The Pattern Cube

Notation, Classification and Application

The central idea of creation is simple; there is a Pattern behind it all.

The Pattern theorem states that a *linear inverse symmetric pair of quantities yields a conserved sum,* and the Pattern law states that *the Pattern sum is a conserved quantity*. This means simply that *a* plus *b* equals *c* but that *a* and *b* have specific values to ensure that *c* stays constant.

The mathematic-geometric equivalence of the Pattern implies that the Pattern cube, which is the manifestation of the Pattern theorem, is also a conserved quantity, or, rather, object.

Specific Pattern cube models that are based on the generic Pattern cube are described and classified in this article. Pairs of *a* and *b* quantities are used to define the different Pattern cubes.

Specific Pattern cube models are used to illustrate the suitability of the Pattern principle to explain creation:

The Vacuum Cube – it shows creation in action.
The Atom Cube – it shows the atom of atoms according to the Standard Model;
The Spacetime Cube – it represents a spacetime with two types of time;
The Gravity Cube – it shows constant acceleration as the (only) force of forces;
The Energy Cube – it shows the potential and the actual of the Pattern;
The Code Cube – it shows light and life as the two regions of the same cube; and
The Anti-cube - it shows a black hole as the composite anti-Pattern cube.

The main reason for the Pattern's success in modelling natural phenomena is the Pattern theorem's superiority over the Pythagoras theorem. The Pattern equation is better than the Pythagoras equation because it can be cubed whereas the Pythagoras equation cannot be cubed.

Fermat's Last Theorem (1637) states that no positive integers *a*, *b* and *c* satisfy the equation $a^n + b^n = c^n$ for any integer value of *n* greater than 2. This theorem was proven by Andrew Wiles in 1994.

The Pattern equation can have $(a + b)^n = c^n$ with $n = 0,1,2,3$,etc. The cubed equation yields the sum c^3. The Pattern value pairs for *a* and *b* (*a* = 6,5,4,3,2,10; *b* = 0,1,2,3,4,5,6) ensure that c^3 is constant for all pairs.

The mathematic-geometric equivalence of the Pattern, therefore, implies that the Pattern cube represents a geometric constant or invariant. The Pattern cube is, therefore, a universal (generic) object that could represent conserved quantities, such as energy.

The Pythagoras equation is, however, a subset of the Pattern equation, and theories, such as relativity, that were based on the Pythagoras equation could, therefore, be incorporated in specific Pattern cubes.

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Definition, Notation and Classification

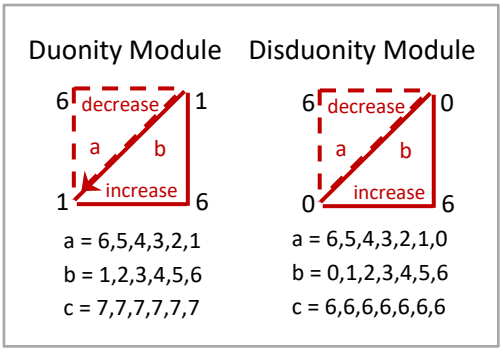
The Pattern is essentially expressed by a simple module but its repeated application yields complex cubical structures. The notation uses a system of graphic symbols to facilitate the representation of the different parts of the Pattern cube.
The classification of specific cubes is based on the main properties of the Pattern cube.

The Pattern Definition

The basic Pattern equation is: a + b = c
a is the complement of *b* and *c* is a constant.

The values of *a* and *b* are the first six positive integer numbers.
The *a* values are the inverse sequence.

The values of the disduonity module (see right) include a zero.
Disduonity is the default version of the Pattern module.
Duonity is defined as the two-oneness (a superposition) of *a* and *b*.
Disduonity is the (collapsed) twoness of *a* and *b*.



Note the similarity to the law of the conservation of energy which states *'as work decreases, so heat increases to keep the total energy constant'*.

The squared Pattern equation is: $(a + b)^2 = c^2$,
which is equivalent to: aa + ab + ba + bb = cc.

The Pythagoras equation (aa + bb = cc) is a subset of the Pattern equation.
The Pattern equation is linear, and the Pythagoras equation is nonlinear.

The *a* quantity of a module is typically the imaginary or potential quantity while the *b* quantity is the real or actual member of the pair.

The essence of the Pattern could be described as *a quantity that is progressively being inverted (converted) into another quantity, with their sum a constant for every pair of values*.

The Pattern Origin

The Pattern code is an innate property of a cuboctahedron-shaped cluster that is formed by twelve spheres around a centre sphere. The Pattern equation is a generalisation of the Pattern code.

The Pattern Notation

The Pattern notation is a system of graphic symbols (icons) representing different aspects of the Pattern.
The purpose of the Pattern notation is to provide a simple system of standard icons for the different structural components of the cubes.

The icons could be used to compose Pattern cube models that match types of natural occurring structures.

The symbols of the Pattern notation were derived from the geometries of the component parts of the Pattern cubes. The symbols are collectively referred to as the Pattern pictographics.

A high-level schema of the Pattern components on which the notation is based is shown later. The schema is based on a 3 x 3 x 3 cube that is 'opened' to reflect the elements in a tabular fashion. The three (front) faces of the cube represent the three equations, the three constructs and the three planes.

The Pattern Cubes Classification

The different types of Pattern module are defined by their respective pairs of quantities. Twelve modules are used to build a Pattern-type cube. The cubes can be classified according to their characteristic properties, e.g. duonity or disduonity. A table of properties is used for the classification and this accompanies the description of each cube.

The basic Pattern equation is a mathematical module that matches a geometric module of the Pattern cube, and it is an illustration of the mathematic-geometric equivalence of the Pattern.

The Pattern Notation: Elements

The Pattern cluster of spheres manifests an innate code that could be generalized as the Pattern equation. The variables (*a* and *b*) could be substituted by the code values. Small cubes, equal to the numbers of the equation terms, could be used to build the Pattern structures.

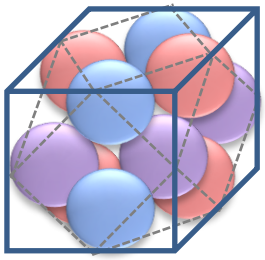
The Pattern Code

The cuboctahedron-shaped cluster of spheres (on the right) could be sliced at different angles to yield the sets of configurations in the rows of the Pattern code table (far right). The cluster fits inside both a cube and a sphere.

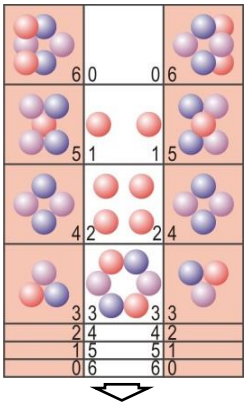
The Basic Pattern Equation

The basic Pattern equation pair is a generalization of the numerical values of the code table.

The Cluster of Spheres



The Pattern Code Table



The Basic Pattern Equation

a + b = c & c = b + a

Duonity and Disduonity

Duonity is a superposition of two things – a two-oneness. Disduonity is the (collapsed) two-ness of the things. The default code values reflect the disduonity state because it contains a zero (see 'Values' on the right).

The Pattern Module

The Pattern is characterized best by its modules. The two module symbols on the right reflect the basic equation variable pairs and their respective decreasing and increasing values. The inversion line (with arrow) indicates the points where *a* becomes *b*.

The Pattern Variables

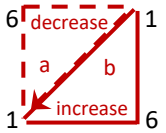
The generic Pattern variables are *a* and *b*. They are complementary, and they form conjugate pairs. The sum of *a* and *b* is always a constant for all the value pairs, e.g. the sum of the duonity pairs is 7.

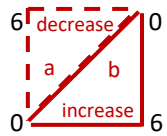
The decreasing *a* variable typically represents the imaginary or/and the potential aspect while the increasing *b* variable represents the real or/and the actual aspect of the pair.

