Chapter 2

No Mathematics, No Life

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ABSTRACT

Mathematics appears to be a particularly dreaded subject in our schools. The majority of individuals, regardless of age or gender, believe they have no connection with Mathematics. In some households, it is viewed as a subject meant only for those courting mental derailment. Consequently, they vow that neither they nor their descendants will ever engage with the subject. This phobia seems to have been handed down from generation to generation. Thus, the necessity has emerged to enlighten people that no one leads a life entirely devoid of Mathematics, as it is a subject applied, knowingly or unknowingly, from the womb to the tomb.

Keywords: Mathematics, Life, Practice, Knowingly, Unknowingly.

INTRODUCTION

The title of this paper, "No Mathematics, No Life," might seem peculiar at first glance. You may find yourself pondering questions such as "What does Mathematics have to do with my way of life?" or "How is my lifestyle influenced by Mathematics?" However, considering that life begins from the ovary—a shape that follows a geometrical function—as fertilized by one of the spermatozoa, which moves in accordance with a fluid dynamics theory, and ultimately culminates in a cuboid grave, it's clear that our entrance into, existence within, and exit from life are all governed by natural mathematical codes, designs, and executions. In the book of Genesis, God is described as organizing the world by creating everything in specific shapes, combinations of shapes, and with precise angles and

sizes, laying the foundations for Geometry and Trigonometry. Proverbs 8:27 provides further insight, stating, "when He prepared the heavens,...when He set a compass upon the face of the depth..." indicating that the creation of the universe began with construction. Thus, "No Mathematics, No Life." This paper explores various life stages and the mathematical concepts that silently dictate their processes.

MATHEMATICS

For the purpose of this discussion, we need not to deeply probe into the various definitions of Mathematics as proposed by different scholars, especially given the subject's broad scope. Instead, we will reference some authoritative works to summarise the branches of Mathematics and their categorisation.

The Oxford English Dictionary (1933) describes Mathematics as the abstract science that deductively examines the conclusions inherent in basic spatial and numerical relations, encompassing major divisions such as geometry, arithmetic, and algebra. The American Heritage Dictionary (2000) views Mathematics as the study of measurement, properties, and relationships of quantities and sets, employing numbers and symbols. Meanwhile, the Encyclopedia Britannica (2006) defines Mathematics as the science of structure, order, and relation, emerging from basic activities of counting, measuring, and describing object shapes.

Ajala (2020) concisely defines Mathematics as the study of numbers, shapes, and patterns, and together with Olayiwola (2020), categorises its branches into Number Theory (the study of quantities), Algebra (the study of structures), Geometry (the study of spaces), Analysis (the study of changes), Statistics (the study of decision making and planning), Topology (the study of lines and contours), among others. It is no surprise then that Arthur Gittleman (1975) noted Plato's observation of the timelessness of geometric forms and numerical relations, famously stating, "Let him who is ignorant of geometry enter not my door."

THE WOMB (THE FIRST ABODE OF A HUMAN IN THE WORLD)

The Oxford English Dictionary (1933) defines "womb" as 'the organ in the lower body of a woman or female mammal where offspring are conceived and gestate before birth,' while the Cambridge English Dictionary (2022) offers a similar definition, referring to the womb as 'the organ in the body of a woman or other female mammal in which a baby develops before birth'. Clearly, the womb is a sphere-like geometric enclave that houses the child prior to their arrival on Earth, which is also said to be spherical in shape geographically.

THE TOMB (THE LAST ABODE OF HUMAN IN THE WORLD)

Wikipedia describes a tomb as 'a large vault, typically an underground one, for burying the dead; an enclosure for a corpse cut in the earth or in rock', whereas the Collins English Dictionary 2022 defines a tomb as 'a large grave that is above ground and that usually has a sculpture or other decoration on it'. Regardless of its position above or below ground, a tomb represents another geometric shape, akin to a cuboid, that houses a person's body as they depart from this world.

COMING TO LIFE

It is pertinent to note that everyone reading this paper must have been the product of certain actions. We also note that every action in life follows after a particular function in the process of time. There is never a product of actions that is called sudden. It is a common statement on everyone's lips that time as money must be wisely spent. That statement as buttressed by the Bible, stating that 'To everything there is a season, and a time to every purpose under heaven: A time to be born, and ...; a time to keep silence, and a time to speak'... (Eccl. 3: 1-8) explains that we are here right now because it is time to speak. Indeed, human existence and his actions imply that Life (L)

is a function of time (f(t)). All the things happening here today are products of certain actions taken over a period of time. That is $\{L = f(t)\}$ and that the rate of man's growth or development (positively or negatively) is with respect to time.

