 408×10^{17} millimetres
 408×10^{20} microns

Distance travelled on progress line

To calculate the fraction of the distance along the line that we have moved, we need to divide the number of combinations completed 5×10^{105} , by the number of combinations we need to complete the task, 788×10^{372} which represents the end of the line at 408×10^{20} microns.

In summary:

1 divided by 788×10^{372} ($1 / 788 \times 10^{372}$) = the beginning of our journey along the line.

788×10^{372} divided by $788 \times 10^{372} = 1$, the end of the line at 408×10^{20} microns.

Please note from the table below that as each number of trials is reduced by one tenth, our position along the line is also reduced by one tenth.

No. of trials	Position on line	Exp.
788×10^{372}	End of line	
394×10^{372}	half way	
788×10^{371}	one tenth	10^1
788×10^{370}	one hundredth	10^2
788×10^{369}	one thousandth	10^3
788×10^{368}	one ten thousandth	10^4

788×10^{367}	one hundred thousandth	10^5
788×10^{366}	one millionth	10^6

Please grab the electron microscope!

As can be seen from the above, 788×10^{366} completed combinations is just one millionth of the combinations that we are aiming to achieve. But we have completed only 5×10^{105} combinations. Let's increase this number for the benefit of the evolutionist and to simplify our next calculation to 788×10^{105} .

Our calculation is 788×10^{105} divided by 788×10^{372} which equals $1/788 \times 10^{267}$ as the fraction of the distance along the line. The bigger the exponential number, the smaller the fraction or distance along the line.

If we continue the table above we have:

No. of trials	Position on line	Exponential
788×10^{366}	one millionth	10^6
788×10^{365}	one ten millionth	10^7
788×10^{105}	?	10^{267}

With a fraction less than $1/10^{20}$, the distance covered is less than a micron, which is one thousandth of a millimetre, but the fraction we have is $1/10^{267}$. That means that with all of the electrons in the universe moving at the rate of a billion trials per second for 300 billion years, we have not moved beyond one atom on our astronomically long line. We must also consider the fact that a 200 part system is ridiculously simple in comparison to the simplest of living organisms.

The step-by-step method

Let's consider the chance of putting our simple 200 part system together in the correct order through a step-by-step approach. Unfortunately for the evolutionist, this only makes matters worse. The calculation used to arrive at the possible number of combinations through this step-by-step approach is as follows:

$2!+3!+4!+5!+6! \dots + 200!$

That is: $2+6+24+120+720+5,040+40,320+362,880+3,628,800+39,916,800 \dots +200!$

From the above, we can see that after just ten steps, we will arrived at the number 43,954,712. With the more straightforward approach, the number arrived at with ten different letters is: 3,628,800.

The symbol "!" represents factorial. The factorial of each number must be added up all of the way through to the number 200. Obviously we will arrive at a number much larger than 788×10^{372} .

Reproduction

Hopefully by now, it will be understood that even a hypothetically simple form of life can not come into existence by chance random processes. But for the sake of the few diehards, we will persist with our hypothetical simple bug. Let's take a giant leap of faith and say that after 600 billion years, we finally have our simple form of life. That is well short of the time needed to go through all of the combinations as explained earlier. Another problem for the evolutionist is the fact that in less than 100 billion years, all

of the stars in the universe will run out of fuel and die. Without the intervention of God, our star, the sun, will remain in its present condition for only 5 billion years before expanding and dying.⁵ But let's ignore this problem; we have our bug (simple 200 part form of life) in just 600 billion years. Because it is a simple form of life, it can not reproduce. Reproduction is very complicated requiring many thousands of pieces in the correct order before it will work. To help the evolutionist, our bug will have a very simple form of reproduction. If the reproduction mechanism were simply a matter of a couple of letters being in the correct order, such as AB or BA, then we would have reproduction after just two bugs have come into existence. On the law of averages, the first bug would fail, and the second bug would succeed in producing offspring. If reproduction requires ten parts, then we would go through 3.6 million bugs before we could come up with a successful bug which had the ability to reproduce.

We will limit the number of pieces in the reproduction system of our bug to just 200. We now proceed as follows with many concessions in favour of the evolutionist:

- We divide all of the electrons in the universe into groups of 200
- All of the electrons in the universe change position at a rate of one billion trials per second
- After 600 billion years, we allow that a bug is formed.
- The first bug fails to reproduce, so the above situation is continually repeated.
- After the required number of trials, a bug succeeds in reproducing.

