

*Zeropsis, as a word is a new term, it means, the study and analysis of the number zero. This book is called Zeropsis I, being the first part of three volumes. It discusses the history of the number zero, and attacks the known problems of how we presently understand the number and sagaciously salutes the solutions and cognitions discovered.*

*As in a demonstration of an application of these findings, it provides the proof that, the number zero is a prime number.*

*It re-introduces the fundamental concepts of binary operations, and progresses the reader to grasp the essential concepts, required, in-order to understand the new formulations in number systems.*

*This book, by any means, must be a read-all, for use in schools and any other forms of educational establishments with a mathematical curriculum. It is a necessary and sufficient need for the mathematician of tomorrow.*

*Here- in, is where you will find yourself within the realms of Rigid Logic. You will enjoy the mental stimulations beyond forms and forms of imaginations. Zeropsis I, arrives you at the very front of all mathematical forums.*



*Charles M. Namakando, {Na-ma-can-dow} is the author of Return Migration in Zambia; A Consequential View, along with other research-papers in mathematical demography. He was formally Senior Lecturer at Lusaka Technical Trades Institute in Zambia and is now a Mathematics Teacher with Philadelphia Public Schools in the USA.*

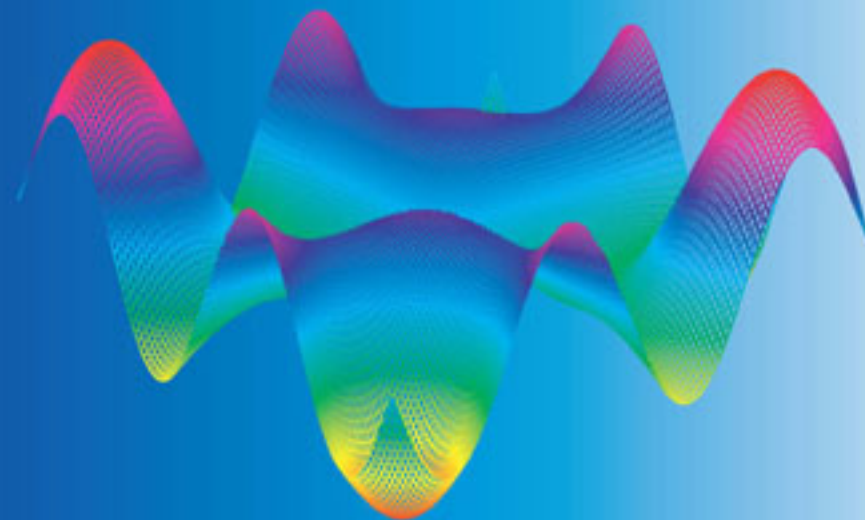
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*Charles M. Namakando • Zeropsis I - The fundamental mathematical allegories of the number zero*

# ZEROPSIS I

*The fundamental mathematical allegories of the number zero*



*A mathematical manifesto,*

*by*

*Charles M. Namakando*



# Zeropsis I

## The fundamental mathematical allegories of the number zero

by

**Charles M. Namakando**

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**Dedicated to my late son Charles Matakala, Jr., my  
late brother Louis Lutangu,  
and my late little sister Charity Namasiku**

# Foreword

From meeting as teachers at a Philadelphia High School, I come to know and understand some of the mathematics of Charles Namakando. Charles' ideas are original and iconoclastic, but when finally adopted and implemented, they will change the teaching of mathematics all over the world.

Charles is an interesting character study. For the most part his personality is humble, meek, and mild, but when he begins to discuss mathematics, his personality transforms and he becomes aggressive and dictatorial.

So, I'll say to the reader, let Charles take you on a journey through his world of mathematics. Always remember that, Charles Namakando said, "zero is a prime number, and division by zero is no longer undefined."

*Ronald Taylor*

# Introduction

When I was fifteen years old as a high school student in Zambia, I took a course called Additional Mathematics. It was then that I consciously came across the presently understood and accepted expression that division by zero is undefined.

However, I was still technically and analytically inferior in my mathematical experience to make any investigations on the issue. It was from then that my mind became alert and began to question as to why a situation in mathematics could be un-defined since mathematics in essence, is the very science that deals with definitions as the basic and necessary forms of operational premises.

So, in all forms of intellectual justification, I found that statement or expression to be some-what out of place in context in that, as mathematics, by nature depends on definitions, therefore, to have a mathematical situation which is undefinable, becomes illogical, hysterical or magical, as everybody has a problem with the number zero.

From that day forward I set out to work, to understand the number systems, and the very nature of a binary operation like division. I thence finally...after many mental mathematical, multimental, monumental, challenges, struggles...and a few successes, I come up with the ideas contained and demonstrated in these works entitled Zeropsis.

Zeropsis is the study and analysis of the number zero. It comprises three parts, Zeropsis I, II, and III. Here is Zeropsis I, in which I will address, in particular, three keystone issues that will then introduce the reader to the understanding of the principles contained in the remaining two volumes.