Right from conception, when the fluid accessed the egg, developing with respect to time, eventually arriving this world through a spherical vehicle called pregnancy, implies that man's journey to this world follows after a geometrical function of the equation $(x-a)^2+(y-b)^2+(z-c)^2=r^2$, called a sphere. Here, (a, b, c) represents the center of the sphere, r represents the radius, and x, y, and z are the coordinates of the points on the surface of the sphere.

EXISTING IN LIFE

Even after birth, the little baby begins to grow unnoticeably per microsecond.

Now, if the growth of a baby (before and after birth) depends on several factors such as air **A**, nutrition **N**, environmental conduciveness **E**, parental care **P**, as well as time **t**. Hence, mathematically speaking, the growth rate in life, **L**, of a child is a function of several variables. That is $L = f(A, N, E, P, ..., t)$.

But then, the variable **t** is the only constant one as all other variables become available according to how nature allows. Hence, we observe that the growth of man is more of a partial variation, since the growth is partly constant and partly varies as functions of other necessities of life.

However, assuming that all other variables are normally distributed (statistically speaking), then, man's growth in life depends only on the non-doctorable variable time. That is $L = f(t)$.

Now, since there is nothing like sudden growth, sudden death, sudden success, sudden failure, etc, and everything happens in installments, we note that every passing second contributes to man's life bit by bit.

To determine rate of achievement of man, we note that

$$L = f(t)$$

$$\Rightarrow \quad L + \delta L = f(t + \delta t)$$

$$\delta L = f(t + \delta t) - L$$

Hence, $\delta L = f(t + \delta t) - f(t)$

Dividing both sides by the small change in time, δt,

We have $\dfrac{\delta L}{\delta t} = \dfrac{f(t + \delta t) - f(t)}{\delta t}$

Now, since life's growth L may be measured in years, months, weeks, days, hours, minutes, seconds, micro-seconds, etc., we note that the time measurement tends to zero.

We therefore take the limit thus:

$$\lim_{\delta t \to 0} \frac{\delta L}{\delta t} = \lim_{\delta t \to 0} \frac{f(t + \delta t) - f(t)}{\delta t}$$

Thus, $\dfrac{dL}{dt} = f^{1}(t)$ whose value depends on the initial function $f(t)$

This determines the rate of development with respect to time; and it has implications on every facet of a man's life as he grows and dies. So, the celebration of my birthday is actually a way of rejoicing that I am dying gradually with respect to time.

HUMAN PHYSICAL COMPONENTS

Brethren in Mathematics, as you sit in various geometrical postures, you will notice that your design incorporates a variety of shapes and angles, mirroring the divine craftsmanship whereby everything created by God features distinct shapes or combinations thereof, interconnected at precise angles and proportions.

Consider the linear nature of your hair, the spherical form of your skull and eyes, the conical shape of your nostrils, and the cylindrical pathway from your neck to your anus. Your movements, whether walking or eating, mimic the principle of an oscillating simple pendulum, while the tonal variations in your speech follow trigonometric functions as they ascend

and descend, akin to the angles of your body. This demonstrates that our creation and existence are deeply rooted in mathematical principles and geometrical functions. It is no surprise, then, that mankind has never achieved—and never will achieve—anything devoid of a mathematical essence.

HUMAN ENDEAVOURS (FEW EXAMPLES)

Upon entering the world, humans continue to exhibit their mathematical genius, reasoning critically before acting to avoid the label of thoughtlessness. Every individual inherently incorporates mathematical precision in their actions.

Due to time constraints, we will explore a few significant life activities and their mathematical underpinnings

MARRIAGE

One such activity is the Mathematics of marriage, in which individuals, at the appropriate age, identify themselves as major/minor fractions in search of their missing halves, as any unmarried person is essentially a fraction of their whole self. It is important for religious leaders to reconsider the notion that the Mathematics of God is '1+1=1' and instead understand it as 'major fraction + minor fraction = 1', aligning with Malachi 2:15's concept of the 'residue of the spirit'.