The number of trials

The number of trials or failed bugs that we would need to go through with our simple 200 part reproduction system can be mathematically worked out to be 788×10^{372} - as explained earlier. That's 788 with 372 zeros after it.

Life can not overcome such staggering odds. We have not even considered plant life in which we could use the above maths model to explain the impossibility of its coming into existence by chance anywhere in the entire universe.

The complexity of the DNA molecule

All of life, from the very simplest, to the human being, is a wonder of God's creation. Let's consider the amazing complexity of the DNA molecule. "DNA contains its information in the sequence of four chemical compounds known as nucleotides, abbreviated C,G,A,T. Groups of three of these at a time are 'read' by complex translation machinery in the cell to determine the sequence of 20 different types of amino acids to be incorporated into proteins. The human DNA has some three billion nucleotides in sequence. ... The amount of information in the three billion base pairs in the DNA in every human cell has been estimated to be equivalent to that in 1,000 books of 500 pages."⁶

We don't find mathematical support for the spontaneous generation of life through various chemicals accidentally bumping into each other. However, we do find mathematical support for the biblical claim that man has been on the earth

for less than 10,000 years.

The population of the world

In the year 1 AD the population of the world was 138 million according to the *World Book Encyclopedia*.⁷ Figures vary. *World History Atlas* puts the figure at 250 million.⁸ The *Encyclopedia Britannica* puts the figure at 300 million.⁹

If there were 300 million people on earth at the time of Christ, this requires a population growth rate of only 0.75% since the great Flood at around 2,500 BC when eight people emerged from the ark. That's a doubling in population every 92 years. Dr. Don Batten makes the following point. "What if people had been around for one million years? Evolutionists claim that mankind evolved from apes about a million years ago. If the population had grown at just 0.01% per year since then (doubling only every 7,000 years), there could be 10^{43} people today - that's a number with 43 zeros after it."¹⁰ There are not enough human remains to indicate that man has been on the earth for one million years.

For more information on how maths and science are compatible with the Bible, go to:

www.creationontheweb.com Enter the word "population" in the search box for more information on that subject.

End Notes

1. 'Can thermodynamics explain biological order?', *Impact of Science on Society*, vol. 23 (3), 1973, p.178. (From "*The Revised Quote Book*", Creation Science Foundation, 1990, p. 6).
2. As quoted by R.W. Clark, in *The Life of Ernst Chain: Penicillin and Beyond*, Weidenfeld & Nicolson, London, 1985, p.145. (From "*The Revised Quote Book*", Creation Science Foundation, 1990, p. 6).
3. "*Sunday Mail*", 20 September 1981.
4. Dr Scott M. Huse, "*The Collapse of Evolution*", Baker Book House, 1993, p. 88.
5. Sun, "*World Book Encyclopedia*", CD, 1997.
6. "*Creation Ex Nihilo*", Dec. 1996, p. 21, 22.
7. World, "*World Book Encyclopedia*, Chicago, 1974, Vol. 21, p. 344f.
8. *World History Atlas*, Dorling Kindersley, London, 2nd Ed., 2005, p. 42.
9. Trends in World Population, "*Encyclopaedia Britannica*", CD 2000
10. Don Batten, B.Sc.Agr. (Hons), Ph.D. "*Creation*", June-August 2001, p. 52-55.

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The Privileged Planet

A thoroughly researched DVD titled "*The Privileged Planet*" is causing some controversy because it is exposing just how well tuned the universe is. Upset just one of more than twenty settings and life as we know it would cease to exist.