Duonity **Disduonity**

a + b = c (Only left part of equation)

Modules



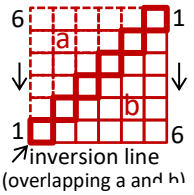


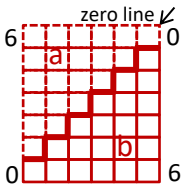
Values

a = 6,5,4,3,2,1
b = 1,2,3,4,5,6
c = 7,7,7,7,7,7

a = 6,5,4,3,2,1,0
b = 0,1,2,3,4,5,6
c = 6,6,6,6,6,6,6

Fields





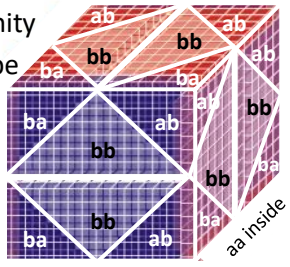
The Squared and Cubed Pattern Equations

The basic equation pair could be squared and cubed. The cubed equation pair equals 6 times the squared equation pair.

The Pattern Bricks

The terms of the Pattern equations could be represented by pictobricks. Terms *a*, *b* and *aa*, *bb* equate to the four main bricks and terms *ab* and *ba* equate to the two filler bricks. Modules comprise combinations of bricks, i.e. a basic module consists of two bricks and a squared module consists of four bricks. Triplets consist of three filler bricks of different colours.

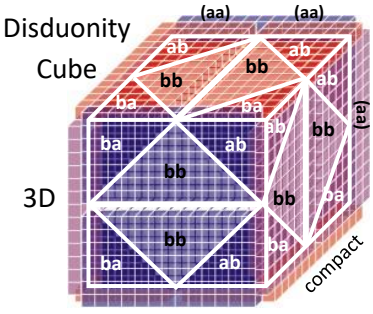
Duonity Cube 4D



The Pattern Constructs

Small cubes, equal to the number of terms of the respective equation, could be used to build structures, such as modules, pyramids and cubes.

Disduonity Cube 3D



The duonity Pattern cube (on the right) consists of six concentric cubes and the disduonity (compact) Pattern cube consists of six concentric cubes plus a cover. (The cover in the drawing is shown as a layer of transparent cubes.)

The Pattern Notation: Schema

The Pattern notation is a set of standard symbols or icons for the building of Pattern models. The symbols relate the Pattern mathematics and the Pattern geometry by establishing a set of standardised pictographic symbols for the different equation terms and the corresponding cube parts.

The Pattern Notation Schema

The schema diagram that is shown below provides an overview of the scope and properties of the Pattern objects. It displays three types of equation, three types of structure and three orthogonal planes.

The Pattern Equation Module Types

Basic module: $(a + b)^1 = a + b = c$

Squared module: $(a + b)^2 = aa + ab + ba + bb = cc$

Squared module: $(aa + ab) + (ba + bb) = cc$

Simplified notation: $aa^+ + bb^+ = cc$

Squared module: $(aa) + (ab + ba + bb) = cc$

Compact notation: $(aa) + bb^{++} = cc$

Cubed module: $(a + b)^3 = 6(aa + ab + ba + bb) = 6cc$

Note that a cube consists of twelve modules.

The Pattern Notation Schema

Equation	Module	Pair	Quad	Cube (3 Planes)		
Basic	$(\ )^1$	$(\ )^1(\ )^1$	$(\ )^1(\ )^1$ $(\ )^1(\ )^1$	Red Quad	Purple Quad	Blue Quad
Squared	$(\ )^2$	$(\ )^2(\ )^2$	$(\ )^2(\ )^2$ $(\ )^2(\ )^2$			
Cubed 6x Sq. Pair	→	→	→			

Duonity schema values: a=6,5,4,3,2,1; b=1,2,3,4,5,6.

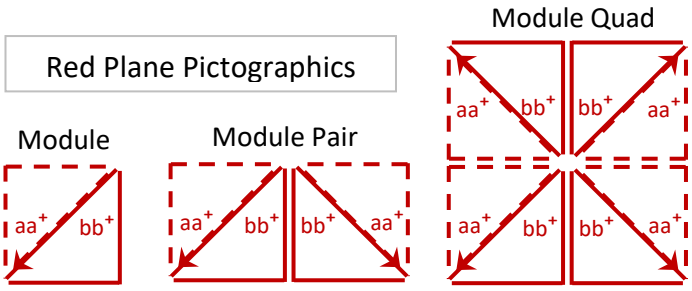
Disduonity schema values: a=6,5,4,3,2,1,0; b=0,1,2,3,4,5,6.

The Pattern Module Construct Types

There is a direct correspondence between a Pattern equation (one of a pair) and a Pattern module.

Modules could be used to build pairs and quads, as shown by the pictographics on the right.

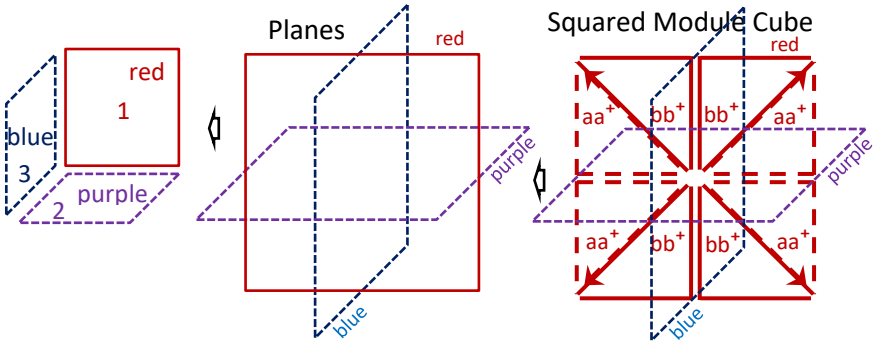
Note that disduonity modules are distinguished from duonity modules by a zero in the values of the disduonity *a* and *b* variables. Note also that only the icons of duonity modules have arrows.



The Pattern Planes

Each orthogonal plane of the Pattern cube has a different colour. Three colour symbols are shown on the right.

The purple and blue symbols are numbered and dot-lined while the red symbol is (mostly) solid-lined.



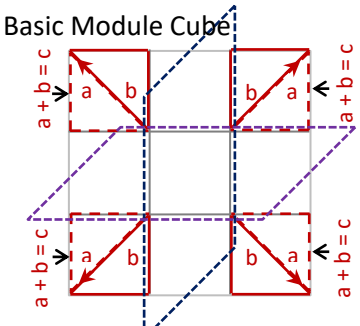
The Pattern Cube Types

Types of cubes are defined by their module types.

The basic cube (below, right) consists of twelve basic (duonity) modules, the cube (above, right) consists of twelve squared (duonity) modules and a compact cube of twelve compact modules (see compact modules on next page).

The Sum of Sums - The Set of Squared Equations of the Pattern Cube

$aa^+ + bb^+ = cc$ & $cc = bb^+ + aa^+$ >	module pair $)_1$	red quad
$aa^+ + bb^+ = cc$ & $cc = bb^+ + aa^+$ >	module pair $)_1$	
$aa^+ + bb^+ = cc$ & $cc = bb^+ + aa^+$ >	module pair $)_2$	purple quad
$aa^+ + bb^+ = cc$ & $cc = bb^+ + aa^+$ >	module pair $)_2$	
$aa^+ + bb^+ = cc$ & $cc = bb^+ + aa^+$ >	module pair $)_3$	blue quad
$aa^+ + bb^+ = cc$ & $cc = bb^+ + aa^+$ >	module pair $)_3$	



The maths determines the geometrics and the geometrics determine the maths: *'an equation could be expressed as a geometric Pattern module'* and *'twelve modules make a cube, which is an embodiment of the cubed Pattern equation'.*

The Pattern Notation: Modules

The Pattern module is the most characteristic expression of the Pattern. A module icon represents both the mathematical and geometrical aspects. The generic module (with *a* and *b* variables, or quantities) serves as the pattern for specific modules.
Modules are classified according to their properties and features.

The Basic Pattern Equation Module Pair

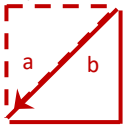
The modular icon-type expression of the basic equation pair is shown on the right.

The Different Types of Module

The different types of Pattern module could be illustrated as shown below. The duonity-disduonity distinction is the primary property followed by the basic-linear property and, thereafter, the noncompact-compact property. The nonlinear Pythagoras module icon reflects the manner in which classical physics would typically be represented in a Pattern cube context. Note that the *aa* and *bb* values of the Pythagoras module do not add up to a constant sum like the Pattern module values.