Considering that the number of elements in a man is M and in a woman is W, with W elements derived from the man to create the woman, Adam remained a fraction M–W of his whole self M, and the woman became a fraction W out of M during creation. At that instance, the separate components remained as:

the $Man = \frac{M - W}{M}$ components and the $Woman = \frac{W}{M}$ components.

This accounts for why every young man, at a certain stage of life, starts to nurse the ambition of seeking for his fractional part; and every young woman begins to look for her missing fraction. She begins to take the title ‘Miss’

because she observes that she is missing and there is someone somewhere looking for her. Eventually, when the fraction man finds his missing part and they come together, they are joined together by nature to become whole again, and the Bible calls her “Residue of the Spirit”.
Since both were fractions before coming together to make a whole, the true Mathematics of Marriage becomes

$$Man + Woman = \frac{M - W}{M} + \frac{W}{M}$$

From our primary school addition of fractions where the **l.c.m.** is **M**, we have

$$Man + Woman = \frac{(M - W) + W}{M}$$

$$= \frac{M - W + W}{M} \quad = \frac{M}{M} \quad = 1$$ (mathematical symbol of unity)

The issue of disunity in marriage is also mathematical, and that discussion may be scheduled for another day.
Further mathematical and statistical principles such as Set Theory, Binary Relations, and Exact Equations (echoing Amos 3:3's "can two walk together except they be agreed?") also apply to marriage. These discussions, while reserved for future conversations or forums, highlight how even the institution of marriage is fundamentally based on mathematical concepts.

ELEMENTARY FINANCE

Apart from the standard practice of utilizing a simple price index by both buyers and sellers in our local markets to compare the prices of commodities with a certain year as the base year, we also heed the advice of Christ Jesus in Luke 14:28-30, which urges us to assess our financial capacity before commencing any project. This is to avoid adopting a lifestyle akin to the principle of an **improper fraction**, a familiar concept from primary school mathematics. However, the principle of an improper fraction extends beyond merely having a numerator larger than the denominator, as seen in basic fractions. It serves as a caution against undertaking tasks beyond our capabilities, thereby preventing physical, spiritual, moral, and financial exhaustion. This is analogous to placing 9-

inch bricks atop 6-inch bricks or expecting a Volkswagen car to transport a tipper lorry, akin to planning to spend N900 out of an income of N200.

RELIGION

Dear brethren, allow me to present two statistical examples. When you consult a herbalist for divination and he casts 5 cowries (similar to flipping a coin to see if it lands heads or tails up), and 4 of them land face up, he confidently assures you that your issue is resolved. This confidence stems from the probability that your problem is solvable being high ($\frac{4}{5}=0.8$), conversely, if only 1 lands face up ($\frac{1}{5}=0.2$), he proceeds with caution, indicating a challenging situation that might be deemed irredeemable. In such cases, he might suggest sacrifices to appease the unseen forces. This demonstrates that even herbalists employ Mathematics in their practices.

Aside from the precise arithmetic calculations required for Tithes or Zakat, which are notably collected in containers of geometric shapes, consider the impactful sermons delivered by Church priests or Imams on the theme of unwavering faith in God. They often recount how biblical and Quranic figures like Abraham, Isaac, Jacob, Joseph, Enoch, and David demonstrated their faith in God, prayed, and consequently saw their problems resolved and challenges overcome. From a statistical viewpoint, citing these names constitutes Data Collection (specifically, secondary data), with each name representing an element of the set

Here, $P=\{persons\ who\ believed\ and\ overcame\}$

$=\{Abraham,\ Isaac,\ Jacob,\ Joseph,\ David\}$

The priest/Imam will go on to say if you also believe like they did, your case will be settled.

This is a probability of certainty: 5 people believed, 5 people overcame.

$$\Pr(believe, overcame)=\frac{5}{5}=1\ (\text{probability of certainty})$$

Therefore, if you also hold firm in your belief, the probability that your problems will be resolved is certain. This principle has consistently proven effective for all believers.

As a priest, when we prompt you to shout "Hallelujah," you respond enthusiastically, raising your hands and tracing graphs in the air with your gestures.

