Vacuum Calculation Burden of Proof

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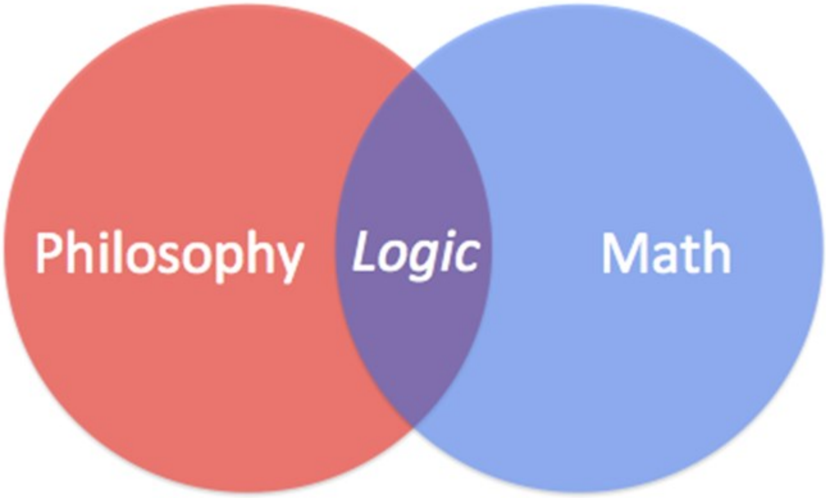
ABSTRACT

Burden of proof is the obligation on somebody presenting a new idea (a claim) to provide evidence to support its truth (a warrant). Once evidence has been presented, it is up to any opposing "side" to prove the evidence presented is not adequate.

The document is about solving the Division by Zero problem. This is done via scientifically analyzing what quantitative division really entails - After a scientific analysis, it yields a principal/law that states that division of any countable quantity cannot occur without movement. This principle helps in the solving of the Division by Zero problem.

It falls under Mathematical Analysis category and tries to distinguish the scope of limits involving zero and its inverse, that is, divisions by zero.

Venn diagram:



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INTRODUCTION

Division by zero is the dividing of a quantity or quantities into zero parts. This calculation was unsolved.

The background of division by zero dates back to the 7^{th} century to a mathematician by the name Brahmagupta. He wrote scientific papers entitled "The Brahmasphutasiddhanta of Brahmagupta". This is the earliest known text to treat zero as a number in its own right and to define operations involving zero. He however failed in his attempt to explain division by zero.

According to Brahmagupta (598 - 668 AD), a positive or negative number when divided by zero is a fraction with zero as a denominator. Zero divided by a negative or positive number is either zero or is expressed as a fraction with zero as numerator and the finite quantity as denominator. Zero divided by zero is zero.

In 830 AD, another mathematician called Mahavira tried unsuccessfully to correct Brahmagupta's mistake in his book in *Ganita Sara Samgraha*: "A number remains unchanged when divided by zero."

PROBLEM

i. When a number is divided by zero and the result is assumed to be zero, it would be incorrect because the end result will have a remainder and you can't have a remainder for zero;

$$\begin{array}{r} 0 \\ 0\,\overline{)\,2\,} \\ -0 \\ \hline 2 \end{array}$$

ii. If decimal points are used, the answer will be zero but there will be a remainder and still you cannot have a remainder for zero;

$$\begin{array}{r} 0.0 \\ 0\,\overline{)\,2\,} \\ -0 \\ \hline 20 \end{array}$$

iii. If it's divided via cancellation, it will be an incorrect calculation because it's impossible to cancel a number (e.g. zero) by the same number and get the same number as the result;

$$\begin{array}{c} 2 \\ \hline \not{0} \\ ? \end{array}$$

iv. But one may ague: Since dividing zero by zero the result is zero, is the result valid? The answer to this is that, zero divided by zero is also equal to any other number; therefore since it has more than one result, this makes it an incorrect calculation because any calculation with more than one result is an incorrect calculation.

Incorrect application of Calculus:

In Calculus, division by zero is incorrectly assumed or projected to be Infinity (∞). This is because Infinity cannot be mathematically defined unless the quantitative meaning of Division is changed.

LITERATURE

Division by zero problem has existed for over 1,500 years and many mathematicians and philosophers have extensively attempted to solve this calculation but found it a conundrum.

Mathematicians, especially in Greece (the land of ancient philosophers), must have attempted to solve the problem. Due to the fact that division by zero is a very direct calculation requiring a very direct solution, many great ancient thinkers distanced themselves from the calculation. It was easy for them to determine by themselves whether they had solved the problem because of its very direct nature, therefore they found no need of philosophizing or recording what they had not solved, to avoid seeming preposterous. This explains why there are very few ancient text in regard to solving or attempting to solve division by zero.

Because it was difficult to solve this calculation, a method was invented to help explain this problem. This method came to be known as Infinitesimal Calculus. It involves the infinity concept but of numbers so small to be counted/calculated hence can only be imagined to exist.

Its symbol was introduced by John Wallis (1616 - 1703 AD), an English mathematician. He used 1/∞ for Infinitesimal.

In my view, Infinitesimals seem similar to 1/0 but aren't. This is because 1/∞ is inversely infinite i.e. even if it approached zero to reach it, zero as a number contains the qualities of not only a positive but a negative number. In other words infinitesimals form what I call an **imaginary dichotomy line** which traverses the positive to the negative side in such a way as to become continuously/infinitely destructive to non-zero numbers i.e. every Real number must achieve the "feat" of being like zero which is: being on the positive side and the negative side, of a number line, at the same time (or anonymous). The only problem is that Zero is the "feat", all the other numbers literally break into parts until they become dysfunctional. If they had life they would have died in the hands of the dichotomy line/"sword" but since they don't, they continuously become dysfunctional/uncountable hence the connotation "Inversely Infinite".

Another mathematician who speculated widely about infinite numbers was Gottfried Leibniz (1646 - 1716 AD) a German who is also one of the co-inventers of infinitesimal Calculus.

To Leibniz, both infinitesimals (= extremely small) and Infinite (= ∞) quantities were ideal/perfect entities, not the same in nature as appreciable quantities but enjoying the same properties. This idea is treated with restraint by some mathematicians because Infinity cannot be mathematically defined (unless the quantitative meaning of Division is altered) and "∞" is not a number because it cannot be quantitatively counted e.g. "$\infty + 1 = ?$".

NB $(+) \div (+) \neq (\pm)$; $(-) \div (-) \neq (\pm)$ $\therefore$ $(-) \div (+) \neq (\pm 0)$ or $(\pm\infty)$

MATERIALS AND METHODS

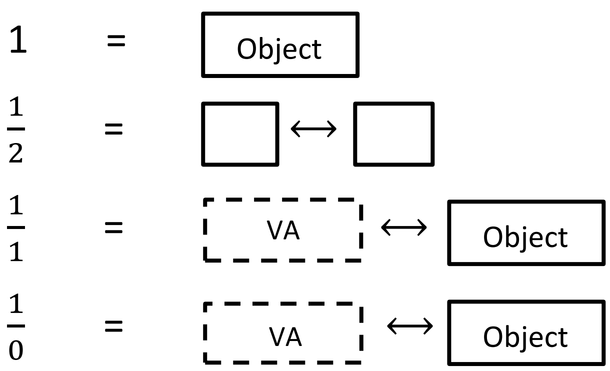
METHODS

METHOD 1

Division by zero is solved via a Law which states: Division cannot occur without Movement.

In other words, for any division of a quantity to occur, there must be separation which necessitates movement e.g. 1 (quantity) divided into 2 parts results in two equal parts; the 2 equal parts are as a result of separation which requires movement;

Figure showing Division of an Object



(Note the difference between $\frac{1}{1}$ & 1)

The denominator determines the number of parts of the object.

Thus: $\frac{1}{2}$ determines the 2 parts

$\frac{1}{1}$ determines the 1 part

Hence: $\frac{1}{0}$ determines the 0 (nothing) part.

*NB **A number is a sign that represents a certain quantity** while **vacuum is a sign which represents absence of the quantity**; for just like **there's nothing in a number but a sign**, so it is with vacuum. This means vacuum can be a number and a part of nature at the same time.*

- *Vacuum is a number but Vacuum-space isn't, because a Space is a measurement of Volume yet Vacuum has no Volume or Measurement. In other words, Vacuum does not occupy space.*

Explanation of Method

a) Calculation:

When zero is divided by any number, except zero, you get zero but when any number is divided by zero, you get the absence of the quantity that the number represents.

Elaboration

If you (for instance) divide one cup (quantity) into zero parts, it means it has not been divided it at all; but any division requires separation and separation requires movement; therefore, if you divide the cup into zero parts, you have moved it. Since you have moved the cup, it has left a space/void. It's this void that is called Vacuum unless any other quantity e.g. air fills it, but the air quantity was not part of the calculation hence making the answer to be vacuum.

b) Meaning of the word Divide

The word Divide means **Separation**, therefore when you separate any quantity wholly with itself, it's impossible unless it moves;
nb any separation requires movement; when the division/separation of the quantity takes place, you are left with a void unless a quantity e.g. air fills its space/place.