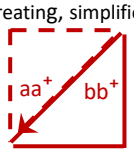
Duonity Modules

Basic, Linear (creating)



a=6,5,4,3,2,1
b=1,2,3,4,5,6
c=7,7,7,7,7,7

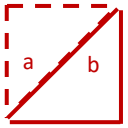
Squared, Linear (creating, simplified)



aa⁺=42,35,28,21,14,7
bb⁺=7,14,21,28,35,42
cc=49,49,49,49,49,49

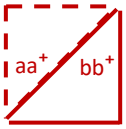
Disduonity Modules

Basic, Linear (noncreating)



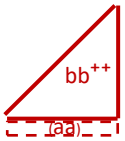
a=6,5,4,3,2,1,0
b=0,1,2,3,4,5,6
c=6,6,6,6,6,6,6

Squared, Linear (noncreating, simplified)



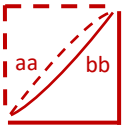
aa⁺=36,30,24,18,12,6,0
bb⁺=0,6,12,18,24,30,36
cc=36,36,36,36,36,36,36

Squared, Linear (noncreating, compact)



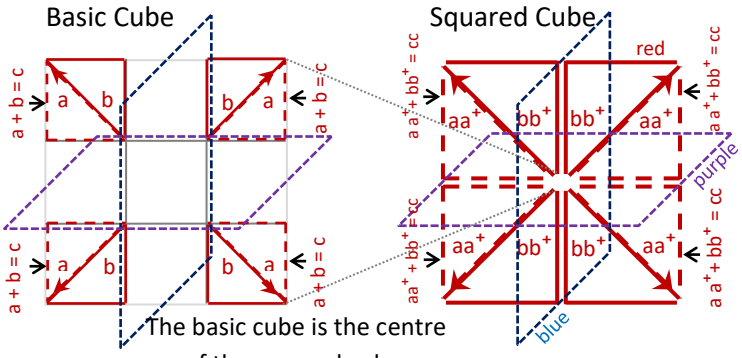
(aa)=13,13,13,13,13,13,13
bb⁺⁺=0,1,6,15,28,45,66

Squared, Nonlinear (Pythagoras module)

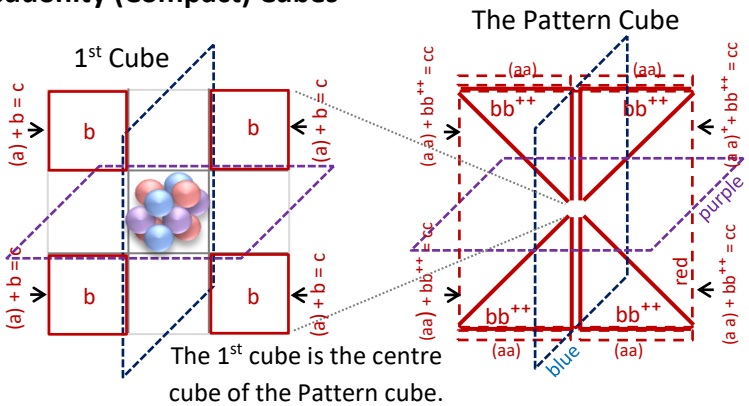


aa=36,25,16,9,4,1,0
bb=0,1,4,9,16,25,36
cc=36,26,20,18,20,26,36

Duonity Cubes



Disduonity (Compact) Cubes



The Cube Classification Scheme

The classification of the cube models is based on five distinct properties of the cubes. These are listed below.

Model Classification: The Pattern Cube

Generic	Y	Specific	N
Basic Eq.	Y	Squared Eq.	Y
Duonity	N	Disduonity	Y
Linear	Y	Nonlinear	N
Noncompact	N	Compact	Y

The different cube models are defined by their respective pairs of quantities, e.g. the antigravity,gravity pair defines the Gravity cube.

The Pattern cube and the Anti-Cube are the (only) generic cubes.

The noncompact version of a cube could be either a duonity cube or a disduonity cube.

The classification of the cube models enables a systematic matching with different types of natural phenomena. The family of cubes could grow with new discoveries.

The Pattern Notation: Triplets

The Pattern triplets are formed by the filler terms of the squared Pattern equation. Triplet combinations of three, differently-coloured filler bricks are located in the eight vertex regions of the squared Pattern cubes.

The Filler Bricks

The filler bricks are defined by the middle terms (*ab, ba*) of the squared Pattern equation aa + (ab + ba) + bb = cc.

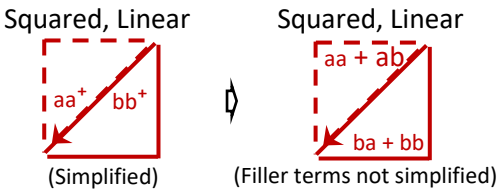
The equation terms could be simplified as:

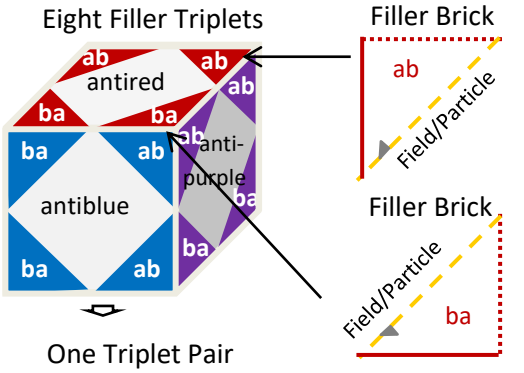
(aa + ab) + (ba + bb) = cc,

Simplified: $aa^+ + bb^+ = cc$,

The Pattern module icons on the right represent a simplified and a non-simplified module.

The Pattern Module





The Pattern Triplets

Three filler bricks, one red, one purple and one blue, at each vertex of the Pattern cube represent a triplet. The eight triplets could be identified by their Pattern State Identities, their binary codes or a colour-type code.

Colour of brick:

red; subscript 1, e.g. ab_1

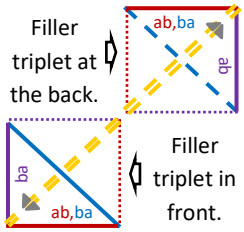
purple; subscript 2, e.g. ab_2

blue; subscript 3, e.g. ab_3

The default is red, e.g. ab

Triplets	Binary	PSI
$ab_1ab_2ab_3$	000	[r̄,6,+,+]
$ab_1ab_2ba_3$	001	[r̄,6,+, -]
$ab_1ba_2ab_3$	010	[r,6,+,+]
$ab_1ba_2ba_3$	011	[r,6,+, -]
$ba_1ab_2ab_3$	100	[r̄,6, -,+]
$ba_1ab_2ba_3$	101	[r̄,6, -, -]
$ba_1ba_2ab_3$	110	[r,6, -,+]
$ba_1ba_2ba_3$	111	[r,6, -, -]

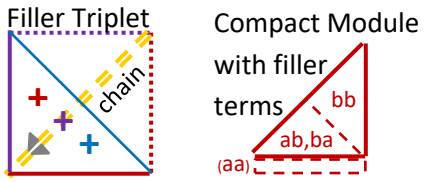
The table (above, right) lists the possible combinations of triplets and their respective codes. The colour terms could also be replaced by '+'s if it is not important to know of which bricks it consists. Note that the colour identifications of the PSIs also include anticolours, e.g. red (r) and antired (r̄ - red bar). (See the PSI system description below.)



Triplet Pair

The four triplet pairs of the cube are all located diagonally across the centre.

Filler Brick Pictographics



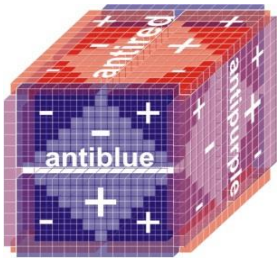
See Folder 16 *The Pattern Pictobricks* for more.

The Pattern State Identity (PSI) System

The PSI system identifies each cell of the Pattern cube. The system is based on four coordinates **[c, n, s, m]** inside square brackets. Pattern state number **c** is for colour, **n** is for the energy level, **s** is for shape as well as spin (the '**+**' sign and the '**-**' sign of **s** take care of the quantum spin number), and **m** is the distance of a cell from the middle row of a layer of cells (where **m** = 0).

The cube (right) gives the signs for the values of Pattern state numbers **s** and **m**. (The signs for the **m** values are indicated at the vertices.)

