An INTERPRETATION of
The Pattern Number System

A systems engineering solution to the unification of science.

[**Pottery Class**] The simplest way to explain the Pattern idea is to compare it to pottery (the making of pots from clay). Someone doing pottery typically uses a mould to shape the clay into a pot shape. The same mould could be used repeatedly to make different pots. The finished pots all have the same basic characteristics that were inherited from the mould. Inspection and comparison of the pots will reveal features that are similar.

The Pattern cube is deemed to be the mould in the pottery analogy above. The different 'pots' that were made with the (same) mould are unification cubes that could be viewed as models of natural phenomena, such as spacetime and gravity. To test whether a natural phenomenon could have been produced by the Pattern cube, the properties of a unification cube model of that natural phenomenon could be matched against the properties of the Pattern cube mould.

[**Unified Numbers**] Pattern numbers are sum-and-shape numbers. The initial sum of Pattern number 6 (Pn6), for example, is 6 + 0 (= 6). The complete set of values is 6,0; 5,1; 4,2; 3,3; 2,4; 1,5; 0,6. The values correspond to the numbers of the a and b cells in each layer of the Pn6 wall (shape).

Pattern numbers embody properties ascribed to quantum phenomena, such as spin and uncertainty. Pattern numbers are also innately indeterministic because the same sum could be the result of any value combination. A key characteristic of Pattern numbers is their algebraic-geometric equivalence.

Pattern numbers could be in a duonity (superposition) state or in a disduonity (non-superposition) state. (Duonity is defined as a two-oneness of things and disduonity as the twoness of things.)

[**Unification System**] The Pattern number system (PNS) is a framework for other number systems. Pattern number 1 (Pn1) of the PNS, for example, compares with the binary number system.

Pattern numbers could be raised to higher powers and each power corresponds to a specific shape.

The Pattern cube that is the main shape of the PNS is derived from a column pair. (A column is the shape of cubed Pattern number 6, written as $Pn6^3$). A column consists of six blocks with each block the shape of $Pn6^2$. The other Pattern number shapes are the wall ($Pn6^1$), and the pillar ($Pn6^0$).

The PNS and its application to the matching of natural phenomena by means of unification blocks and cubes could be described as a systems engineering solution to the unification of science.

A Pattern number is a sum-and-shape that shapes.

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[**Squared Ceiling**] The PNS breaks through the Pythagorean squared ceiling. The Pattern equations, and the equivalent Pattern numbers, could be raised to higher powers than the squared power limit imposed using the Pythagorean theorem.

Comparison of the PNS Terms and the Squared Terms of the Pythagorean Approach

Pattern Number System			Pythagoras	Notes on Pythagoras	
$Pn6^3$	column	$(a + b)^4$	$(a^2 + b^2 + c^2 + d^2)$	4D:	Squared term extension.
$Pn6^2$	block	$(a + b)^3$	$(a^2 + b^2 + c^2)$	3D:	Squared term extension.
$Pn6^1$	wall	$(a + b)^2$	$(a^2 + b^2)$	2D:	The *ab* and *ba* fill terms are lost.
$Pn6^0$	pillar	$(a + b)^1$	$(a^1 + b^1)$	1D:	The terms are equivalent.

The comparison shows the squared term extension method (the middle column) to deal with higher dimensions (a kind of work-around) that is used extensively in classical physics and quantum physics.

[**Missing Links**] The complex Pn6 block (on the right) is a shape of the PNS that is used to illustrate unification. The real axis (Re) and the imaginary axis (Im) of the complex coordinates are superimposed on the four parts of the middle layer of the block. Note that a Pythagoras-type expression ($-a^2 + b^2$) excludes the imaginary axis (two 'missing links') that makes the layer a square shape and makes the block a linear shape (all the block layers are squares).

Complex Block

a=3, b=3
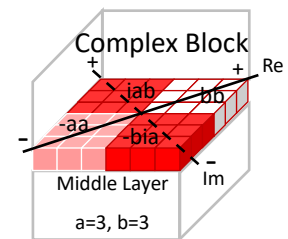
[**Delayed Physics**] The unification block (on the right) shows the same middle layer as above with physical quantities substituted in the i*a* and *b* variables. The real terms represent special relativity ($-t^2 + x^2$) in one space dimension and the imaginary terms represent quantum uncertainty (iqp - piq).