Therefore:
Any time one divides any quantity into zero parts, the result is vacuum,

i.e.

$$\frac{1}{0} = Vacuum$$

Applications:

If you give a computer a command to find the chemical formula of some chemicals whose answer must be a number divided by zero, you are instructing the computer to find the chemical formula of creating/forming vacuum.
The same could apply to electronic science calculations. If it could be possible to find the electronic calculation formulae whose answer is vacuum, it would be possible to have vacuum electricity, rays etc.

Conclusion:

Any calculation of science whose result is any number divided by zero is Vacuum.

I.e. $x \div 0 = Vacuum$

METHOD 2

Time Method

Imagine you (= matter) are standing, and then time is stopped. If you move, while the time is stopped, you'll leave vacuum for no air or any other matter has filled your space because its time has been stopped. ($nb\ \ Speed\ = Distance/Time$ pg. 19)

This illustration proves:

When Real Time is absent, Vacuum is present.

Therefore, *if Real Time is matter, Past Time is Vacuum.*

I.e. Real Time = Matter (NB: Real Time is Present Time)

Past Time = Vacuum

Therefore: Real Time: Past Time:

Matter = Vacuum

Therefore:

Vacuum is matter in past time.

I.e. Past time of matter = vacuum

Thus: past time = vacuum

This proves that:

No matter exists in the past (for it's a void/vacuum).

But past time is calculated as the subtraction of Real Time, therefore past time is the negative (-ve) of Real Time.

e.g. if *Real Time = 2am*

Past Time = 0 hrs, min, etc - 2.00 am = - 2 am

Therefore:

Any calculation of Real Time (= Present Time) whose result is negative time is vacuum.

I.e. *–ve Time = vacuum*

Hence: -2 am = 1/0

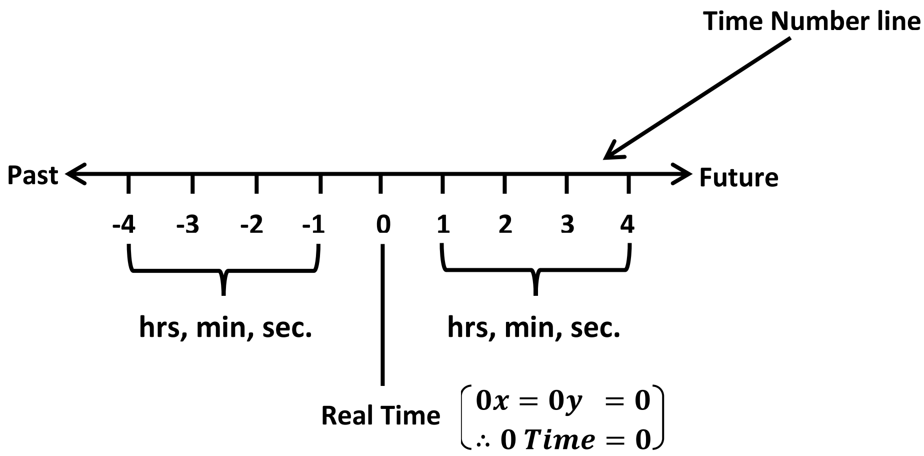
If these calculations are totally true, vacuum must be the opposite of Real Time i.e. opp. of -2 am = 2 am in Real Time calculations; but opposite also means reciprocal in vacuum Calculations (as explained later).

Therefore: opp. of *Vacuum = Real Time*

Hence: **opp. of *1/0* = *0/1 = 0***

The answer is zero which can be translated as Real Time because: **Any addition of Real Time is defined as the future, while any subtraction of Real (= Present) Time is the past.**

- **Mathematical Illustration of Time:**



Therefore the reciprocal calculation has proven that:

Vacuum is the opposite of Real Time.

I.e. Opp. of *vacuum = Real Time*

Hence: opp. of *1/0 = 0*

Thus: **Any reciprocal of a vacuum calculation is Real Time;**

Hence explaining vacuum as: **Any number divided by zero, via the reciprocal method of Real Time.**

THEOREMS/MATERIALS RELATED TO DIVISION BY ZERO

Division by zero must satisfy these 17 requirements and theorems in order to work correctly and so that to avoid errors in a calculation. Failure to adhere to any of these requirements may lead to an undefined, indeterminate or meaningless result; therefore these requirements and theorems must be understood first, before proving or disapproving any result relating to division by zero.

MATERIAL 1

a) Reason why Vacuum is a Number

Vacuum is an abstract object, just like other numbers, because it cannot be touched or felt. In other words it does not exist without space i.e. vacuum space. This is also totally true for Natural numbers which do not exist without space e. g the numeral '1' does not exist without an object that has space & '2' couldn't exist without 'an object + an object' that occupy space. This is because it's the space that enables us identify with natural numbers, without which the numbers wouldn't exist at all. In conclusion it is wise to note: It's space that brought about Natural numbers hence all space including empty (= vacuum) & anonymous (= zero) space must be identified with Natural numbers; otherwise it would have been possible to create/define natural numbers without space, of which it's an impossibility.

Philosophical Quote: **Space is the queen mother of Natural numbers, without which no Natural number would exist.**

b) Reason why Vacuum is a Number via a Linguistic Perspective

In linguistics, a word grows/strengthens when it's meaning becomes more concise and common. In other words, it moves from having mundane and difficult meaning to more specific ones. This makes the word be easily understood hence used by more people. Though this is true, it's not always the case unless the word finds general use; for example, the English word one-ness (= unity) can be common because of the general use of the word/number "one".

In our case, the word vacuum has been strengthened from "absence of matter/quantity" to a number that means the same (i.e. the (numeric) resultant of (an) absent quantity). This has diversified its meaning hence strengthened the word though the meaning of the two definitions are similar.

In conclusion, an Academic Point of View, which always relies on what is already known, defines Vacuum as absence of matter/quantity. On the other hand, a Scientific Point of View which always relies on discoveries, views Vacuum not only as absence of matter but as the numeric resultant absence of a countable quantity. It's important to realize, though, that a Scientific View Point becomes Academic once it's found to be true or/and scientifically theoretical - Vacuum as a number, passes this "test" with atmost ease via the Division Law i.e. unless someone proves the law to be not, vacuum is proven to be a number forthwith and without discourse.

c) Difference between Vacuum and Zero.

Vacuum is a number that represents "a nothing" that's been defined as void of quantity i.e 0^0; while zero is a number that represents "a nothing" that's only a nothing by name rather than by value, hence it's value is not known by name though exists as a quantity by virtue of having a power greater than the absence of quantity i.e. Vacuum, hence anonymous, e.g. $0^1, 0^2$ e.t.c. (nb $0^{-1}, 0^{-2} \ldots = 0^0$).

In a practical sense

Suppose I have 5 cups and I subtract them from 5 cups, it means I have 10 cups to start with, but this isn't the case. This is because if I subtracted the 5 cups, I would remain with another 5 cups which would have been an incorrect calculation because:

$5 - 5 = 0 \ \ or \ \ 5 - (+5) = 0$

This means one of the 5 cups exist by name, but not by its quantitative value i.e.

$5c - (+5c) = 0 \ \ but \ \ 5c - (+5) = (5c - 5)$

This proves **it's possible to compute a quantitative value that exists by name rather than its quantitative value** vis-à-vis the numeral zero.

d) Breaking Down the Understanding of Negative Numbers as Opposite Numbers

Negative Numbers do not exist quantitatively e.g. '-5' cups do not actually exist; therefore it goes without saying that their value as Opposite Numbers also exists as a name rather than quantitatively.

In a figurative sense, Negative Numbers are alien numbers that only exist by name rather than by their quantitative value or for that matter by their spatial (= space) value like Vacuum does (see pg. 12) – The only way to understand them is to visit their alien world which exists in the non-quantitative & non-space realms.

This is the complexity of Negative Numbers: They exist as the opposite of (positive) quantities hence are non-quantities like Vacuum but at the same time they are non-quantities (= nothing) that can be specifically determined e.g. –2 ≠ –3 but 2/0 = 3/0; hence their "nothingness" is not complete because it can be specifically spotted/determined.