Signs of **s** and **m** of the PSIs



The Pattern and the Schrödinger Equation

The squared Pattern module seems to be structured similarly to the stationary Schrödinger equation (two entities that are oscillating at the same fixed frequency and with the total energy a constant) and the compact Pattern module seems to be similar to the collapsed Schrödinger equation.

According to Julian Barbour in his book *The End of Time* (page 231), the stationary Schrödinger equation could be the fundamental equation of the universe. If this could be proven it will strengthen the claim that the Pattern theorem (see page P18:8) represents the universal Pattern of creation.

The Pattern vs Pythagoras

Pythagoras cannot make a cube, but the Pattern can.
Pythagoras, $a^2 + b^2 = c^2$, is limited to 2D while the Pattern, $(a + b)^n = c^n$, extends to 3D and more, with n = 0,1,2,3 . .

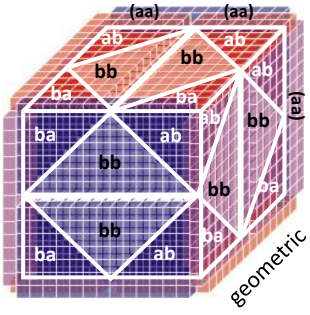
The Pattern Cube

The cubed Pattern equation pair together with the specific Pattern values yields the Pattern cube. The Pattern values are *a* = 6,5,4,3,2,1,0 and *b* = 0,1,2,3,4,5,6. (Note that the substitution of the value pairs adds an extra dimension so that the Pattern cube actually represents a hypercube.)

The Pattern cube consists of six concentric cubes plus a cover cube. Each concentric cube is a bigger version of the smaller cube before it.

The cube effectively consists of two types of region, i.e. the Pythagoras-type region (*aa, bb*) and the quantum-type region (the filler terms *ab, ba*).

The Pattern Cube



The Pythagoras Cube

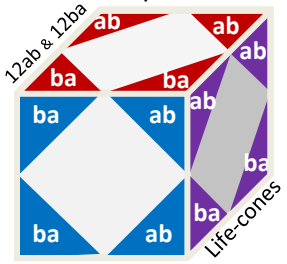
Twelve Pythagoras modules make (only) parts of the Pattern cube. The Pythagoras equations that match the Pythagoras module parts of the Pattern cube are shown on the right.

The Pythagoras modules could build a Pythagoras cube that is represented (in its compact form) by a combination of the two component cubes below,right. The Pattern Light-cones (the *bb* parts) fit inside the cover cube to form the Pythagoras cube which is an incomplete Pattern cube.

The Pythagoras Mathematic Modules

aa + bb = cc & cc = bb + aa > red
aa + bb = cc & cc = bb + aa > $quad_1$
aa + bb = cc & cc = bb + aa > purple
aa + bb = cc & cc = bb + aa > $quad_2$
aa + bb = cc & cc = bb + aa > blue
aa + bb = cc & cc = bb + aa > $quad_3$

Filler Component Cube



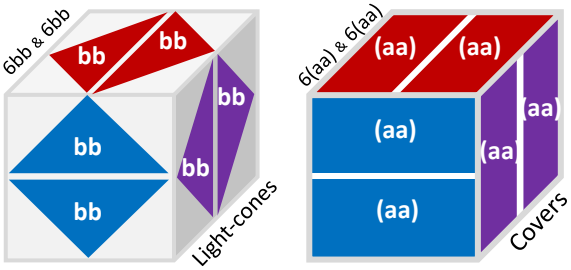
The Three Component Cubes

The two component cubes (representing the *aa* and *bb* parts) of the Pythagoras equation are shown on the right.

The filler component cube on the left (the *ab* and *ba* parts) is not included in the Pythagoras cube.

The Pythagoras cube is, therefore, a subset of the Pattern cube.

The Two Pythagoras Component Cubes



The Pattern Is Better

The Pattern Equation The Pattern equation can be cubed, unlike the Pythagoras equation that cannot be cubed. (This is according to Fermat's Last Theorem that was proven by Andrew Wiles in 1994.)

The inherent limitation of the Pythagoras equation in this regard had, typically, been overcome by adding dimensions in the form of coordinates, e.g. special relativity whose equation is $s^2 = -ct^2 + x^2 + y^2 + z^2$, with x, y and z representing the 3D coordinates. The extensive use of Pythagoras in classical physics causes, in part, the incompatibility between classical physics and quantum mechanics. The 3D Pattern equation overcomes the 2D limitation of the Pythagoras equation by inherently being able to extend to higher dimensions. The mathematic-geometric equivalence implies that the Pattern equation can build cubes whereas the Pythagoras equation can build only nonlinear modules.

The Pattern Sum Another very important difference is the fact that the Pattern equation yields the same constant for all Pattern value pairs. The Pythagoras equation with the same Pattern value pairs does not yield a constant sum. (The sums of the Pythagoras equation vary, i.e. 36, 26, 20, 18, 20, 26, 36.)

The cubed Pattern sum (c^3) is, therefore, invariant. It is a conserved quantity. If the *a,b* pair of quantities are, for example, potential energy and kinetic energy, then their energy sum would be a constant considering their individual decrease and increase. The resulting (specific) Energy cube would then represent an invariance consisting of two different types of energy. (See also the Pattern law on the next page for a description of the Pattern cube as a conserved quantity.)

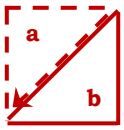
The Pattern Conservation Law

The Pattern conservation law is similar to the energy conservation law but it is more general because any development, such as creation and construction, growing and expanding, motion and rotation, is according to the law of the Pattern. The Pattern theorem is also similar to, but more general, than Noether's theorem.

The Pattern Theorem

The Pattern theorem states that *a linear inverse symmetric pair of quantities yields a conserved sum*. The Pattern theorem is symbolically represented by the module icon on the right and the equation a>+<b = [c] which symbolises that *a* is decreasing while *b* is increasing and the sum *c* stays constant. The theorem applies to any set of positive integer pairs (also called Pattern numbers) and it could be raised to any power, e.g. $(a + b)^3$.

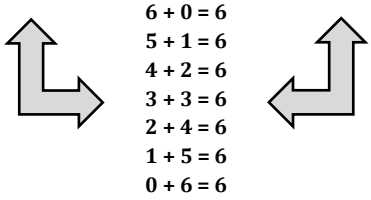
The Pattern



a>+<b = [c]

a decreases and *b* increases to equal the conserved sum *c*

Example: The following set of integer pairs yield a constant sum.



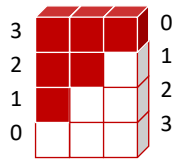
6 + 0 = 6
5 + 1 = 6
4 + 2 = 6
3 + 3 = 6
2 + 4 = 6
1 + 5 = 6
0 + 6 = 6

The Pattern Numbers

Pattern numbers are sets of positive integer pairs with inverse symmetry.

Pattern number 1:	1,0; 0,1
Pattern number 2:	2,0; 1,1; 0,2
Pattern number 3:	3,0; 2,1; 1,2; 0,3
Pattern number 4:	4,0; 3,1; 2,2; 1,3; 0,4
Pattern number 5:	5,0; 4,1; 3,2; 2,3; 1,4; 0,5
Pattern number 6:	**6,0; 5,1; 4,2; 3,3; 2,4; 1,5; 0,6**

Pattern Number 3 is (a + b = 3)



A Geometric Number

Only the Pattern number 6 pair has the ability to build a perfect 3D cube, which is the Pattern cube shown below. See Folder 3 in thepatternbook.com for more on the geometric Pattern numbers.

The Recursive Pattern

The cubed Pattern equation pair actually yields a column pair, with seven composite cubes in each column, before it is transformed into the Pattern cube. The zero-ith Pattern equation pair also yields a column pair, although with no detail, or fine structure, except for the seven cubes of which each column consists.

It seems, therefore, as if the Pattern loops from $( )^0$ to $( )^1$ to $( )^2$ to $( )^3$ and then back to $( )^0$ to add ever finer structure detail to the original zero-ith column pair recursively.

Noether's Theorem

According to Noether's theorem, any invariance of a physical system under a continuous symmetry leads to a fundamental conservation law. Symmetry in space results in momentum being an invariant (the conservation of momentum). Symmetry in time results in energy being an invariant (the conservation of energy). An invariant is an observable of a physical system which remains unchanged under (some) transformation.