Zeropsis 1 discusses the history of the number zero, and attacks the known problems of how we presently understand the number and sagaciously salutes the solutions and cognitions discovered. Also as in demonstration of an application of these findings, it will be proved that the number zero is a prime number. Please enjoy yourself and enjoy the mental stimulations.

*Charles M. Namakando*

# Acknowledgements

I express thanks to my mother, who is the first person to teach me mathematics and my father who introduced me to the realms of rigid logic. I also thank my other teachers and professors together with all my friends and work-mates, who have given me many challenges and especially Ronald Taylor, who encouraged me to publish in this fashion and of-course not forgetting Bill Facko, who helped me with most of the editing of the second draft.

Most importantly, I thank my family, Sarah, Sherine, Inas, Zack, May, Elinata, The Aggie's, The Fred's, The John's, Joe, 'Ngala, 'Kende, 'Yoya,..., for their love, their very longanimous patience, discreet and profound silence.

*Charles M. Namakando*

## Emblems

*A ship a-sail, a plane in aviance  
A gunshot  
And a man, it dies  
With them  
A grass with petals of blood*

*And then,  
A cry and a tear it drops  
.... but into an ocean of blood  
not seen or heard...  
and that echoes with them,  
boom, boom,...rattata, rattata,...*

*Yet, an eagle,  
It's fly is the sky  
A victory and be I witness,  
Only a rodent to survive....,  
With them*

*The ashes of skeletal form,  
Emblems, of the begotten.*

*Charles M. Namakando, (Senanga, 07/20/94)*

conception according as the magnitudes concerned are discrete or continuous. To prove that this is not the case, let us examine various suggested definitions.

In another instance, Herr Meinong, regards zero as the contradictory opposite of each magnitude of its kind. The phrase “ contradictory opposite” is one which is not free from ambiguity. The opposite of a class in symbolic logic, is the class containing all individuals not belonging to the first class; and hence the opposite of the individual should be all other individuals. But this meaning is evidently inappropriate: zero is not everything except one magnitude of its kind, nor yet everything except the class of magnitudes of its kind. It can hardly be regarded as true to say that a pain is a zero pleasure. On the other hand, a zero pleasure is said to be no pleasure, and this is evidently what Herr Meinong means. But although we shall find this view to be correct, the meaning of the phrase is very difficult to seize. It does not mean something other than pleasure, as when our friends assure us.....” ...end of quote.

So as might be observed, the issues around the number zero have always been those with a very special treatment over many years, both as a philosophical concept as well as a mathematical one, and not withstanding the practicalities of both subjects in this respect.

### **Development of the Idea**

*but.....As an Idea, it starts to grow in ones mind,*

*In it's growth it starts to determine it's direction,  
The direction of ones thought in process of that Idea  
Eventually becomes the make up of ones mind,  
It goes far and reaches out far yet to source and resource,  
Then it out-grows ones mind,  
The Idea now seeks new habitation and society is its target,  
When out there it becomes it- self a principle, a theory,  
An ideology, once out side ones mind it becomes it,  
Thence it adopts a name and becomes existential forever....*

*Charles M. Namakando, (Buffalo, NY, 08/07/00)*

Now I will address the analytical background regarding the binary operation of division pertaining to the number zero “0”.

# Chapter 2.

## Introducing the Number Lattice Matrix (In Fractional Forms)

*To recollect, in a 1988 seminar at CDC in Cairo, Egypt, it was then when I first suggested that, numbers are formed in specific systems, in them-selves as structures that are well defined. Today I am able to give that explanation. Enjoy the introduction to the Number Lattice Matrix.*

*Such are the forms which can be expressed as numbers of the type/form  $\{(k-n)/k\}$ , where both  $k$  and  $n$  assume any combination of real numbers, complex numbers, hyperreal numbers, transfinite numbers or if any else then any parametric number form is a part of the whole structure of the Number Lattice Matrix.*

There can be no number of the forms stated that shall exist outside the Number Lattice Matrix, since it is a combination of all possible numbers by type, form and system. So all numbers are contained within the Lattice.

In general, the values of  $k$  will vary horizontally and vertically through and over 360 degrees to form a multi-dimensional lattice[a Zeropsis II topic]. The value of  $n$ , varies horizontally and vertically but also diagonally too, in-order to form the complete Lattice Matrix.

See illustrative diagram below for the domains,  $-5 > \text{ or } = k$ , and  $k < \text{ or } = 5$ , with  $n > \text{ or } = -3$ , and  $n < \text{ or } = 3$ , as a part lattice face being used.

-5/-5										
	-4/-4									
-5/-3		-3/-3								5/-3
-5/-2	-4/-2	-3/-2	-2/-2	-1/-2	<b>0/-2</b>	1/-2	2/-2	3/-2	4/-2	5/-2
-5/-1	-4/-1	-3/-1	-2/-1	-1/-1	<b>0/-1</b>	1/-1	2/-1	3/-1	4/-1	5/-1

-5/0	-4/0	-3/0	-2/0	-1/0	0/0	1/0	2/0	3/0	4/0	5/0
-5/1	-4/1	-3/1	-2/1	-1/1	0/1	1/1	2/1	3/1	4/1	5/1
-5/2	-4/2	-3/2	-2/2	-1/2	0/2	1/2	2/2	3/2	4/2	5/2
-5/3								3/3		5/3
									4/4	
										5/5

.....and so on.