This complexity does exist in real life i.e. consider making a law that states that "no (other) law should be made". The complexity with this law is whether the stated law should be considered a law because "no law should be made". This makes the 'law' both a statement and a law at the same time vis-à-vis "–2 ≠ –3".

e) Opposite also means Reciprocal in Vacuum Calculations ONLY

<u>Opposite</u>	<u>Reciprocal</u>
$0 = 0$	$0 = \frac{1}{0}$
0	$0 =$ Vacuum

Therefore: Opposite $= 0$

Reciprocal of vacuum $= 0$

Thus : **Opposite = Reciprocal of Vacuum**

Hence: **Opposite of Vacuum is NOT its Negative but its Reciprocal.**

Explanation: The opposite of zero is zero (hence: opposite = zero. This is because **zero equates its own opposite**) as a result of its anonymity); but the reciprocal of zero is vacuum. When simplified it yields: Opposite = Reciprocal of Vacuum. This equation proves that the opposite of vacuum is neither its negative nor positive but its reciprocal.

f) Further Analysis of the Opposite of Vacuum

One may argue, the Opposite of Vacuum is not Zero because the Opposite of Zero is Zero. To put this into context, we will use the numeral One instead of Zero and repeat the same equation,

Opposite	Reciprocal
$1 = -1$	$1 = 1$

But: $1, -1 = 0$ in Real Time calculations (see pg. 36 & 37)

Therefore:

Opposite	Reciprocal
$1 = -1 \Rightarrow 0 = 0$	$1 = 1 \Rightarrow 0 = 0$

Hence:

Opposite	Reciprocal
$0 = 0$	$0 = 0$
0	0

(Nb Reciprocal of $'0 = 0'$ if its actual quantities or quantity is known which in this case is '1')

Simplified, it yields: Opposite of Zero = Reciprocal of Zero

Hence Opposite of Zero = Vacuum

NB Opposite of Zero is Zero because of its anonymity which in turn leads to the birth of negative and positive numbers i.e. Opp. of $1 = -1$.

On the other hand since the Opposite of Zero is Vacuum in the context of anonymity rather than a specific quantity, then the Opposite of Vacuum is Zero.

In conclusion, we can scientifically and logically state that the Opposite of something is nothing; but the Opposite of a nameless thing is either nothing or its named/actual quantity i.e. Opposite of a negative is its positive quantity and vice versa.

g) Mathematical Propositions and Analysis for Specific Calculations

1. Another name for Reciprocal is Specific

As explained above, the Reciprocal of $'0 = 0'$ if its actual quantities or quantity is known which in the above case was '1'.

In other words, if '0' is a specific Real Time Number then its Reciprocal is 0 but when it is not, its reciprocal is 1/0.

This shows that when the representation of Zero is specific, the reciprocal of '0 = 0' but when non-specific, the reciprocal of '0 = 1/0'.

This proves/shows that another name for Reciprocal is Specific e.g. Reciprocal of '2 = 1/2' hence the Specific calculation for '2 = 1/2' i.e. Specific calculation for '2 = 2 Parts' (see pg.22 & 22) and so on.

2. Application of Specific Calculations

Suppose we are trying to accurately divide a fraction like '5/7' – This is impossible because the end result is a recurring number i.e. 5/7 = 0.7142…

But the Specific calculation for '5/7' is '7/5' or '1.4'

We can therefore determine/calculate the exact numeric value for the recurring number by being specific i.e.

The specific calculation for 5/7 = 1.4

Hence the Specific calculation for 1.4 = 1/1.4 = 1.4 parts

Therefore 0.7142… = 1.4 parts

3. Difference between a Specific Number & a Specific Calculation

- A specific number refers to the actual number e.g. the Specific number for '2' is '2'.
- A specific calculation refers to the reciprocal calculation e.g. the Specific calculation for '2' is '2 parts' or '1/2' i.e. 2_p.

4. Difference between a Non-specific Number & a Non-specific Calculation

- A Non-specific number refers to a recurring number e.g. 0.7142…
- A Non-specific calculation is a reciprocal calculation where either of its possible reciprocal calculations leads to a recurring number e.g. 6/7 = 0.857… & 7/6 = 1.166…

5. Types of Reciprocal Calculation

In this regard, I propose that a reciprocal calculation is divided into two categories:

Specific & Non-specific calculations

As earlier explained, Specific calculation refers to the reciprocal calculations e.g. the Specific calculation for '2' is '2_p' (where 2_p = 2 parts).

On the other hand, Non-specific calculations are reciprocal calculations where either of its possible reciprocal calculations leads to recurring numbers e.g. 6/7 = 0.857… & 7/6 = 1.166…

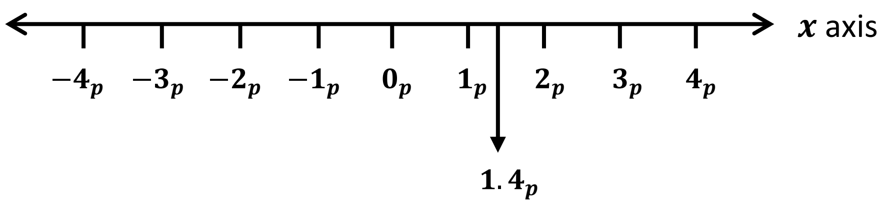
6. Types of Multiplicative Inverse

Since a reciprocal calculation can also be understood (= calculated) as a multiplicative inverse, it goes without saying it can as well be divided into: Specific & Non-specific calculations.

7. Advantages of Specific Calculations

The advantage of Specific calculations is they ensure that the exact value of a number is not lost e.g. '0.7142…' is an approximation for the exact value 1.4 parts or 1.4_p. (Nb. $x\ parts = x_p$)

The other advantage of Specific calculations is in Geometry where instead of having an approximate value which would alter the end result, we could use Specific calculations for the x & y axis i.e.



Note

- $0_p = 0\ part =$ Vacuum (see pg. 22)
- 0_p falls under Non-specific calculations.

MATERIAL 2

The Future and Past are Void

Explanation 1

a) **Future**:
If time is slowed and yours isn't, your time will be faster than other people's time; therefore your time will be in the future of other people's/matter's time.
If you move, you'll leave vacuum because it will take a longer time for air or any other matter to fill your space because its time has been slowed; hence the future is void.

b) **Past:**
If time is stopped and your isn't, the time of every matter, will be in the past because their time has been stopped.
If you move, you'll leave vacuum because no air or any other matter will fill your space because its time has been stopped; hence the past is void also.

Explanation 2

Proving that Past and Future are Vacuum

i. **Past:**

When an object is moved from point A to B, point A becomes the past of point B because the object was (= past) in Point A and now (= present) is in point B; but point A is vacuum unless air or any other matter fills its space. This is because when the object moved from point A, an empty space (= vacuum) was formed (unless air or other matter fills this space).
$(nb\ Speed\ =\ Distance/Time)$

ii. **Future:**

When one expects an object to move from point A to B, the object doesn't move to point B because it's just an expectation of the future; but if for some reason it moves to point B, the distance between point A to B becomes empty space (= vacuum) unless air or any other matter fills the space. Since any expectation of a latter time is the future, the distance between point A and B is the future at the time the movement of the object was taking place.
$(nb\ Speed\ =\ Distance/Time)$

Explanation 3

Proving that Vacuum is formed when Matter is Absent

Vacuum means absence of matter; In other words, vacuum equates to absence of matter,

i.e. Vacuum = Absence of matter.

This means when matter is absent either by movement or any other means, vacuum is present; therefore if one moves an object, it would mean the object is absent from its previous location; this equates to vacuum unless any other matter e.g. air fills the vacuum space.

- **Proving via Speed:**

  Any Movement requires Speed,

  $i.e. \quad Speed = Distance\ over\ Time\ taken$

  $or \quad S = D/T$

  In this case the 'T' = Real Time (where any addition is its future & subtraction its past);

  $i.e. \quad T = Real\ Time$

  $hence \quad T = 0$

  $Therefore \quad S = D/0$

  Since any number/value divided by '0' equates to Vacuum in any mathematical setting, then:

  $Speed = Vacuum.$

  This proves: **Any Movement/Speed in Real Time equates to Vacuum.**

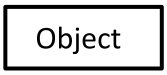
MATERIAL 3

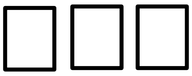
Vacuum Related Illustrations

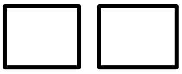
a) Difference between Division by Zero And Non-Zero Numbers

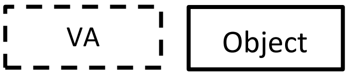
The difference is shown via division of an object.

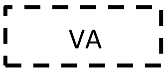
i.e.

$1 =$ 

$\frac{1}{3} =$ 

$\frac{1}{2} =$ 

$\frac{1}{1} =$ 

$\frac{1}{0} =$ 

The denominator determines the number of parts of the object.