In recent months, various arguments have been put forward to rescue the "*We got here by accident*" story. One tactic is to reveal other amazing coincidences, such as the coincidences between the lives of Lincoln and Kennedy. This is an argument which won't stand up to close scrutiny. Firstly, let's look at the coincidences:

1. Abraham Lincoln was elected to congress in 1846. John F. Kennedy was elected to congress in 1946.
2. Lincoln was elected President in 1860, Kennedy in 1960.
3. Both of their last names have seven letters.
* Not exactly staggering odds. Most surnames are in the range of five to eight letters.
4. Both of their wives experienced the loss of a child in the White House.
* In the time of Abraham Lincoln, the loss of a child was not rare.
5. Both were shot in the head on a Friday.
* There are only seven days in the week, so this is not exactly thousands to one odds.
6. Both were assassinated by Southerners and succeeded by Southerners.
7. Lincoln was succeeded by Andrew Johnson, who was born in 1808. Kennedy was succeeded by Lyndon Johnson, who was born in 1908.
8. Lincoln's assassin, John Wilkes Booth, has 15 letters in his name. Kennedy's assassin, Lee Harvey Oswald, has 15 letters in his name.
* Fifteen letters is in the range of most people.
9. Both assassins were known by three names. Booth was born in 1839, Oswald in 1939.
* No, Booth was actually born on 10 May 1838.

As there have been many amazing coincidences in the past, why not accept that it is simply an amazing coincidence that the laws of the universe are just right for our existence?

Rebuttal of argument

The list of coincidences between the above two men is certainly impressive. Part of the list is not all that surprising, such as the full name, or at least just the surname having the same number of letters. However, there are other parts of the list that are impressive. For instance, both men were elected president in the same year of their century. 1860 for Lincoln and 1960 for Kennedy. The chance that this event could happen accidentally if only two men had been elected president throughout the whole history of the United States is one in one hundred. Obviously, the greater the number of presidents, the greater the chances that a president will have events that match those of another president in a long list to choose from.

Now let's do a little maths to calculate the odds against the above list of events happening. To avoid overly complicating the calculation, I will concentrate on the string of events that have the one hundred to one odds. However, to make the coincidences more remarkable, they will occur on exactly the same day in the following century. For instance, Lincoln and Kennedy are elected to congress on the 87th day of the year. Also, I will ignore the fact

that the United States has had more than forty presidents which will greatly effect the calculation in favour of the evolutionist. Furthermore, I will add one more event for good measure.

In our hypothetical situation

- Lincoln and Kennedy are elected to congress on the 87th day of the year.
- Lincoln and Kennedy are both elected president on 112th day of the year.
- Their successors are born on 328th day of the year.
- Their assassins were born on 289th day of the year.

In the above situation we have four events going against odds of 365 to one. The odds against all four of the above being fulfilled are:

17,748,900,625 approximately 17×10^9

When we compare the above figure with the odds against the conditions for sophisticated life being right on earth through chance random processes, then we quickly see that the above figure is not in the same league. It is like comparing a snail with a limp against a hypersonic rocket. The benchmark I personally look for in large figures is fifteen zeroes. The above figure is well short of the benchmark, while the conservative *Privileged Planet* figure is well above with twenty zeroes.

Paul Davies

Paul Davies, who does not profess to be a Christian, is confronted by the apparent design of the universe. He asks the reader to imagine being in control of a machine which sets the different parameters for the universe. "One knob controls the strength of gravity, a lever varies the mass of all electrons, yet another dial fixes the number of spatial dimensions, and so on. It turns out that to set the variables for the universe we see today, you need to adjust the position of about 30-something knobs, and everything else follows from them. And here's the rub. Change just a few of the settings (or 'parameter values' to use the jargon) even an infinitesimal amount, and there would be nobody around to witness the result. Unless the settings are unerringly close to their present values, we'd have no universe, no life and certainly no humans." (Paul Davies, *Cosmos*, Issue 14, April/May 2007, p. 48).

Paul Davies is the director of *Beyond*. The Centre for Fundamental Concepts in Science at Arizona State University, a member of the *Cosmos* Editorial Advisory Board and author of *The Goldilocks Enigma*.

Some scientists do not want to come to the conclusion that God designed and created the universe. They prefer the view that us humans got here through chance random processes. One way to rescue their view is to imagine that there are billions of universes and that ours just happened to be lucky enough to have the right settings to support life.

The study of science points to God, but science can not overcome the sin nature of man. Man loves darkness more than the light (John 3:19-20). There is enough evidence in nature to show that God created all things (Romans 1:20). With that quiet evidence, God calls upon mankind to seek him. With that quiet evidence, God also allows mankind to rebel and go his own way. One day the quiet evidence will be replaced by a loud evidence of his existence, but on that day it will be too late.

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