Unification Block

a=3, b=3

Spacetime Block
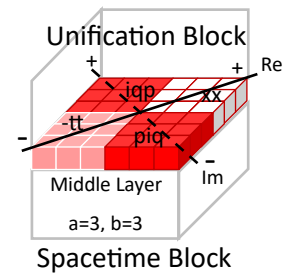
Special relativity in 4D is represented by the spacetime unification cube with an (imaginary time,space), or a (potential space,actual space), pair of quantities. Each imaginary vertex part of the spacetime cube consists of a triplet (shape).

The gravity unification cube represents the (anti-gravity,gravity), or (potential gravity,actual gravity), pair of quantities. The imaginary vertex parts of the cube represent an elastic type of chain gravity. The inclusion of the imaginary vertex parts makes the gravity cube, and spacetime cube, linear cubes. Note that the substitution of physical quantity pairs in the variables (i*a*,*b*) is delayed until the matching (last) phase.

[**Matching Models**] Unification cube models that match natural phenomena are proof of a common origin. Unification cubes other than those mentioned above that are described are the atom cube (or standard cube), the energy cube, the code cube, the charge cube, the wave cube, and the genetic cube. These cubes are manifestations of different physical quantity pairs. Each cube embodies a conserved quantity.

Science is the search for the simplest solutions.   Willaim of Occam

[**Quantum-ness**] Quantum phenomena are present in all layers of the PNS. The quantum properties of a block, for example, are like the quantum properties of a wall, except that they are more complicated owing to the introduction of additional terms. Quantum properties can be dealt with independently from their physical manifestations until the actual phenomena such as spin needs to be substituted.

[**Time and Again**] Pattern number progression happens in steps, units (composed of steps) and cycles (repeating units). Pattern progression is, therefore, discrete, unitized, and repetitive. Imaginary time in the spacetime context is represented by the imaginary variable (ia) of a complex Pattern number.

[**Splitting Headache**] The nature of reality could, perhaps, be described as a disduonification (splitting) process that converts physical quantity pairs, such as momentum and position, in a step-wise fashion from the duonity state to the disduonity state. Disduonification could be compared to quantum decoherence. (Quantum decoherence is the loss of quantum coherence.)

[**Divide and Conquer**] The application of systems engineering principles are apparent in the dimensional layers and the sum-and-shape 'bricks' of the PNS. The development of the various models independently from any physical quantities until the matching phase is key to the applicability of the PNS to the unification process. Matching the models with natural phenomena is possible in all layers of the PNS. Progressive unification, as it is done for special relativity, first in a block (for one space dimension) and subsequently in a cube, enables simpler solutions for the explanation of natural phenomena.

[**Testing, Testing**] The use of models (unification cubes) in the testing of the Pattern hypothesis is another illustration of how systems engineering principles could be harnessed to solve scientific dilemmas, especially the classical mechanics vs. the quantum mechanics dilemma. (The hypothesis states that natural phenomena developed according to a universal [common] mould.) The way in which the different unification cubes match key properties of diverse natural phenomena is a good indication that the Pattern hypothesis could be true.

[**Dark Force**] Comparisons of different cube features could lead to exciting predictions like the dark (matter) force of the gravity cube. A comparison of the vertex parts (hadrons) of the atom cube that exhibits the strong force with the equivalent parts of the gravity cube leads to the hypothesis that the dark matter effect could be a consequence of a new type of elastic (rubber band) gravity, i.e. chain gravity. The same (vertex) parts of the spacetime cube would yield elastic (chain) spacetime that could be the cause of a type of black hole. More such predictions, based on the inclusion of the vertex parts of the different unification cubes, are likely. Each new discovery will add to the proof of the Pattern.

[**Most Finally**] The Pattern represents what John Archibald Wheeler predicted when he said: *"...we will grasp the central idea of it all as so simple, so beautiful, so compelling that we will all say each to the other, 'Oh, how could it have been otherwise! How could we all have been so blind for so long!'"*