ATONEM SEQUENTIA

Victor Matos's Conjecture

"The sequence of number ones"

by

VICTOR MATOS

There is not any other shape in nature, but triangles.
Mankind and its trichotomy.
dominus x, functus x

Quamcumque forma dederis—quadratum, circulumve— in suam primigeniam formam, triangulum, convertam.

LE TRIANGLE
DE MONSIEUR BLAISE PASCAL

1.0 Traité du triangle arithmétique

“Treatise on the Arithmetical Triangle”

The studies on Pascal’s triangle and the laws that abide in the triangle are pivotal to advancements of humanity. The purpose of this project is not to reiterate was already dealt with in the past projects concerning Pascal’s Triangle. However, as in Escher’s philosophical approach on perspective, a change in the shape of the triangle to form new axioms and the perception of other properties is of necessity, so these advancements continue.

SQUARING THE TRIANGLE

1.0 Triangulum deformitas

"The deformity of the triangle"

The use of the triangle in a new shape gives us a better understanding on the arithmetic properties and the already existing axioms as it provides a more linear rationale.

1.0 - Pascal's triangle into a square/table/vector (Victorian Square/table, Atonem Square/table)

1	1	1	1	1	1	1
1	2	3	4	5	6	7
1	3	6	10	15	21	28
1	4	10	20	35	56	84
1	5	15	35	70	126	210
1	6	21	56	126	252	462
1	7	28	84	210	462	924

ATOMIC PROPERTIES

1.0 Atomus Proprietaty Primum

Alpha-pascal Variable

To form the Atonem square/table it is necessary the use of an “atomic variable”. The atomic variable determines all of the square and is reflected both horizontally and vertically. Meaning, the Atonem square (Pascal’s triangle converted into a square shape) has a set of rules that need to be addressed. The first one, the Atomic property. Consisting of a variable that sets the value for the whole table. In the following example we have an *α-pascal* (*alpha-pascal*), a variable that represents the initial atomic value of that table.

2.0 - Atomic variable

α	α	α	α	α	α	α
α						
α						
α						
α						
α						
α						

ATOMIC PROPERTIES

2.0 Atomus Proprietaty Secunda

Rows as dimensions (different number sets), dimetry

The rows, also called horizontal *dimetries* (Latinized version of the word dimension, *dimetry*) are as follows:

3.0 : Rows

1st	1st	1st	1st	1st	1st	1st
2nd	2nd	2nd	2nd	2nd	2nd	2nd
3rd	3rd	3rd	3rd	3rd	3rd	3rd
4th	4th	4th	4th	4th	4th	4th
5th	5th	5th	5th	5th	5th	5th
6th	6th	6th	6th	6th	6th	6th
7th	7th	7th	7th	7th	7th	7th

Each row represents a set (array) with real numbers ($\mathbb{R}^*$, $\mathbb{R} \setminus \{0\}$), excluding zero. The atonem sets/arrays are as follows:

$^{f}đ$ = Dimetry, set. Variable 'f', from Latin: **formatio** (that which changes), indicates index (dimetry, row position)

$^{1}đ = \{1, 1, 1, 1, 1, 1, 1, \dots , \infty\}$ (first row)
$^{2}đ = \{1, 2, 3, 4, 5, 6, 7, \dots , \infty\}$ (second row)
$^{3}đ = \{1, 3, 6, 10, 15, 21, 28, \dots , \infty\}$ (third row)
$^{4}đ = \{1, 4, 10, 20, 35, 56, 85, \dots , \infty\}$ (fourth row)

ATOMIC PROPERTIES

3.0 Atomus Proprietaty Tertia

The reflexive number property

If the square were to be sliced diagonally you would have the reflexive triangles, reflexive numbers. And reflexive triangles.

4.0 : Reflexive numbers

	1	1	1	1	1	1
1		3	4	5	6	7
1	3		10	15	21	28
1	4	10		35	56	84
1	5	15	35		126	210
1	6	21	56	126		462
1	7	28	84	210	462	

Meaning, for every number on the LR (left-reflexive, low-reflexive, the area in yellow) there is an exact number on the TR (right-reflexive, top-reflexive). Philosophically speaking this property in the atonem table reflects Newton’s third law: For every action (force) in nature there is an equal and opposite reaction. For the table it translates as: For every LR number there is an equal and opposite TR number. Excluding number 1, which represents the atomic number in the table. The alpha-pascal number in that table.

ATOMIC PROPERTIES

4.0 Atomus Proprietaty Quartum

The non-reflexive number property

The numbers that cut the table diagonally, represent a set of numbers that are non-reflexive. Meaning there is no number in that table that is similar. Also called: central binomial coefficients: binomial (2*n,n) = (2*n)!/(n!)^2.