The Pattern theorem is a more general theorem than Noether's theorem because it is based on a symmetry that is not dependent on physical entities such as time and space. The substitution of the inverse symmetric value pairs in *a* and *b* represents the continuous transformation.

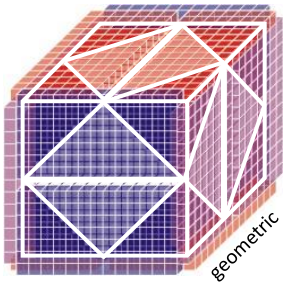
The Pattern Conservation Law

The Pattern conservation law states that *the Pattern sum is a conserved quantity*.

The Conserved Pattern Cube

The sum of the cubed Pattern equation $(a + b)^3 = c^3$ is a constant for the respective values of Pattern number 6. The sum pair (c^3 & c^3) of the cubed Pattern equation pair manifests as the Pattern cube (right) through a geometrization (block building) process. (The cubed sum pair (c^3 & c^3) actually equals six times the squared sum pair.)

The Pattern Cube



The Pattern law states that the Pattern sum is conserved. The Pattern cube is, therefore, a conserved object. This observation has profound implications, such that it is the ultimate invariant and that it is not a physical entity.

The specific Pattern cubes on the following pages illustrate some of the many 'shadow' manifestations of the Pattern cube.

The Pattern Cube

The Pattern cube is the generic cube that serves as a model for the specific Pattern cube models.
The Pattern cube is based on the (generic) pair of variables. The values of the variables are zero plus the first six integers and the inverse sequence is used for *a*. It is a compact cube which implies that it has a cover.
The Pattern cube is constructed with small cubes; the same number as the terms of the equations that define the cube. The cube fits within the three space dimensions but represents four dimensions owing to the value substitution in the pair of variables.

Model Classification: Pattern Cube

Generic	Y	Specific	N
Basic Eq.	Y	Squared Eq.	Y
Duonity	N	Disduonity	Y
Linear	Y	Nonlinear	N
Noncompact	N	Compact	Y

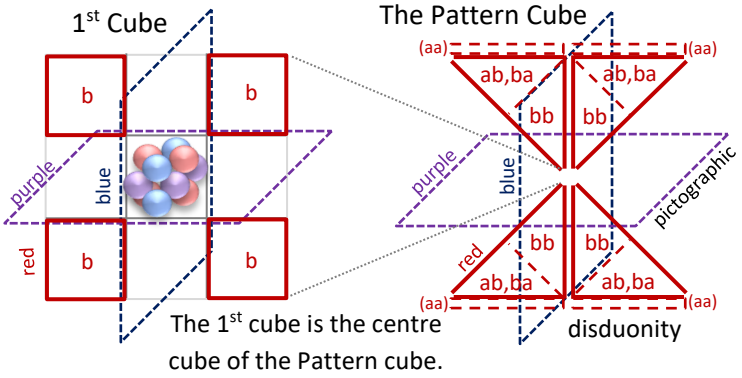
Pair of quantities: *a,b*
Conserved quantity: the Pattern cube

The Pictographic 1st Cube and Pattern Cube

The pictographic rendition of the Pattern cube is shown on the right. The Pattern cube consists of six concentric cubes plus the (7th) cover cube.

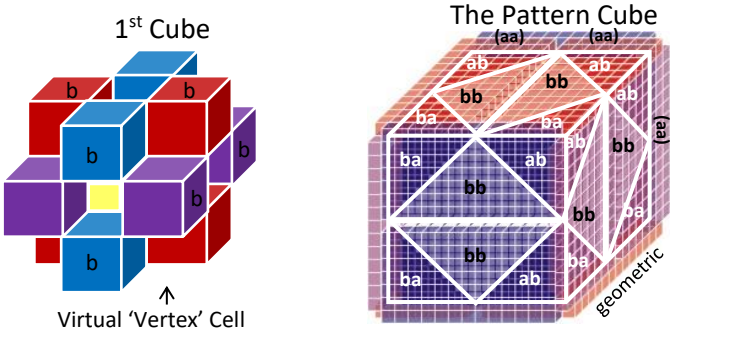
The 1st cube in the centre of the Pattern cube is also a 3D disduonity cube. The cluster of spheres (the *a* 'bricks') are in the core of the cube.

Each orthogonal colour plane of the Pattern cube represents one Pattern module quad.



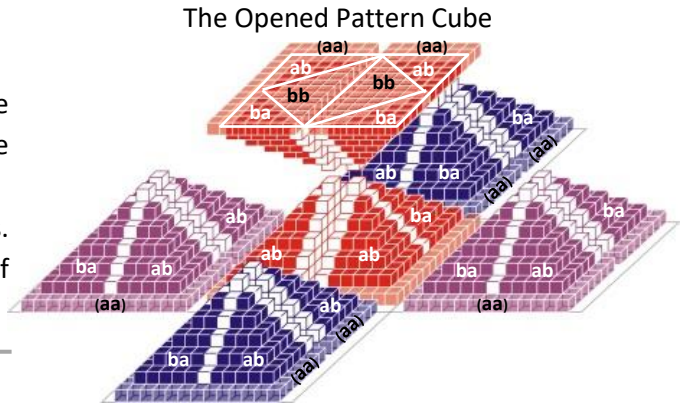
The Geometric 1st Cube and Pattern Cube

The geometric rendition of the Pattern cube shows the cellular construction with small cubes.
The geometric rendition of the 1st cube in the centre of the Pattern cube is also shown. The virtual cells in the eight vertices of the cube represent the first links of the eight chains radiating from the core. The virtual cells in the middle of each of the six cube faces represent the origins of the six clefts.



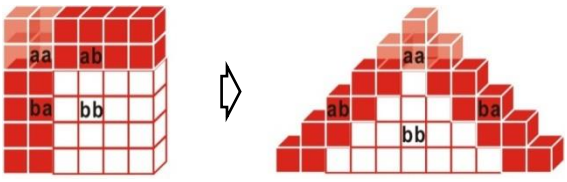
The Parts of the Pattern Cube

The individual parts of the Pattern cube are better visible when the cube is opened. The relevant parts of the cube are identified by their corresponding equation terms.
The filler terms (*ab* and *ba*) form triplets at the eight vertices. The compressed (*aa*) terms form the twelve cover plates of the cube.



Square-to-triangle Conversion

To illustrate the conversion of squared to triangular shapes the terms of the equation for value pair a=2,b=4 is shown below.
The squared equation: $(a + b)^2 = aa + ab + ba + bb$.
The number of cubes (cells): $(2 + 4)^2 = 4 + 8 + 8 + 16$.
The geometrical square to triangle conversion of the cells is shown on the right.
The combined triangular renditions of the terms of all the value pairs are assembled to form a Pattern module.



The Vacuum Cube

A vacuum module is defined by a time-energy pair of physics quantities.
The time-energy module is shown to represent a creating module. The uncertainty of the time-energy states of the (quantum) vacuum module causes fluctuations that create virtual particle pairs.
The Vacuum cube that consists of twelve vacuum modules could create several virtual particle pairs.
The (four) individual bricks of each module are particle generating fields (relativistic quantum fields) according to the Standard Model.

Model Classification: Vacuum Cube

Generic	N	Specific	Y
Basic Eq.	Y	Squared Eq.	Y
Duonity	Y	Disduonity	N
Linear	Y	Nonlinear	N
Noncompact	Y	Compact	N

Pair of quantities: *time,energy*
Conserved quantity: energy

The Pattern Uncertainty Principle

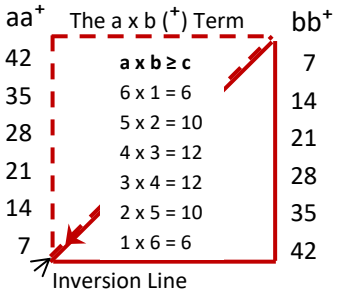
The Heisenberg uncertainty principle is fundamental to the quantum theory. The position-momentum instance of the uncertainty principle is:

$\Delta x\, \Delta p \geq \hbar$ (position x momentum ≥ Planck's constant)

(The Δ represents the range of possible measurements of x and p.)