Thus: $\frac{1}{3}$ determines the 3 parts

$\frac{1}{2}$ determines the 2 parts

$\frac{1}{1}$ determines the 1 part

Hence: $\frac{1}{0}$ determines the 0 (nothing) part.

b) Proving Opposite of Zero is Zero

The easier method is done via sequence method of calculation:

i.e. (3) – 6 = (-3)

(2) – 4 = (-2)

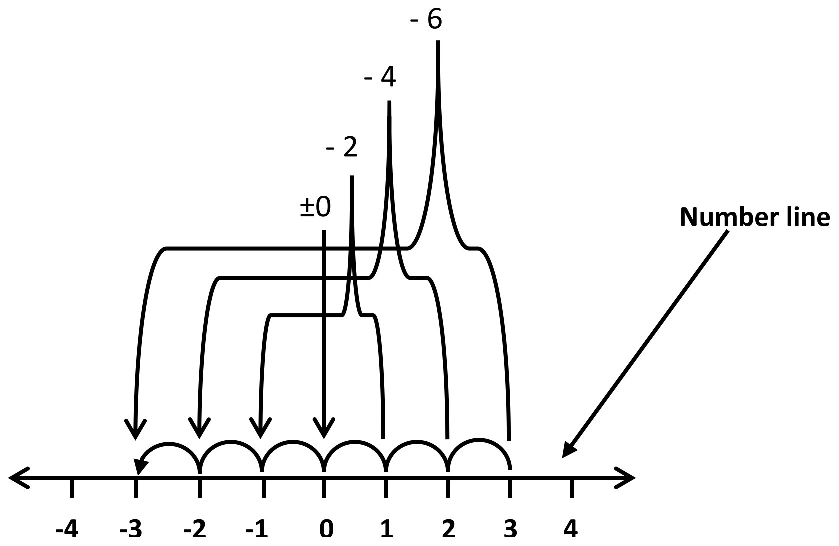
(1) – 2 =(-1)

Hence: (0) – 0 = (0)

Explanation:

If the opposite of 3 is -3 (as above), 2 is -2 and so on, then the opposite of zero is zero.

Illustration of the Sequence of Opposite Numbers



c) Difference between Zero and Zero-Part

The difference is shown via division in a fraction setting;

$\frac{0}{1}$ means 0 divided into 1 part,

$\frac{1}{0}$ means 1 divided into 0 part.

Explanation:

Zero as shown above is located at the numerator while zero-part is located at the denominator of the fraction as explained in its meaning.

This means zero always refers to the numerator location while zero-part always refers to the denominator location.

This proves: **Zero is not equal to zero-part.**

d) Proving Zero-Part always Equates to Vacuum

This is shown via the difference between division by zero and non-zero numbers which I explained earlier (in pg. 20) by dividing an object into 3, 2, 1 and 0 part(s).

Through this I proved: **The zero part of any object (quantity) is vacuum.**

In other words for instance when someone says, "zero kilometers" and another says, "the zero part of a kilometer", they are saying very different phrases i.e. zero kilometers does not mean void or no distance mathematically because there are other insignificant, smaller or bigger units of measuring distance e.g. gigameter (Gm), meters (m), centimeters (cm) etc. for example: **0 km in 500m = 0.5 km, hence 0 km in distance = unspecified km distance**.

On the other hand, the zero part of a kilometer means the part of a kilometer that's not a distance. In other words it's an absent distance because it is zero part and not zero kilometers i.e. 0 part and not 0. **Since it's an absent distance inside the kilometer distant, it qualifies to be called vacuum (= nothing) distance.**

Nb **The numeral one and zero are symbols that represent quantity**, only that the numeral one represents a specific quantity while zero anonymous quantity/quantities; i.e. if $\text{Q is Quantity, then: Q} = \text{Q}^1 = 1\text{Q, hence } 0\text{Q} = 0 = 0^1 = \text{One Anonymous Quantity.}$ This is because **zero has a power of more quantitative value than itself yet it is undeterminable/anonymous** (nb $0^0 \neq 0^1$). An anonymous quantity could either be an average, very small or big quantity to the point of infinity.

MATERIAL 4

Proving Number of Parts can only be found in the Denominator Location

This is shown via the following calculations;

3 parts ÷ 3 parts = 9 parts (but not 1 part),

4 parts ÷ 2 parts = 8 parts (but not 2 parts).

i.e.

$$3\,parts \div 3\,(parts) = \frac{1}{3 \div 3} \quad but\ not \quad \frac{3}{3}$$

$$4\,parts \div 2 = \frac{1}{4 \div 2} \quad but\ not \quad \frac{4}{2}$$

Explanation:

If you divide 3 parts by 3, you'll have nine parts because each of the 3 parts is divided into 3 parts; in the same way, if you divide 4 parts into 2 parts, you'll have eight parts because each of the 4 parts is divided twice;

i.e. $\frac{1}{3 \div 3} = \frac{1}{3} \div 3 = \frac{1}{3} \times \frac{1}{3} = \frac{1}{9}$

$\frac{1}{4 \div 2} = \frac{1}{4} \div 2 = \frac{1}{4} \times \frac{1}{2} = \frac{1}{8}$

This proves: **Number of parts of any mathematical calculation can only be found in the denominator.**

Proving via Addition

This is shown via the following calculation:

$2\,parts\, +\, 1\,part \;=\; \frac{1}{2+1} = \frac{1}{2} + 1 = 1\frac{1}{2}$

- $2\,parts + 1\,part$ *has a different operative meaning from* $2 + 1$ *because it has non commutative properties i.e.* $\frac{1}{x+y} \neq \frac{1}{y+x}$
- *Operations involving Division have non commutative properties, e.g.* $3 \div 2 \neq 2 \div 3$.

Explanation:

There are 2 parts in $\frac{1}{2}$,

i.e.

If $1 =$ [Object]

Then $\frac{1}{2} =$ [½] [½]

Each of these parts is added to 1 (object);

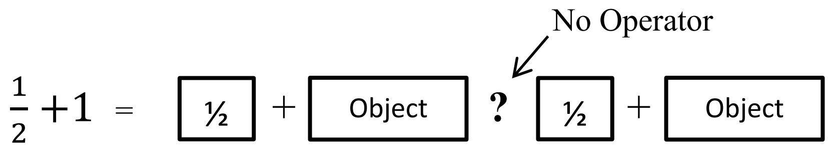
i.e.

$\frac{1}{2} + 1 =$ [½] + [Object] , [½] + [Object]

The result is 2 parts of $\frac{1}{2} + 1$.

Only one part of the 2 parts is considered as the answer because there are no calculation signs/operator between each part,

i.e.



This makes the answer to be 1½ which is a part of the 2 parts. This is the other way of proving that Number of Parts can only be found in the denominator.

Deeper analysis

One may argue that 2 parts + 1 part is practically equal to 3 parts and not 1½.

This problem can be solved by understanding that ‘Parts’ are (practically) attained via division and division alone. In cases where we are calculating number of parts using a different operator other than division, brackets must be introduced to force/arrest the calculation to be purely a division one;

i.e. $\frac{(1)}{(2+1)} = \frac{1}{(2+1)} = \frac{1}{3} =$ 3 parts,

otherwise the result will still be correct but must be analyzed/understood differently from the norm.

This diversity of Number of Parts is very important in analyzing the characteristics and practical importance of this type of numbers;

e.g. 1+2 = $\frac{1}{1+2}$ = 1 part + 2 parts,

when the ‘1 part + 2 parts’ is analyzed practically, it opens a new way of understanding numbers in relation to division i.e. you get the same result but with vacuum as part of the parts. This helps us in analyzing new qualities of vacuum which probably couldn’t be analyzed via any other method and so on.

MATERIAL 5

Types of Parentheses

As explained above $\left(2_p + 1_p\right) \neq 2_p + 1_p$ $\quad\quad$ $(Nb \quad x\, parts = x_p)$

i.e. $\left(2_p + 1_p\right) = 3_p$ but $2_p + 1_p = 1½$

This leads to a new proposition:

There are two types of parentheses (= brackets):

Specific & Non-specific parentheses

(To learn more about Specific and Non-specific calculations see "Specific Calculations" in pg. 16)

- Specific parentheses are used in a Non-fraction setting.
- Non-specific parentheses are used in a Fraction setting.

This is because recurring numbers (which are used to differentiate Specific & Non-specific numbers) are formed because of fractions which are primarily made of the numerator and denominator.

Important notes involving specific and non-specific parentheses

- In my view, mathematicians have been using Non-specific parentheses. This is the reason why, for example, $\frac{1}{2+1} = \frac{1}{3}$ NOT 1½.
- This also proves that Non-specific parentheses may not be specifically used where logic prevails e.g. $2_p + 1_p$ is logically or practically equal to 3_p NOT 1½.
- Specific parentheses must be used whether logic prevails or not.
  In other words, Non-specific parentheses are silent where logic prevails but not so for Specific parentheses.
- Non-specific parentheses can therefore be literally understood as the "Ghost-parentheses" for the sake of easier understanding.

Further Proof of Non-specific Parenthesis

Formal Mathematical Properties/Logic of Division

The formal mathematical logic of Division require that:

a) $$\frac{a+b}{c} = (a+b) \div c$$

b) $$\frac{a}{b+c} = a \div (b+c)$$

c) $$\frac{p \div q}{r \div s} \;=\; \left(\frac{p}{q}\right) \div \left(\frac{r}{s}\right) \;\; or \;\; \frac{p}{q} \times \frac{s}{r}$$

Analysis

- The Parenthesis above are only used to force logic and avoid "chaos" as a result of the BODMAS rule.
- Take note that they may not be specifically used in a fraction setting, hence can be said to be Non-specific Parenthesis or "Ghost-parenthesis that obey BODMAS rule".