4.0 : Binomial expression (with symbols

$$\frac{(2n)!}{(n!)^2}$$

The non-reflexive numbers are as follows:

5.0 : Non-reflexive numbers

	2					
		6				
			20			
				70		
					252	
						924

ATOMIC PROPERTIES

5.0 Atomus Proprietaty Quintum

The cells

Any block (any internal square) that composes the table is a cell or an atom. Atonian atom.

Cell = Atom

6.0 : Cells/atoms (atonian atoms)

Cell	Cell	Cell	Cell	Cell	Cell	Cell
Cell	Cell	Cell	Cell	Cell	Cell	Cell
Cell	Cell	Cell	Cell	Cell	Cell	Cell
Cell	Cell	Cell	Cell	Cell	Cell	Cell
Cell	Cell	Cell	Cell	Cell	Cell	Cell
Cell	Cell	Cell	Cell	Cell	Cell	Cell
Cell	Cell	Cell	Cell	Cell	Cell	Cell

Cells are not independent, each one depends on its predecessor. Similar to the arithmetic progression. For the original version of the table (triangle) having the alpha-pascal variable set to 1, and the order of operation set to addition, you are able to reproduce the original Atonen Vector.

ATOMIC PROPERTIES

6.0 Atomus Proprietaty Quintum

Arithmetic of the atoms (posivite, addition, summation)

Take any dimetry atom, any row cell, except all cells from the first dimetry and the every first number in each set, (which is a sequence of alpha-pascal's), and it's down neighbour value is the summation of every cell up until it.

7.0 : Linear summation

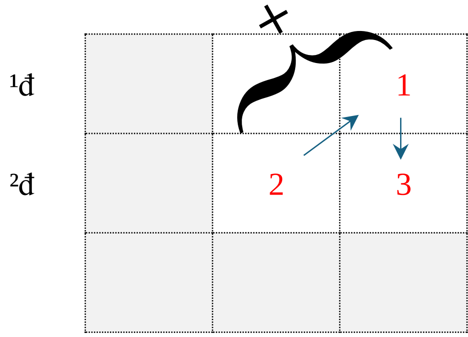
^{1}đ	1	1	
^{2}đ	1	2	

There is also the diagonal summation property, that reflects the same exact results by combining dimetries' cells.

8.0 : Diagonal summation

^{1}đ		1	
^{2}đ	1	2	

8.1 : Diagonal summation



It works for any row, every row, from ^{2}đ (dimetry 2) onward.
Thus, making the values that go on the first row and column indicate what type of dimetry (vector, table), meaning, these are the atomic row and column that sets the rules of that module.

Modules, modulators, and new symbology, and other possible dimetries (set of rules)

1.0 A new set of rules (a new mathematical science)

The atomic or modular mathematical principal relies heavily on dimetry, meaning: A vector with a set of rules. That fall into two categories, Baroque or Gothic. Baroque meaning, unique. Gothic meaning, it has an ‘atomic’ pattern.

Baroque

	2	3	4
0	2	5	9
1	3	8	10
0	3	10	20

The baroque rules in a Pascal vector (Victorian table), mean that the atomic cells, the ones that originate the vector do not reflect the alpha-pascal variable. The first row could be a set of any number or sequence, or random numbers that could originate new Victorian tables/Pascal vectors. Mathematical notation:

$$^{f}\text{đ}_{(a,\ \text{ə})} \Rightarrow {}^{f}\text{đ}_{(\{\},\ \{\})}$$

The variable a representing the x-axis and the variable ə (emyla) representing the y-axis. They are sets. Sequences of numbers. Such as:

$$\mathbb{N}$$

Or any other sequence, one may replace with the variables

Gothic

1	1	1	1
1	2	3	4
1	3	6	10
1	4	10	20

Meaning, the red square is a gothic Alpha-Pascal, the rule applies to every first-row cell and to every first-column cell. All of them are 1.

$$^{f}\text{đ}_{\alpha}$$

Alpha-Pascal variable representing the vector's sequences. Family of sequences that interrelate with each other based on the first atomic value in red.

VARIABLE MODULATION

$$^{f}đ_{\alpha}[x]$$

This notation simply means, f of dimetry Alpha-Pascal on X. Meaning, the variable X, is going to obey the victorian table notation. So if :

$$^{3}đ_{1}[x]$$

Only the X variable is going to be afected. And now, to make it more flexible and more meaninful, the cells in the victorian/atonem table/vector, are all considered indexes to the dimetries. Dimetry => set, a sequence of elements. The variable in the dimetric modulation, is an index on the table based on the Alpha-Pascal variable.