The equivalent Pattern uncertainty is illustrated by the (duonity) Pattern module on the right. The Heisenberg uncertainty relation could be expressed in the Pattern context as the product: Δa Δb ≥ 6 (6 is a constant). This product is found in the two filler terms (a x b, b x a) of the squared Pattern equation. The filler bricks, therefore, seem to represent specific quantum-like regions of the Pattern cube.

The Squared Pattern Module



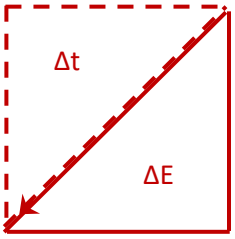
The Time-Energy Uncertainty Principle

The time-energy instance of the uncertainty principle is:

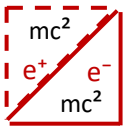
$\Delta t\, \Delta E \geq \hbar$ (time-energy ≥ Planck's constant).

The less uncertainty with which the energy is specified, the more uncertainty appears in the time to make the energy measurement.
The time-energy module that represents the time-energy uncertainty is on the right. (Note that this is also a duonity module [note the arrow] because disduonity modules do not represent the uncertainty principle owing to the fact that that the multiplication of values would yield a zero for the extreme value pairs 6,0 and 0,6.)

Time-Energy Module



Virtual positron-electron Pair



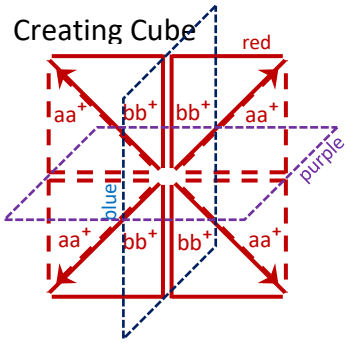
The Pattern Probabilities

The value pairs of the Pattern module represent the potential Pattern states. The best that can be done to determine the state of, say, a particle is to calculate the probability of a specific value pair. The Pattern module is specified by six possible value pairs and the probability of one pair is, therefore, one in six (1/6).

Particle Pair Creation

A duonity Pattern module could create virtual (complementary) particle pairs. The time-energy uncertainty of the quantum vacuum manifests as a positron (e^+) and an electron (e^-), both of which exist for only a certain time before annihilation. The diagram on the right shows the virtual particle pair with equal amounts of virtual mass borrowed from the vacuum energy, according to $E = mc^2$.
It is possible, however, for the virtual positron to be pulled into the surface of a black hole (see page P18:16) which leaves the other virtual particle without a partner and it has to become real mass in the process. This is known as 'Hawking radiation'.

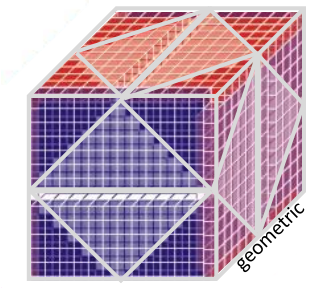
Creating Cube



The Creating Cube

The creating cube on the right consists of twelve duonity Pattern modules. It can create twelve particle pairs (leptons) and also 24 quarks as described above.

Creating Cube



The Atom Cube

The Atom cube is composed of elementary particles that emanate from the Vacuum cube. The Atom cube is defined by an *antimatter,matter* pair of quantities. The conserved quantity that the cube represents is mass.

The Standard cube, whose modules represent relativistic quantum fields of all the types of elementary particles, serves as a kind of framework for the particles of the Atom cube.

(The development of the Standard cube is illustrated by Map 3 *The Standard Model Map* in thepatternbook.com.)

Model Classification: Atom Cube

Generic	N	Specific	Y
Basic Eq.	N	Squared Eq.	Y
Duonity	N	Disduonity	Y
Linear	Y	Nonlinear	N
Noncompact	N	Compact	Y

Pair of quantities: *antimatter,matter*

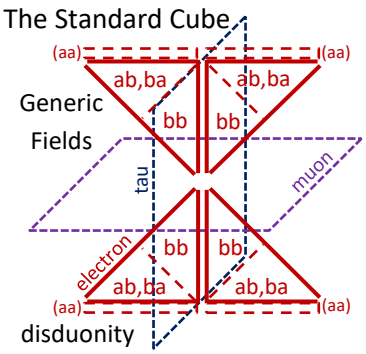
Conserved quantity: mass

The Standard Cube

The Standard cube is the geometric version of the Standard Model of Elementary Particles.

The pictographic of the Standard cube is shown on the right. The red quad whose *(aa), bb* and *ab/ba* terms are shown in detail represents the red pyramid (below) and its inverted partner (above).

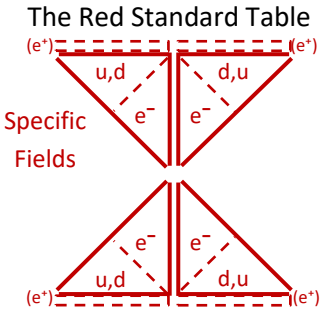
The three pyramid pairs (red, purple, blue) of the Standard cube represent the periodic tables of the electron, muon and tau atoms.



A Standard Periodic Table

A standard periodic table depicts fields of leptons and quarks. The red (electron) table on the right includes the electron fields (e^-), the positron fields (e^+) and the up (u) and down (d) quark fields. Note that the neutrino fields are accommodated inside the core of the cube. (See Folder 4 *The Geometric Standard Model* in thepatternbook.com.)

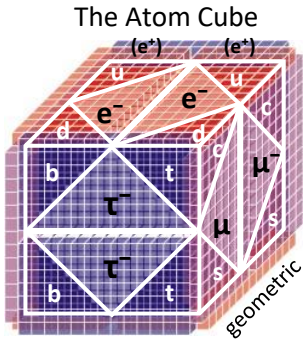
Chain matter is the invisible types of matter in the cells of the triplets of the Pattern cube. The quarks are one type of chain matter but there could be more types of chain matter.



The Atom Cube

The virtual particle pairs that are produced by the Creation cube could become real by a collapse process. The anti-particles could be separated from their particle mates by the gravity pull of the black hole (an anti-cube) surrounding the Creation cube. (See the Anti-cube on page P18:16.) The anti-particles would then become part of the (anti-matter) cover of the Pattern cube which forms the surface of the black hole which is an inverted cube.

The fact that the black hole owes the energy of the anti-particles to the Creation cube is the reason why the black hole evaporates (it repays the energy debt according to the Hawking radiation theory).

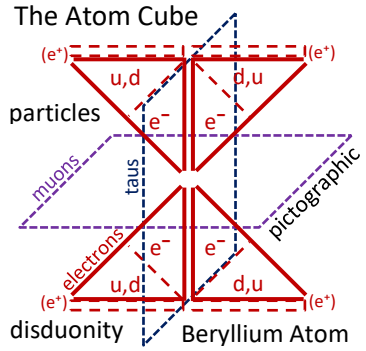


A Standard Beryllium Atom

The particles that are created by the Creation cube would form a standard beryllium atom.

The standard beryllium atom (on the right) consists of an atom with four electrons (red), four muons (purple) and four taus (blue), their anti-particles (in the cover of the cube) and four protons and four neutrons consisting of quarks and anti-quarks.

Note that the exclusion principle is evident from the cleft between the two upper (red) electrons that have the same quantum states but different spins.



The Spacetime Cube

The Spacetime cube is defined by an *imaginary-time,space* pair of quantities. Imaginary-time complements space but both progresses (decrease and increase) along realtime.
According to the Pattern idea, the original duonity state of the Pattern cube collapsed to become the disduonity state owing to a symmetry-breaking event. Both states are shown here.
The disduonity compact cube has imaginary-time confined to the (compressed) cover of the cube.

Model Classification: Spacetime Cube

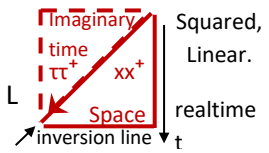
Generic	N	Specific	Y
Basic Eq.	N	Squared Eq.	Y
Duonity	Y	Disduonity	Y
Linear	Y	Nonlinear	N
Noncompact	Y	Compact	Y

Pair of quantities: *imaginary-timespace*
Conserved quantity: spacetime

The Spacetime Cube

The module on the right represents a Spacetime with imaginary-time (*ττ*). Imaginary-time and space are similar in nature according to Stephen Hawking. Imaginary time can increase *or decrease,* and it is, therefore, space-like. The pictograph shows the Spacetime module with *ττ* as the complement of space.