MATERIAL 6

Numerator for Number of Parts

The Numeral "1" is used as the Numerator for Number of Parts

This is because it doesn't affect them as their numerator because any number multiplied or divided by one is equal to the same number; the same reason why the numeral one is used to calculate integers in a fraction setting e.g. Reciprocal of 2 $=$ Reciprocal of $2/1 = 1/2$; Number of Parts in 2 $= 2/1 = 2 \div 1 = 2 \times \frac{1}{1} = \frac{1}{1 \times 2} =$ 1 part × 2 parts.

MATERIAL 7

Division cannot occur without movement.

It's this discovery that proves:

Any number divided by zero equates to vacuum.

It's important to note that: Movements in reciprocal, multiplication, addition and subtraction occur because every number is at all times in division mode of one;

$i.e. \quad 1 = \frac{1}{1}\ ,\ 2 = \frac{2}{1}\ ,\ 3 = \frac{3}{1} \quad etc.$

MATERIAL 8

GENERAL OUTLOOK OF VACUUM CALCULATIONS

Symbol for Vacuum

The first Latin letter of the word 'vacuum' or '*vacuus'* in Latin is v; when the 'v' is joined on its open ends with a slightly curved line, it becomes ʋ, hence the universal symbol for vacuum should be ʋ, e.g. ʋ + 0 = 0 , Reci. of ʋ = 1/ʋ = 0 i.e. 1/ʋ = 1 ÷ ʋ = 1 ÷ 1/0 = 0 , Opp. of ʋ = Reci. = 0 and so on.

Hypothesis

When 'ʋ' is placed before a number, it means the number has a past; when placed after a number, it means the number has a future i.e. it's mandatory for the number to be calculated again later (= in the future), in the same calculation and in the same way before the specific calculation ends. After the number has been calculated, it retains its Future because it's part of the number; also it attains a Past because it was (= past) calculated again. This results in the number having both a future and a past just like other ordinary numbers - **Ordinary numbers have a past and a future because they represent quantities which do**.

- 5ʋ × 2ʋ = (ʋ5 × ʋ2) × (ʋ5 × ʋ2) Nb In this calculation, its Future is reached via multiplication.

  = ʋ10 × ʋ10 = ʋ100 = ʋ100ʋ = 100

- 5ʋ + 2ʋ = (ʋ5 +ʋ2) + (ʋ5 + ʋ2) Nb Future is reached via addition.

  = ʋ7 + ʋ7 = ʋ14 = ʋ14ʋ = 14

- 5ʋ+ 2 = (ʋ5 + 2) + ʋ5 = (ʋ5ʋ + 2) + ʋ5ʋ = (5 + 2) + 5 = 12

- 5ʋ × ʋ = (ʋ5 × ʋ) × ʋ5

  = 0 × ʋ5 = 0 × ʋ5ʋ = 0 × 5 = 0

- 5ʋ ÷ ʋ = (ʋ5 ÷ ʋ) ÷ ʋ5

  = (ʋ5ʋ ÷ʋ) ÷ ʋ5ʋ = (5 × 0) ÷ 5 = 0 ÷ 5 = 0

Writing Time Numbers in Words

- 05 = 5 = Five

  Ṽ5 = Past Five 1st Future

  Ṽ5 = Ṽ5Ṽ = 5 = Five

  nb When a number has a Past (e.g. Ṽ5), it must have had a Future (i.e. 5Ṽ) that resulted in its Past hence Ṽ5 = Ṽ5Ṽ = 5 .

- 50 = Fifty,

  5Ṽ = Five Future (or Five 1st Future).

- 500 = Five hundred,

  5ṼṼ = Five 2nd Future.

- 501 = Five hundred and one,

  5Ṽ1 = Five 2nd Future and/plus one i.e. 5ṼṼ + 1 = (Ṽ5 + 1) + Ṽ5 + Ṽ5
  = (Ṽ5Ṽ + 1) + Ṽ5Ṽ + Ṽ5Ṽ = (5 + 1) + 5 + 5 = 16

- 5010 = Five thousand and ten,

  5Ṽ1Ṽ = Five 3rd Future and one 1st Future i.e.

  5ṼṼṼ + 1Ṽ = (Ṽ5 + Ṽ1) + (Ṽ5 + Ṽ1) + Ṽ5 + Ṽ5

  = Ṽ22 = Ṽ22Ṽ = 22

Calculating Time Numbers

- 50 + 50 = 50 ; 5Ṽ + 5Ṽ = 5Ṽ

50 + 50 =	50	;	5Ṽ + 5Ṽ =	5Ṽ
	+ 50			+ 5Ṽ
	100			Ṽ10
				+ Ṽ10
				Ṽ20Ṽ = 20

- 500 + 500 = 500 + 500 = 1000 ; 5ꝊꝊ + 5ꝊꝊ = 5ꝊꝊ + 5ꝊꝊ

  ꝊꝊ10
  \+ ꝊꝊ10
  ꝊꝊ20
  \+ ꝊꝊ10
  ꝊꝊ30ꝊꝊ = 30

- 501 + 501 = 1002 ; 5Ꝋ1 + 5Ꝋ1 = 16 + 16 = 32

- 5010 + 5010 = 10020 ; 5Ꝋ1Ꝋ + 5Ꝋ1Ꝋ = 22 + 22 = 44

Application of Time Numbers

Its simplest and probably one of its many important uses could be in Computer Programming:

All computer programmes would be able to exist in other Futures e.g. 1st Future, 2nd Future, Millionth Future etc. rather than now when they can only exist in Zero Time/Real Time –

Computers would process data differently in different Futures hence getting many new realistic results for the same problem and that vary in nature.

This will lead to new technological advancements that are elusive to our present computer programmes,

e.g. Problem $2x$ is unsolved but can be solved in $2x$ꝊꝊ, therefore we can modify $2x$ꝊꝊ in such a way as to solve problem $2x$ hence leading to a new discovery of how to solve problem $2x$ (via solving the problem in its Future).

Example 1

Use the 2nd Future of 3 to solve the equation: $\mathbf{3 \times 2 = x}$

Solution

Let the 2nd Future of 3 be y i.e. 3ꝊꝊ $= 3y$

$3 \times 2 = x \quad but \quad$ 3ꝊꝊ $\times 2 = (2 \times 3) \times 3 \times 3$

$= 54$

$Thus \quad 3y \times 2 = 54$

$$3y = 27$$

$$y = 9$$

$Therefore \quad 3(\times 9) \times 2 = 54$

$$3 \times 2 = 54/9 = 6$$

$$3 \times 2 = 6$$

$\boldsymbol{Hence} \quad \boldsymbol{x = 6}$

In this case, we have used the 2nd Future of 3 (=3ϘϘ), attained via multiplication, to solve a Real Time problem.

Example 2

Use the 1st Future of 7 to solve the equation: $\mathbf{3 + 7 = x}$

Solution

Let the additive 1st Future of 7 be y i.e. $7\text{Ϙ} = 7 + y$

$3 + 7 = x \quad but \quad 3 + 7\text{Ϙ} = (3 + 7) + 7$

$$= 17$$

$Thus \quad 3 + 7 + y = 17$

$$y = 17 - 10$$

$$y = 7$$

$Therefore \quad 3 + 7(+7) = 17$

$$3 + 7 = 17 - 7$$

$$3 + 7 = 10$$

$\boldsymbol{Hence} \quad \boldsymbol{x = 10}$

In this case, we have used the 1st Future of 7 (=7Ϙ), attained via addition, to solve a Real Time problem.

- When solving equations involving Time Numbers, it's wise to note that the variable must also be a Time Number, otherwise the solution will not be of a Time Number e.g. $2x = 2x \quad but \quad 2x \neq 2x\text{Ϙ}$

- **NB** Considering my hypothesis (see pg. 28) has been proven to be true by successfully solving a (Realtime) problem, it qualifies to be called a Theorem unless the hypothesis is found impractical via a scientific mathematical method e.g. Matrix.

Example 3

Conduit Logic

Suppose we are to evaluate the core difference between the brain of a human being and a bird or fish, we are likely to discover that:

The most direct attributes we may note may involve their visual aspects - When a human being perceives via his eyes, he perceives via what I call “Uni-vision” i.e. both of his eyes are naturally and subconsciously unified into a single view in order to see an object clearly. This experiment can be done by closing one of your eyes. You'll notice that even though you have two eyes, they are interconnected in such a way as to feel as though you have one vision though you have two sources of your vision.

On the other hand, a fish or a bird whose eyes face opposite directions (rather than adjacent) perceive an object in what I call “Split-vision” i.e. their eye vision is naturally and subconsciously split by the brain in order to see (multiple) objects clearly. This is because their eyes relate with each other in opposite directions (otherwise Split-vision creatures cannot view opposite facing views/images at the same time of which is not true). If a split-vision creature closes one of its eyes, the direction it sees from one eye is opposite/negative the other eye. It's the same as turning your head on the opposite direction.

If you are careful enough, you’ll note that a Uni-vision brain perceives/calculates its entire visible environment as one singular vision or many objects are subconsciously perceived/seen as one vision. In the same way, a Split-vision brain perceives/calculates its visible environment as divided (= split) objects i.e. even in the case of a single object, the brain must subconsciously split the object into one or zero parts (= 1/1 or 1/0) in order to trigger reasoning by its brain.