THE KEY TO EVERY FIELD

Permit me to assert that no field of life can operate devoid of Mathematics, whether applied consciously or unconsciously, indigenous or foreign. Accounting, Banking, and Business necessitate a profound understanding of Statistics; Computer Science originated with Binary Numbers; the Biological, Chemical, and Physical Sciences demand knowledge of Data Analysis and precise Measurement; Education Researchers must be proficient in Statistics; Engineering and Technology disciplines of ALL kinds require an extensive comprehension of various Mathematical methods; Fine Artists and Designers engage in Topology (the study of contours) perhaps without realizing it; Geographers, Geologists, and Demographers all depend on Statistics and Differential Equations; Historians essentially function as analysts, drawing inferences from existing data; those in International Relations unconsciously apply Exact equations and the principle of Integrating Factors; the Judiciary system is underpinned by Logic; Medical professionals extensively utilize Biostatistics; Musicians visually represent their work through graphs reflecting the amplitude of tones; individuals in religious studies use Probability Theories for predictions often referred to as prophecies; while linguists deal with Linguistic Mathematics, as discussed by Kracht (2003) from the Department of Linguistics at the University of California, Los Angeles, in his work on what he terms the Algebra of Structural Terms. It's noteworthy that every language possesses a unique system of numeration. To illustrate, consider how the year 2022 is expressed in various Nigerian languages:

Yoruba: Eeji le l'Okoo (Ogun) le l'egbewa (Igba mewa) {2 + 20 + (200 x 10)}
Hausa: Dubu biyu da ashirin da biyu {(1000 x 2) + 20 +2}
Igbo: Puku Abuo na iri abuo na abuo {(1000 x 2) + (10 x 2) + 2}
Brethren, our 'Adeyemi Federal University of Education'
= 'Adeyemi'+'Federal'+'University'+'of'+'Education'
'Adeyemi Federal University' - 'Adeyemi' - 'Federal' = University (without identity).
In the basics of coding, we may write 'Adeyemi Federal University of Education' numerically as:
1.4.5.25.5.13.9 6.5.4.5.18.1.12 21.14.9.22.5.18.19.9.20.25 15.6
5.4.21.3.1.20.9.15.14

EXITING LIFE

Brethren, each person's departure from this life, commonly referred to as death, is essentially a form of geometrical transformation. It's important to recognize that the essence of what makes you a human being, often termed the 'soul', does not cease to exist. This concept aligns with the teachings of the Pythagorean brothers, as noted by Gittleman (1975), and is biblically supported by the passage, "...the spirit shall return unto God who gave it" (Ecclesiastes 12:7).

Recall that Genesis 2:7 describes how God breathed the breath of life into man after forming him from the dust of the ground, at which point man became a living soul. What we perceive as death is merely the geometric form that houses the soul undergoing demolition or transformation into another shape, expanding or contracting, and adopting a new dimension.

As we depart from our spherical Earth, this transformed geometry is typically encased in a cuboidal structure known as a coffin, which is then placed within a similarly shaped excavation in the soil and covered to form what resembles a rectangular-based pyramid. During the farewell, people deliver speeches, subtly reminding us that we arrived in this world governed by mathematical principles, and in accordance with these same principles, we take our leave.

PHOBIA OF LIFE

Dear Reader, the aforementioned discussion suggests that your journey with Mathematics begins in the spherical womb and concludes only as you enter the rectangular tomb or cuboid. Thus, the apprehension often associated with Mathematics mirrors the fear encountered in solving life's various problems. Every problem in life is governed by a mathematical principle and, consequently, has a solution.

MATHEMATICS IS LIFE

From the foregoing, you see that Mathematics is contained in You.

That is $Maths \subseteq You$ (i)

and You are contained in Mathematics (since geometrically structured).

That is $You \subseteq Maths$ (ii)

From equations (i) and (ii),

Then, $You = Maths$ (a)

You are equal to Mathematics.

Also, you are alive because you are in life

That is $You \subseteq Life$ (iii)

and you are alive because life is in you.

That is $Life \subseteq You$ (iv)

Considering equations (iii) and (iv),

Then, $You = Life$ (b)

Now, from equations (a) and (b),

$You = Maths$ (a)

$You = Life$ (b)

From the LHS of (a) and (b), You are equal to You.

i.e. $You = You$ (c)

substituting the RHS of (a) and (b) in (c), we have

$Maths = Life$ (d)

Equation (d) proves the Theme right:
Therefore, Mathematics is Life
And so, No Mathematics, No Life (QED)

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