Spacetime Module

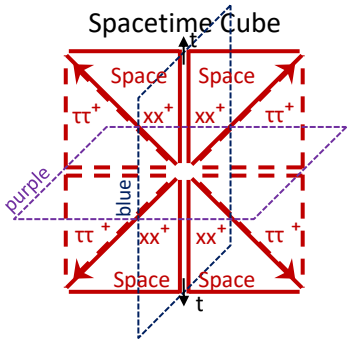


Realtime

Realtime (indicated by the vertical downward arrow) represents the stepwise progression of the decreasing imaginary-time and the increasing space.
Note that a basic Pattern module represents 1D space plus 1T realtime, a squared module 2D space plus 1T realtime, and a Pattern cube 3D plus 1T realtime.

Realtime is measured in steps represented by the value pairs, i.e. 6,1; 5,2; 4,3; 3,4; 2,4; 1,6. Duonity modules have six steps and disduonity modules have seven steps.

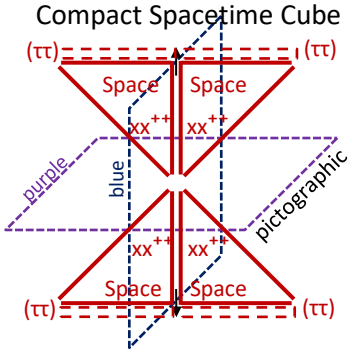
Spacetime Cube



Conserved Spacetime

Linear momentum equals mass x speed (p = mv). If mass is equated to 1kg and if it stays constant, speed is the only variable. The diagonal of the (basic) spacetime module represents constant speed (v = d/t or space/time). The cube, therefore, represents constant momentum, and also conserved spacetime. Note that realtime *t* and imaginary-time are the same for purposes of this comparison.

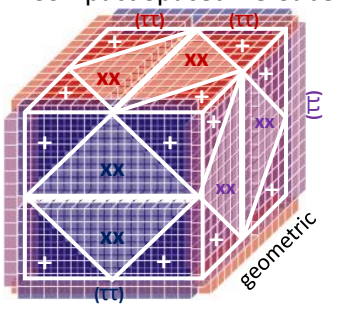
Compact Spacetime Cube



The Compact Spacetime Cube

The Spacetime compact cube (right) shows the compressed imaginary-time (*ττ*).
The original duonity cube could have collapsed to become a disduonity cube with compressed covers owing to a (spontaneous) symmetry-breaking event.

Compact Spacetime Cube



Spacetime Equation With *imaginary-timespace*

The squared Pattern equation aa + ab + ba + bb = cc becomes ττ + τx + xτ + xx = cc or $\tau^2 + \tau x + x\tau + x^2 = s^2$ with the *imaginary-timespace* pair of quantities.
If τ is equated to imaginary realtime it becomes $-t^2 + (itx + xit) + x^2 = s^2$ which describes special relativity (with the speed of light *c* = 1 and one space dimension) but with two added filler terms to yield a linear equation.
The *imaginary-timespace* differs from relativity spacetime in that relativity spacetime involves only the realtime component of time.

Implications of Imaginary-time

A simple example illustrates the implications of an initial imaginary-time: “The tree whose seed was planted yesterday is a 1000 year old today.” The tree grew in imaginary-time but it was checked in realtime.

The collapse of imaginary-time (owing to symmetry breaking because of a cataclysmic event?) has major implications for the period interpretation (geological times) in geological formations, for example. It is possible that the existence of imaginary-time before collapse could have created astronomical (literally and figuratively) objects in (relatively) short realtime periods.

The Gravity Cube

The Gravity cube is defined by the *antigravity,gravity* pair of quantities. The cube consists of three types of gravity (constant acceleration), i.e. gravity, anti-gravity and chain gravity that is a combination of the other two.

The *bb* bricks of the cube represent gravity owing to their 0,1,4,9,16,25,36 signature sequence, the *aa* bricks represent opposite sequence. The *ab/ba* triplets represent chain gravity with its 0,1,4,9,16,25,36,16,4,0 sequence. The *aa* bricks are compressed to form the covers of the Gravity cube. (A sequence (0,1,3,5,7,9,11,13) that is typical of a spreading wave is noticeable in the covers.)

Model Classification: Gravity Cube

Generic	N	Specific	Y
Basic Eq.	N	Squared Eq.	Y
Duonity	N	Disduonity	Y
Linear	N/Y	Nonlinear	Y/N
Noncompact	N	Compact	Y

Pair of quantities: *antigravity,gravity*

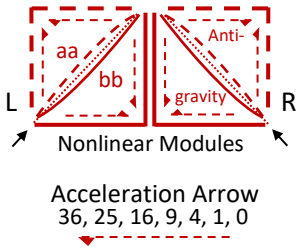
Conserved quantity:constant acceleration

Gravity

The value sequences of a Pythagoras module are *aa* = 36,25,16,9,4,1,0 and *bb* = 0,1,4,9,16,25,36. The numbers equal the number of cells in the layers of the respective bricks. The dotted arrows (right) represent constant acceleration.

Note that each brick has two orthogonal arrows owing to the geometric structure of the bricks. [There is actually a third acceleration arrow in each brick (not shown) that 'radiates' toward the diagonal.]

Pythagoras Module Pair



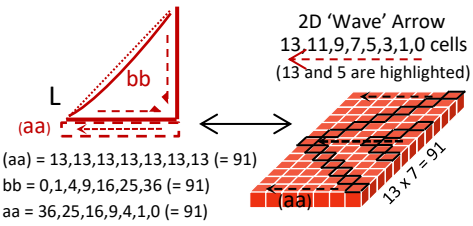
Compressed 'Gravity'

The *aa* bricks represent anti-gravity or constant deceleration. In the compact Pattern cube the *aa* bricks are compressed to form the cover plates of the cube. The 91 cells of each *aa* brick are compressed into one layer of cells measuring 13 x 7 cells as shown on the right.

The cells in the middle area of the plates manifest a 'wave' sequence consisting of 1,3,5,7,9,11,13 cells. These cells seem to trace the surface profile of an *aa* brick. The cells on the two sides of the wave (0,1,2,3,4,5,6) seem to keep track of the number of layers of the *aa* brick.

(A cover plate could, perhaps, be an encoded image of an *aa* brick. This observation supports the idea that the covers could be a manifestation of the holographic principle that applies to the surface of a black hole. See page P18:16 *The Anti-Cube* for more on black holes.)

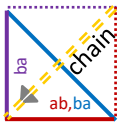
Compact aa,bb Module



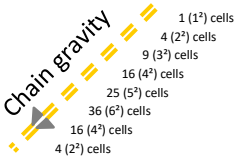
Cover Plate

Chain Gravity

ab/ba Triplet



Acceleration Arrow



Chain Gravity

The third type of gravity in the Pattern cube is chain gravity which is a combination of gravity and antigravity. This type of gravity is represented by the number of cells in the diagonal layers of the triplets at each vertex of the cube. The number of cells in the diagonal layers represents an acceleration followed by a sharp deceleration, i.e. 0,1,4,9,16,25,36,16,4,0. (The numbers include the virtual chain links, or cells, in between the three bricks.)

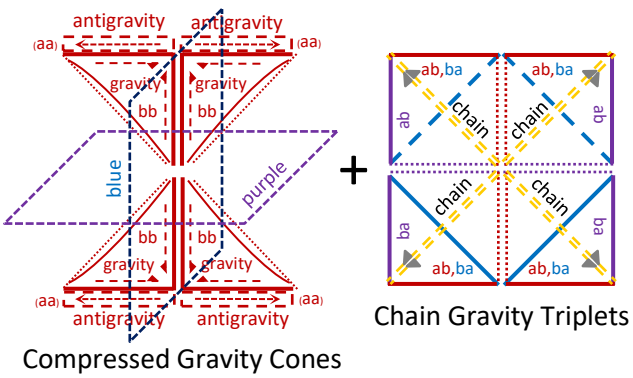
In Folder 6 *The Cosmos Code* in thepatternbook.com it is argued theoretically that chain gravity, or close gravity, model the behaviour of gluons. The 'elastic band' profile of chain gravity exhibits a self-limiting (elastic limit) property experienced by quarks in combination, e.g. protons, etc.