In this kind of scientific study, we find a new kind of complexity: No matter how human beings perceive/calculate visually, their reasoning towards what they perceive is always subconsciously “Uni-vision” i.e. unitary. In a mathematical terminology, “Uni-vision” can be viewed as one (vision) i.e. 1.

In the same way, no matter how fish or birds (that have eyes facing opposite directions) perceive/calculate visually, their reasoning towards what they perceive is always subconsciously "split-vision" i.e. divided. In a mathematical terminology, “Split-vision” can be viewed as one (vision) divided by a variable (vision) i.e. $1 \div x$.

In a mathematical scientific equation, it’s possible to state that: A Uni-vision brain is blind to “$1 \div x$ objects" while a Split-vision brain is blind to “1 object”.

Example

If we apply a sequence so that we can analyze the difference between the brain of a “Uni-vision” creature and the one of a “Split-vision” in a mathematical setting, we will not achieve much because a sequence calculation does not apply to numbers that do not change i.e. a Uni-vision brain does not change and so is a Split-vision brain. This is because they continuously view objects in their own different ways i.e. either as 1 or $1/x$.

Though this is the case, it's possible to calculate an original process in a latter time without affecting/changing its originality. This is done via Time numbers i.e. the Future of x can be x∇, x∇∇.... e.g. let's assume a Uni-vision creature is viewing 2 objects. The 2 objects are viewed as 1 object (= 1 view):

i.e.	2 objects	= 1 object
but	2 objects	≠ 1 object
hence	2 objects	= 1∇ objects
or	2 views	= 1 view
but	2 views	≠ 1 view
hence	2 views	= 1∇ views

This is because 2 objects = 1∇ objects depending on how it's calculated in its future.

The physical or theoretical scientific experiment that's done to a Uni-vision creature and leads to 2 = 1∇ but using a certain scientific formula can be called **Conduit Logic.** This brings about a new kind of scientific logic. The word conduit means channeled hence **Conduit logic is channeled logic.**

In relation to this example, we can come to a conduit conclusion that: Another name for Time Numbers calculations in this respect is "Conduit-sequence calculations" as opposed to Sequence calculations i.e. whereas there is no sequence for a unitary number like 2, there exists a Conduit sequence for the same e.g. The Conduit Sequence for 2 is: 2∇, 2∇∇ and so on.

Application of Conduit Logic

Computer Programming

Imagine a computer is solving an equation and ends up with the result "2 = 1" e.g. it mistakenly attempts to solve this equation which is undefined if $0/0 \neq \lozenge$ (or for some reason finds sense in solving it that way):

$$0 \times 1 = 0$$

$$0 \times 2 = 0$$

The following must be true:

$$0 \times 2 = 0 \times 1$$

Dividing by zero gives:

$$\frac{0}{0} \times 2 = \frac{0}{0} \times 1$$

Simplified, yields:

$$2 = 1$$

It's possible for the computer to avoid this eminent logical crush to its system by applying conduit logic; for example if the logic falls under "1 must be equal to 2 views" (rather than 2 must be equal to 1view), depending on its program, then:

$$2 = 1$$

$$but \qquad 2 = 1\lozenge$$

$$hence \qquad 2 - 0 = 1\lozenge$$

$$therefore \qquad 2 = 1\lozenge + 0$$

$$2 = (1 + 0) + 1$$

$$2 = 2$$

In this case the resultant “2” has been justified via a logical interface view point of the Future.

In layman language, the computer has given its logical point of view to the problem, in which it can justify via a channeled (= conduit) view of the future, rather than being overwhelmed (= crushed) by the problem.
In other words computers will no longer make errors (which cannot be corrected) but will make mistakes instead, which can be corrected by giving it a logical point of view. It will then calculate this view via Conduit Logic and try to find it in various futures. The computer will then either perfect your view or give reason why this given view is impractical. In other words it would be possible to have a conversation or even an argument with a computer.

MATERIAL 9

The Vacuum Formula

Since $\frac{0}{0} = \frac{1}{0} = \frac{2}{0}....$ then $\frac{0,1,2...}{0} = \frac{x}{0} = \lozenge$

Hence the formula: Any number divided by Zero equates to Vacuum

i.e. $\frac{x}{0} = \lozenge$

Application of Formula

Use the Formula '$x/0 = \lozenge$' to Solve the Reciprocal of $0/0$

Solution

$\frac{0}{0} = \lozenge$ hence the Reciprocal of $\frac{0}{0}$ equals the reciprocal of $\lozenge$

Formula: $\frac{\boldsymbol{x}}{\mathbf{0}} = \lozenge$

$\therefore$ Reci. of $\frac{x}{0} = \frac{0}{x}$

But $\frac{0}{x} = \frac{0}{x}$

Hence $x \times \frac{0}{x} = \frac{0}{x} \times x$

Thus $0 = 0$

Therefore reciprocal of $\frac{0}{0} = 0$

NB This is true if $\boldsymbol{x \neq 0}$

But if $x = 0$

Then $0 \times \frac{0}{0} = \frac{0}{0} \times 0$

Thus $0^1 \times 0^0 = 0^0 \times 0^1$

$$0^{1+0} = 0^{0+1}$$

$$0^1 = 0^1$$

$$0 = 0$$

MATERIAL 10

Difference of Coefficient results in Vacuum Calculations

$$\frac{0}{0} \times 0 = 0^0 \times 0^1 = 0^{0+1} = 0^1$$

But $\frac{0}{0} \times 0 = \frac{0}{0} \times \frac{0}{1} = \frac{0}{0} = 0^{1-1} = 0^0$

Explanation

Though the calculations start in the same way, their seems to be a difference in the end result:

In the first case, we divided $\left(\frac{0}{0} = 0^0\right)$ and then we multiplied by zero $(= 0^1)$.

In the second case, we multiplied the numerators and denominators separately, and then we divided the results.

But if we follow the BODMAS rule, we are obligated to divide first, and then multiply.

This proves: $\frac{0}{0} \times 0 = 0$ NOT 0^0

Therefore: ϙ $\times \mathbf{0} = \mathbf{0}$

MATERIAL11

Mathematical Relationship between Vacuum and Real Time

Considering '0' also means Real Time (where any Time-addition is its future & Time-subtraction its past), it is prudent to state:

ϙ $\times 0 = 0$ or Vacuum × Real Time = Real Time.

If Real Time = x, then ϙ $\times x = x$

$\therefore$ ϙ $= \frac{x}{x}$ or $Vacuum = \frac{Real\ Time}{Real\ Time} = \frac{0}{0}$

It is important to note:

1, 2, 3… quantities in Real-Time quantities equate to '0' because **all countable quantities exist in the Present/Real Time** and NOT in the Past/Future (=Vacuum).

Therefore 1, 2, 3…= 0 (in Real Time Calculations ONLY.)

This therefore obligates:

1= 0 or 2 = 0 etc. is allowed and correct in Time Calculations.

Example of Real Time Quantity Conversion

$$\lozenge = 1/0$$

$\therefore\ 0 \times \lozenge = 1 \ \ or$ (±) × (±) = (+)

Nb (±) × (±) ≠ (+) $hence$ (±◊) × (±0) ≠ (+1)

but 1 = 0 in Real-Time quantities calculations

Therefore $0 \times \lozenge = 1 \ \Rightarrow \ 0 \times \lozenge = 0 \quad or$ (±) × (±) = (±)

In this regard I propose a new type of numbers that I call **Real Time Numbers**, i.e. whereas there are **Real Numbers** which differ from **Natural Numbers** by virtue of Real Numbers incude Negative Integers; **Real Time Numbers are Real Numbers but in a Time where any of its addition is its future and substraction its past hence are always equal to Zero.**

Note

If this (Real Time) conversion is not taken into consideration, **the multiplicative inverse of Zero should not be attempted** because:

Zero (and 0 part (= ◊)) should NOT be expected to behave similar to other numbers in some aspects because zero as a number is signless i.e. it contains both Positive and Negative qualities at the same time (hence signless) e.g. when using division as the inverse of multiplication:

1/0 = ◊ , therefore ◊ × 0 = 1 or (±◊) × (±0) = (+1), but (±) × (±) ≠ (+), **hence the Multiplicative Inverse does not apply to zero in this aspect**; if it does, there exist a contradiction between inverse and operations involving signs of numbers.

MATERIAL 12

Reason why the Multiplicative Inverse should be Treated with Caution in Traversing Time Calculations

The multiplicative inverse cannot be performed without the equal sign.

The equal sign basically means both sides of the equation are equal at the same time but NOT at different times.