So as we can see the diagonal values are each equal to 1. Such as, -5/-5, ..., -2/-2, -1/-1, 0/0, 1/1, 2/2, ..., 5/5 and so on in both upper and lower directions. Note here that only a part of one plane of the Lattice Matrix is being represented in the diagram shown above.

Now when you consider the horizontal rows, you may observe that each a specific number system. For example the entries with a denominator of 1, are such that the value of k at this face of the matrix is equal to 1, and n is a negative number in it's variation, so thus we have  $\{(k-n)/k\}$ , represents the integers which are whole numbers. This is the number system that we use as our basic counting number system.

When we look at the vertical columns, we see the variation of k, such that the denominators of the form  $\{(k-n)/k\}$ , represent the forms of fractions, i.e., being proper, when  $(k-n) < k$ , and improper forms, when  $(k-n) > k$ .

Clearly, however, each row, column, or diagonal uniquely represents a specific number system. It is important to note here that there are no zeros ever where as entries in any row, column, or diagonal, since the form  $\{(k-n)/k\}$ , will not produce any such results by any combination of variations of k and n. **So that there can only be one entry that will produce a value equal to 0, i.e., when  $k = 1$ , and  $n = 1$ . It is from here that you may want to notice that an individual row with denominators of 0, represents the Null-value numbers, with inverse Null-value numbers in the column with numerators of 0.** This will be explained in more detail in the next chapter.

However, these are definitive forms of particular number systems that can only be understood through such structures as represented in the Number Lattice Matrix.

# Chapter 3.

## Introduction

### to Null - Value Numbers

*A mind will not practice its best works,  
if you do not disclose its positional outlook of things.  
Such that, if however you don't make such an endeavor,  
to put it to practice,  
then you risk the chance that you may waste its life,  
and hence its very inherent value,  
a mind.  
It thus becomes worthless to have it.  
More especially, without your reconnaissance of it,  
It is fully potentiated.*

*Charles M. Namakando, (Philadelphia, PA, 10/30/01)*

Let us explore some more definitions that we normally use in our day-to-day technical rigor. For this moment let us pick out two definitions that deal with prepositional statements, i.e., the existence and uniqueness propositions.

In the Existence Proposition-we claim that at least one object having certain properties exists. Then we attempt to prove in two ways; first that; if it is possible ,find an algorithm (rule) to explicitly construct at least one such object satisfying the requirements stated in the proposition, .or secondly, especially in higher-level mathematics, if the explicit construction of the object is not possible; then therefore, we must obtain a general existence statement for the kind of object in consideration, without even ever finding an actual example of the object of that given type.

# Chapter 4.

## Conclusions in Brief

These are the main assumptions on which the Fundamental Premises of Null-values Numbers enroot their basis in mathematical foundations. They justify the issues surrounding division by zero and render it no longer un-defined.

Such that then, by their application therefore, it becomes fitting to introduce the following theorems.

These theorems are in themselves not inert axioms and this is a special case in the history of mathematical foundations. Since this is a correction of the errors made in the fundamental axioms on the potential operational properties of the number zero in mathematical computations.

Hence the following propositional theorems and requisite axiomatic refinements:

Theorem 1: Division by Zero Theorem

If any number  $A$ , is divided by zero, the result is equal to the Null-value number of that number, namely  $Nu A$ , a transfinite number.[C.M. Namakando].

$$\begin{aligned} \text{i.e. } A/0 &= Nu A, \text{ or} \\ A/0 &= [A_0], \text{ or} \\ A/0 &= \wedge_1 A \end{aligned}$$

Theorem 2: Multiplication by Zero Theorem

If any number  $A$ , is multiplied by zero, the result is equal to the Square of that number multiplied by the inverse of its Null-value number.[C.M. Namakando].

## Suggested Readings

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## **About the Author:**

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Charles M. Namakando, {Na-ma-can-dow} is the author of *Return Migration in Zambia; A Consequential View*, along with other research-papers in mathematical demography. He was formally Senior Lecturer at Lusaka Technical Trades Institute in Zambia and is now a Mathematics Teacher with Philadelphia Public Schools in the USA.

He was born and educated in Zambia, where he obtained a Bachelor of Science, in Mathematics with Education in 1981, from the University of Zambia. Then, in 1990, he completed his Masters of Philosophy degree in Mathematical Demography, from the United Nations, Cairo Demographic Center in Egypt.

Whilst he has taught and conducted research work in many schools and institutions around the world, his major focus, since he was fifteen years old, has been his independent work on the understanding of the number zero. It is through such efforts, that, he has made remarkable discoveries in mathematics over time.