1	2	3	4
1	2	3	4
1	2	3	4
1	2	3	4

e.g

$$^{3}đ_{1}[x] = x^{n}$$

$^{3}đ$ => Dimetry 3, 3rd row. X variable, 1 => Alpha-Pascal. Which reads:

Dimetry 3, Alpha-Pascal 1 of X, X to the power of n.

If X is 4, that means index 4 in the third row of the victorian table. X => 10^{n} .

Derivatives and other operations, Dimetric Operation

This CONJECTURE is a new look at how variables will behave. It's a multiverse of numbers and operations, where, $x + y$, depends on the dimetric modulation, from a deixis am phantasma (meaning it could be there, but it's not) to a deixis ad oculus (now made visible mathematical object). In $f = 2$, those operations remain the same ${}^{f}đ_{\alpha}[x]$, $2 + 2 = 4$. But in $f = 4$, $2 + 2 = 8$, now the number 2, represents an index rather than the real value. If the formatio variable that indicates the dimetry changes, so does the set, or row. Multiple variables can be represented as:

$$ {}^{f}đ_{\alpha}[x, y] $$

${}^{f}đ_{\alpha}[x] + {}^{f}đ_{\alpha}[y] = 22$, what are f, α, x, y?

The solution to that dimetric equation is, and it reads:

Dimetry $f = 2$, over x of Alpha-Pascal: $\alpha = 1$, $x = 2$
plus
Dimetry $f = 4$, over y of Alpha-Pascal: $\alpha = 1$, $y = 4$

Now, when all the variables are affected the same, by the same dimetric modulation operation, the notation is as follows:

${}^{f}đ_{\alpha}[:] = x + y = 9$, when $f = 3$, $\alpha = 1$,

When $x = 2$, $y = 3$,

A simpler way to take those notations, to represent index, and talk about dimetric operations and not get confused, is as follows:

$$ {}^{f}\ulcorner X + {}^{f}\ulcorner Y = V $$

f = formatio/row, X any number, Y any other number, V the result of the addition operation between dimetric X and dimetric Y.

OBSERVABLE PROPERTIES

There are infinit sequences and properties that observable. Luckly this new view on numbers and sets helps mathematics to further its sight into the mysterious and unknown. One notable property that is easily proven, geomatrically proven, visually proven with the table is:

Squareroot of numbers added in the 3rd row, is found in the 2nd row for X > 1:

$$\sqrt{{}^{3}đ_{1}[x-1] + {}^{3}đ_{1}[x]} = {}^{2}đ_{1}[x-1],\ x > 1$$

BREVIS

This document, *Atonem Sequentia*, introduces a new mathematical structure based on transforming Pascal's triangle into a square format, with some philosophical and atomic properties applied to the resulting structure. Here are some key points:

1. **Conversion of Pascal's Triangle into a Square**:
    - It describes turning Pascal's triangle into a square grid, termed the "Atonem square," which carries arithmetic patterns seen in both rows and diagonals.
2. **Atomic Properties**:
    - The concept of an **alpha-pascal variable** drives the values across rows and columns, where each cell (termed an "atom") in the structure is dependent on its predecessor, similar to arithmetic progressions.
3. **Reflexive and Non-Reflexive Numbers**:
    - The document introduces **reflexive numbers**, where for every value in one part of the table, an equal opposite value appears elsewhere (reflecting symmetry). The **central binomial coefficients** form the non-reflexive diagonal set.
4. **Dimetry (Dimensional Rows)**:
    - Each row (called dimetry) holds a distinct sequence of numbers, starting with {1, 1, 1, …}, followed by {1, 2, 3, …}, {1, 3, 6, …}, and so on, resembling familiar sequences from Pascal's triangle in a transformed format.
5. **Baroque vs. Gothic Modulators**:
    - These refer to different structures of vectors or tables based on whether sequences follow strict atomic patterns (Gothic) or more arbitrary rules (Baroque).
6. **Dimetric Operations**:
   The conjecture hints at new arithmetic behaviors for addition and other operations, where outcomes depend on the structural modulation of these dimetries. This introduces a new kind of "contextual" or index-based arithmetic, which could have implications for modular arithmetic.

This framework hints at a possible new approach to sequences, arithmetic relationships, and even symmetry within number theory. It looks promising for exploring more generalized structures of binomial coefficients and modular arithmetic. This work aims to extend classical ideas and unlock new perspectives within number theory and symmetry.