In Time calculations however, the Time differs from Present (=0) to Future & Past (=◊) hence cannot be assumed to be equal at all Times because of the time difference.

e.g. $0 \times 0 = 0$ hence $0 = \frac{0}{0}$ but $0 \neq \frac{0}{0}$

In other words the reciprocal of Zero (which is mandatory for this multiplicative inverse) happens to be in a different Time compared to its reciprocal hence cannot be assumed to be equal in relation to Time.

e.g. Reciprocal of $0 = \frac{1}{0}$

but Reciprocal of $2 = \frac{1}{2}$

Explanation

The reciprocal of Zero happens to be in the Future/Past (= ◊) but the reciprocal of “2” happens to be in the Present (= 0) hence their multiplicative inverse cannot be expected to be calculated in the same way.

MATERIAL 13

Catalyst of Traversing Time in Mathematics

Known theorems that must be observed when dealing with division by zero calculations

i. If the calculation involves Real Time numbers only, BODMAS or BOMDAS rule can be observed.

e.g. $2 \times 1 \div 3 = 2 \times (1 \div 3) = 2 \times \frac{1}{3} = 2/3$

OR $2 \times 1 \div 3 = (2 \times 1) \div 3 = 2 \div 3 = 2/3$

ii. If the calculation is in Real Time but involves a division by zero calculation that interacts with the present, only the BODMAS (rather than the BOMDAS) rule can be used.

e.g. Find the reciprocal of Zero in its present/real time; $\Rightarrow$ Reci. of $0 = \frac{1}{0}$

But: $\frac{1}{0}$ *is equal to* $\frac{1}{0} \times 1$

Hence: $\left(\frac{1}{0}\right) \times 1 = \Diamond \times 1$

$= 0$

> Nb Any number (NOT operand) multiplied by '1' is equal to itself e.g. 1/3 = 0.333… but 0.333…×1 ≠ 1/3.

Therefore the reciprocal of zero in Real Time = 0

NB The operands "1/0 and 1" are Present/Real Time operands because the calculation is purely in the present (in the context of operands and not numbers singularly) i.e. the end result must be in Real Time because of the use of the BODMAS theorem.

Therefore this type of operands can also be called **Time Operands**.

iii. If the calculation is purely in the Past/Future but involves division by zero calculation that interacts with the future, only the BOMDAS rule can be observed.

e.g. Find the Reciprocal of zero in its past/future; $\Rightarrow$ Reci. of $0 = \frac{1}{0}$

But $\frac{1}{0}$ *is equal to* $\frac{1}{0} \times 1$

Hence: $\frac{(1 \times 1)}{0} = \frac{1}{0} = \Diamond$

> Nb Any number (NOT operand) multiplied by '1' is equal to itself e.g. 1/3 = 0.333… but 0.333…×1 ≠ 1/3.

Therefore the reciprocal of zero in Past/Future = ♁

NB The operands "1/0 and 1" are Past/Future operands and not Real Time operands (in the context of operands and not numbers singularly) i.e. the calculation is purely in the Past/Future because of the use of the BOMDAS theorem.

Therefore this type of operands can also be called **Time Operands**.

Deeper analysis

Time Operands suggest that the numerals used have already been calculated, even before they are i.e. it's like glaring into the resultant future of numbers without actually being there.

For example, you can make the judgement that the operation "1/0" is in the Present even though "1/0 = Past/Future" because the end result is already known/determined which in this case is zero (= Real Time).

This therefore means the judgement you take about the numerals carry no risk because the end result is already known e.g. making judgement on whether to use either the BODMAS or BOMDAS rule.

On the other hand, a coefficient suggests that the numerals have not yet been calculated because the end result can vary depending on how the calculation is executed. In other words, contrary to Time Operands, coefficient operations cannot be pre-determined.

In this context, **Time Operands are similar to coefficients** because both can have varying results but the difference is in the pre-determination of the end result.

Conclusion

The rules of operations (i.e. BODMAS & BOMDAS) operate differently in different times because division is the catalyst of time in mathematics (since it enables us to have past and future numbers) hence its inverse (= multiplication) must as well be a catalyst of a different time when it takes priority over division (as in the case of BOMDAS).

NB To understand why the reciprocal of zero can either be zero or vacuum, see Specific Calculations (Pg. 16).

MATERIAL 14

Reason why the Past is Equal to the Future

The most obvious reason is because both the past and future are equal to vacuum (as previously proven).

To put this into context, we will have to compare the past & future to the present:

$$\boldsymbol{Present\ Time\ =\ Real\ Time}$$

$$\boldsymbol{Present\ =\ Reality}$$

Therefore if “Present Quantities = Real Quantities”, then Past & Future quantities are not real quantities because real quantities are reality quantities i.e. real quantities are the present quantities.

But one may ague: Since past & future quantities are not real quantities, then they must be fake quantities or if not fake they must be dilating time as explained by Albert Einstein. The problem with this argument is the realisation that even fake or dilating quantities are real quantities otherwise they would not have been seen/detected as fake or dilating quantities.

This therefore dictates that **true/scientific future and past quantities are the quantities that are simply not there** hence can be calculated as void/vacuum quantities because they relate to present quantities via space i.e. vacuum space.

Take note that this is not an assumption as it uses the scientific equation, $"Speed\ =\ Distance\ over\ Time\ taken,"$ where Speed = Movement of a quantity, Distance = Physical length or space of a quantity & Real time = a real quantity.

This equation can be scientifically proven because when a quantity moves, the only physical/scientific test that proves the quantity has moved is the same i.e. the physical quantity.

On the other hand, Time cannot be used to prove physical movement because Time cannot be seen physically (e.g. the color of Time does not exist) hence cannot be used to prove any physical equation. This is the scientific difference between Time and Real Time.

Distance is physical because, for instance, a wheel experiences movement whether it covers distance or not, when rotated. **NB a rotating wheel is a very scientific/testable example as to the proof that any division requires movement but any movement does not necessarily require division, as in the case of a rotating wheel.**

This test is more viable than the Albert Einstein one because the Einstein scientific dilating time-test cannot be performed (= proven) by a blind person because it requires light but mine can be proven by any blind person for blind people relate to Time as well.

MATERIAL 15

The Coefficient Conjecture

Since $0^0 \times 0^1 = 0^1$,

We can assume $0^0 \times 0,1,2,3 \ldots = 0^1$

Therefore $0^0 \times x = 0^1$

Hence the conjecture: **Ꝟ** $\times \boldsymbol{x} = \mathbf{0}$

In the same way:

$$0^0 \div 0^1 = 0^{-1}$$

Nb $0^{-1} = \frac{1}{0} = 0^0$

Hence $0^0 \div 0^1 = 0^0$

We can therefore assume $0^0 \div 0,1,2,3 \ldots = 0^0$

Therefore $0^0 \div x = 0^0$

Hence the conjecture: **Ꝟ** $\div\ \boldsymbol{x} =$ **Ꝟ**

- NB If my proposed **Real Time Numbers** (see pg. 37) can be accepted as a **Type of Numbers** then my conjecture with the variable "x" (of which equate to Zero) can be proven as a theorem rather than a conjecture where the numerator equate to "Ꝟ" for the division conjecture (because division has non commutative properties).

Examples of Coefficient Conjecture

Example 1

$$\frac{1}{0} \times 1 = ?$$

BODMAS Rule

$$\frac{1}{0} \times 1 = \left(\frac{1}{0}\right) \times 1 = \text{Ꝟ} \times 1$$

Coefficient Conjecture

$\Diamond \times x = 0$ hence $\Diamond \times 1 = 0$

Example 2

$$\frac{0}{0} + 1 = ?$$

$$\left(\frac{0}{0}\right) + 1 = \Diamond + 1$$

2nd Coefficient Conjecture

$$\left[\frac{\Diamond}{x} = \Diamond \text{ hence } \frac{\Diamond}{1} = \Diamond\right]$$

Therefore $\frac{\Diamond}{1} + \frac{1}{1} = \frac{0+1}{1} = 1$

Thus $\Diamond + 1 = 1$

Nb The Least Common Multiple (LCM) in this calculation is '1' (but not '0') because '0' can be all or any number in Time calculations i.e. 0 = 1,2,3… As for Vacuum, the Least of its Common possible Multiples to be used as its denominator is '1' i.e. 1×1×1…=1.

Example 3

$$\frac{1}{0} - 2 = ?$$

$$\left(\frac{1}{0}\right) - 2 = \Diamond - 2 = \frac{\Diamond}{1} - \frac{2}{1} = \frac{0-2}{1} = -2$$

Therefore $\Diamond - 2 = -2$

Reason why it's not Possible to Add or Subtract Vacuum

$$\Diamond + \Diamond = \frac{\Diamond}{1} + \frac{\Diamond}{1} = \frac{0+0}{1} = 0 \quad \& \quad \Diamond - \Diamond = \frac{\Diamond}{1} - \frac{\Diamond}{1} = \frac{0-0}{1} = 0$$

$$\therefore \Diamond + \Diamond = 0 \quad \& \quad \Diamond - \Diamond = 0$$

This means "$\Diamond + \Diamond$" = Reciprocal of $\Diamond$ and also "$\Diamond - \Diamond$" = Reciprocal of $\Diamond$.
The (reciprocal) deducement brings out an interesting mathematical discovery because **the Reciprocal of "$\Diamond$" is also its opposite number** (see pg. 14); and as we all know, the opposite of numbers is determined/deduced by the additive (+) and subtractive (-) signs of numbers. Therefore a positive or negative Vacuum number is equal to its reciprocal and thus equal to Zero.

i.e. $+\Diamond = \frac{1}{\Diamond} = 0$ hence $+\Diamond = 0$ & $-\Diamond = \frac{1}{\Diamond} = 0$ hence $-\Diamond = 0$

This proves **it's NOT AT ALL possible to add or subtract Vacuum because doing so simply implies that you are not actually adding or subtracting but rather trying to determine/calculate its opposite number.**

MATERIAL 16

HISTORY OF VACUUM CALCULATION

History of Vacuum Calculation did not exist until 2012 AD via the discovery of the Philosophy of Vacuum Calculation as explained below. This is because there was no conceptualization/discovery on how to do it.

Chronology of the Philosophy of Vacuum Calculation

In early January 2012, I was boiling water to brew strong tea. Once the water boiled, I went to open the lid so as to put some tea leaves but I noticed something very fascinating; the water vapor was literary flying like a bird to the air and out of the house heading to the sky and finally to the clouds.

I then started wondering why water is capable of carrying itself, as thousands of liters of water in the form of clouds, yet not powerful enough to carry us upwards if we hold on to it in the form of water vapor.

I thought that, if one could hold on to the water vapor without turning it to distilled water, one could fly. This could only happen if I am able to compress the water vapor but retain it as vapor.

The idea of vacuum had been born: A partial vacuum with boiling water in an enclosed container, could compress water vapor from the boiling water, thus lifting the container upwards if the water vapor is compressed enough to lift it.

I practically tested this idea by using a glucose tin while using a stove as an improvised heater to boil the water that's inside the air tight enclosed tin. My experiment didn't work, maybe because I was using improvised equipment.

I tried making a prototype of the same by introducing ice cubes on the lid of the enclosed container to reduce the effect of expansion of the air which had on many occasions blown away the lid. This idea sometimes partially worked because at times I could hear a sound like the one of the wind inside the container. This, I thought, was as a result of the expansion and contraction of the air hence creating a man-made wind inside the tin.

If the idea had worked, the next generation prototype would have included an electric heater at the base and cooler at the top of the container in such a way that they are all joined together as one compartment. This would ensure a progressive lift off of the prototype in such a way that its speed could be controlled by increasing or reducing temperature from the electric heater or cooler. Direction would be regulated by maybe having two heaters at the base, in such a way that reducing or increasing the temperature of either one of them helps in change of direction. Advanced prototypes would have led to the manufacture of space ships that float 'miraculously'.

The idea of the space ship encouraged me to do more research of my experiment.

The Day before the Discovery

On the 1st of February 2012, as I was trying to improve my experiment, I forgot to reduce air by ensuring I thoroughly heat water in the container. This would ensure that most of the air expands out of the container so that when I tightly enclose the lid, it's not blown off by air pressure. I therefore removed the tin from the heating stove to perform this procedure. As I opened the lid of the tin, I noticed air was rushing inside the container meaning a partial vacuum has been formed inside it. This also meant some air had escaped from my 'air tight container'. I decided to note this down as part of my observations. I also decided to translate it into a physics equation i.e.

$$Air\ Escape\ =\ Vacuum.$$

The Day of the Discovery

In the morning hours of the 2nd of February 2012 as I was going through my notes that I had accumulated from my experiment, I noticed a strange equation: "Air Escape = Vacuum". It was strange to me because I didn't understand it at first.

This prompted me to find a better terminology for my equation; I thought, "When air escapes, it means it has moved from its location to another, therefore the better terminology for the word Escape is Movement".

I therefore replaced the original equation with:

$$Air\ Movement\ =\ Vacuum.$$

I generalized the equation to:

$$Matter\ Movement\ =\ Vacuum.$$

Immediately after generalizing it, it brought out a new meaning in my mind i.e. if I were to move any matter, vacuum would be formed.

There was a cup nearby, therefore I decided to practically test my new equation; as I moved the cup, I would visualize in my mind how vacuum was being formed behind it and how air quickly filled the vacuum space.

The Moment of the Discovery

In my observations, I had generalized vacuum inside the container as zero meaning nothing.

I decided to apply the zero to my equation i.e.

$$Matter\ Movement\ =\ 0$$

Since movement of matter is calculated as Speed; and Speed = Distance over Time taken, I generalized it to:

$$\frac{Distance}{Time} = 0 \qquad \text{or} \qquad \frac{D}{T} = 0$$

To make sense of my new equation, I sought to find out how the Distance and Time would relate to my equation i.e.

$$\frac{D}{T} = 0 \quad , \quad D =\ 0 \times T \quad , \quad Distance\ =\ 0$$

This made some sense, in that the Distance that remains because of the movement of the cup was indeed vacuum as I had practically visualized.

I sought to find out how Time would relate also;

$$\frac{D}{T} = 0 \quad , \quad Time\ = \frac{D}{0}$$

I realized that this is an incorrect calculation because I knew that when you divide anything by zero, it's undefined.

Since Distance is covered by matter which in this case is the cup, I decided to replace the word Distance with Cup in the equation;

$$Time\ =\ \frac{Cup}{0}$$

I tried to make an analysis of it;

$$Time\ =\ Cup\ divided\ into\ zero\ parts.$$

I simplified the language of the equation;

$$Time\ =\ Cup\ separated\ into\ zero\ parts.$$

I realized that if I separated the cup into nothing parts; I have separated it and separating it, is moving it. I therefore practically separated the cup and yes; vacuum was formed.

I rushed to find a calculator to confirm that when you divide one *(cup)* into zero parts, it is undefined; the result was, "Math ERROR" and yes; I had made a mathematical discovery.

MATERIAL 17

History of Division by Zero

Early Attempts of Solving Division by Zero Calculations

The Brahmasphutasiddhanta of Brahmagupta is the earliest known text to treat zero as a number in its own right and to define operations involving zero. The author however failed in his attempt to explain division by zero.

According to Brahmagupta *(598 - 668 AD),* a positive or negative number when divided by zero is a fraction with zero as a denominator. Zero divided by a negative or positive number is either zero or is expressed as a fraction with zero as numerator and the finite quantity as denominator. Zero divided by zero is zero.

In 830 AD, Mahavira almost succeeded to correct Brahmagupta's mistake in his book in Ganita Sara Samgraha: "A number remains unchanged when divided by zero". This is because Mahavira's explanation is almost similar to mine which I explained in Vacuum Calculation Philosophy Pg. 9, "If you divide one cup into zero parts, it means you have not divided it at all".

Mahavira together with all the other mathematicians that came after him, who attempted to solve division by zero, succeeded in all ways but to understand that, "any division requires separation and separation requires movement," Vacuum Calculation Philosophy pg. 9.

In other words, the mathematicians were more concerned with the axiomatic value of a division rather than the reality of a division.

In conclusion: Mathematical calculations should never be resolved in an axiomatic way, for axioms may sometimes hinder other important realities of a calculation because of the perception that they are beyond reproof.

RESULTS AND DISCUSSIONS

1) RESULTS

Prologue

Division by zero is the dividing of a quantity or quantities into zero parts. This calculation was unsolved.

Thesis

When a quantity is divided into zero parts, it means it has not been divided at all, but any division requires movement; when the movement of the quantity occurs, a space/void is left. It's this void that's called Vacuum. This means any number divided by zero results in Vacuum.

Method

Division by zero is solved via the new Law which states: Division cannot occur without Movement.
In other words, for any division of a quantity to occur, there must be separation which necessitates movement e.g. 1 (quantity) divided into 2 parts results in two equal parts; the 2 equal parts are as a result of separation which requires movement.

Results

When movement of any quantity takes place, an empty space is left as a result of the absence of the quantity that moved; since absence of quantity is defined as Vacuum, the result of dividing any quantity into zero parts must be left to be Vacuum.

2) DISCUSSIONS

The answer to the conundrum involving division by zero problem rested "inside" the conundrum rather than "out of it".

In other words the answer to division by zero was not merely a calculation issue but a scientific-calculation issue. This means mathematicians were more interested in giving deducible results to the problem without considering any deducible but practical result to the problem.

For example 'one quantity' divided into '1 part' was deduced to result to the 'one quantity' without asking whether the division (= separation) actually took place. In my view mathematicians generally treated this result as one of the magic characteristics of mathematics i.e. it mysteriously and mystically resulted into one quantity even though no division was actually scientifically visible.

If these mysteries and mystics of mathematics were looked at in a scientific/practical way, then probably this problem of division by zero would have been solved in more than a thousand years ago by Mahavira who came so close to viewing division with scientific reasoning rather than with a mystical and magical reasoning.

CONCLUTION

Division by zero has been the missing link to many problems in mathematics because it opens the door to the future and past of mathematics literally.

It’s now possible to solve a mathematical problem in its future when solutions in the present are not viable, accurate or in some cases possible.

This is the main significance and importance of solving the division by zero problem.

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