The Gravity Cube

The three types of gravity combine in the Gravity cube that represents constant acceleration as the conserved quantity. The pictographic on the right shows the gravity cones, with compressed anti-gravity covers, and the pictographic on the far right shows the triplets that represent chain gravity.

The components of the Gravity cube are balanced, and there is no nett gravity. Each type of gravity, if represented by vector arrows, will add up to zero. Only a 'broken' Pattern cube will manifest a nett gravity.

The Three Types of Gravity



Compressed Gravity Cones

Chain Gravity Triplets

The Energy Cube

The Energy cube is defined by the *potential,kinetic* pair of quantities and the conserved quantity is energymass.

The duonity Energy cube is essentially the same as the Vacuum cube and the compact disduonity Energy cube is essentially the same as the Atom cube.

The Pattern law which states that *the Pattern sum is a conserved quantity* is effectively the same as the energy conservation law. The Pattern law, however, is more general because it does not refer to any physical things.

Model Classification: Energy Cube

Generic	Y	Specific	N
Basic Eq.	Y	Squared Eq.	Y
Duonity	Y	Disduonity	Y
Linear	Y	Nonlinear	N
Noncompact	Y	Compact	Y

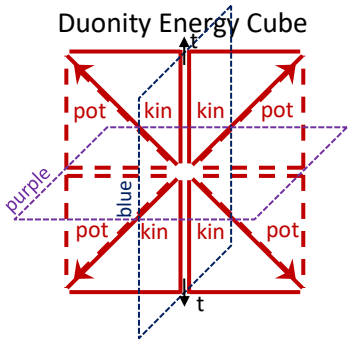
Pair of quantities: *potential.kinetic*
Conserved quantity: energymass

The Duonity Energy Cube

Three types of Pattern energy could be distinguished: potential energy, kinetic energy and a confined combination type energy called chain energy. The *ab* and *ba* terms are components of the chain energy that combine in the cube as triplets to be something similar as chain gravity (in the Gravity cube). The chain energy terms are normally included in the respective potential and kinetic energy terms to yield their characteristic linearity.

The duonity Energy cube represents the conserved energy and consists of twelve linear energy modules with potential (aa + ab) and kinetic (ba + bb) bricks. Four red pot-kin energy modules form the red quad (on the right).

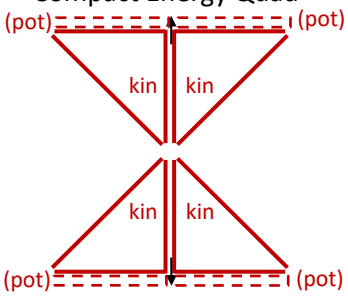
Duonity Energy Cube



The Compact Energy Cube

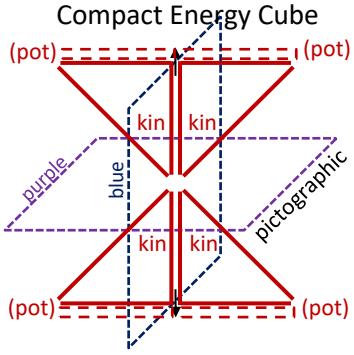
The disduonity compact Energy quad with compressed potential energy is shown on the right with its cubed version below it. The compact Energy cube is a 3D cube that represents the 4D duonity Energy cube. The *aa* parts of the 4D cube are compressed to form the *(aa)* covers of the 3D cube. The 3D cube is, effectively, a collapsed version of the 4D cube.

Compact Energy Quad



The compression of the *aa* parts changes their characteristic properties dramatically so that they are no longer geometrically linked pairs (with their *bb* parts). They are also deformed from a 3D shape to a 2D shape that no longer exhibits the '36,30,24,18,12,6,0' signature sequence.

Compact Energy Cube

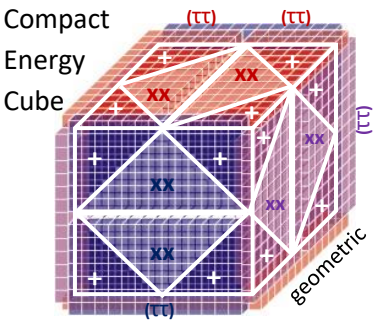


The compact Energy cube equates to a compact mass cube owing to $E = mc^2$. The compact Energy cube is, therefore, similar to the Atom cube with massive elementary particles.

Chain Energy and $E^2 = m^2c^4$

If the chain energy terms are added to the equation $E^2 = m^2c^4 + p^2c^2$, and if c is normalised to be 1, then the equation becomes $E^2 = m^2 + (mp + pm) + p^2$. This equation has the same form as the squared Pattern equation which is linear. The geometric rendition of the squared energy equation is the energy module, but also the Energy cube if twelve energy modules are assembled.

Compact Energy Cube



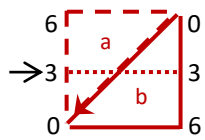
The Pattern Entropy

The equilibrium of the Pattern values is a =3 and b = 3 (see the module on the right). The maximum values are a = 6 and b = 6 and the total area, therefore, equals 36. The entropy values at the equilibrium point equal an area of 3 x 3 = 9 which is ¼ of the total module area. (Note that it is not exactly ¼ for the squared module.)

The result is in line with the idea that the maximum entropy of a part of space, e.g. a black hole, does not exceed a quarter of the area of its surface.

Basic Disduonity Module

Equilibrium point identifies max entropy line



The Code Cube

The Code cube is defined by a *future,past* pair of quantities. Information is the conserved quantity that is represented by the cube.

The Code cube consists of Pythagoras-type nonlinear modules for the light code and eight filler triplets for the life code.

One pair of the nonlinear modules of the Code cube resembles a conventional spacetime light-cone if their futures are shifted.

The Code cube is similar to the Gravity cube in that it represents a pair of nonlinear quantities that needs a filler (combined) quantity. The filler quantity, in this instance, is the present.

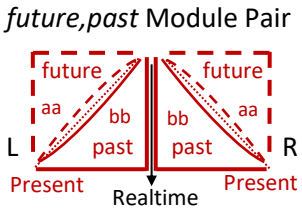
Model Classification: Code Cube

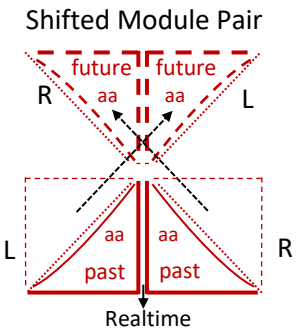
Generic	N	Specific	Y
Basic Eq.	N	Squared Eq.	Y
Duonity	N	Disduonity	Y
Linear	N	Nonlinear	Y
Noncompact	N	Compact	Y

Pair of quantities: *future,past*
Conserved quantity: information

A *future,past* Module Pair

The Pythagoras-type *future,past* module pair is shown on the right. The present (along the diagonal lines) flows in real time as shown by the downward arrow. (The diagonal between future and past represents the speed of light and, therefore, future becomes past at the speed of light.)

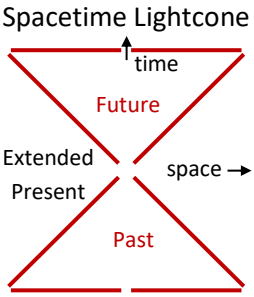




A Spacetime Lightcone

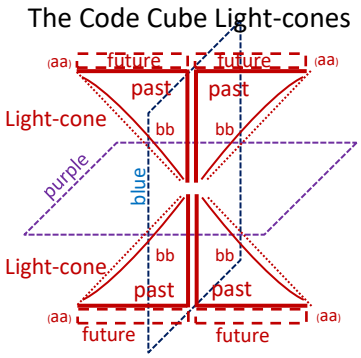
A shifted module pair (on the right) resembles a spacetime lightcone.
(Note that the realtime direction is negative w.r.t the spacetime lightcone.)

A comparison with the usual spacetime equation is possible with the future quantity being an imaginary quantity. Therefore, with *a* equal to *ia,* the Pythagoras equation (aa + bb = cc) becomes (iaia + bb = cc) which equals (–aa + bb = cc).
This compares with ($-t^2 + x^2 = s^2$) which is the typical relativity spacetime equation (with the speed of light normalised and with only one space dimension).
Note that the diagrams imply a pair of equations in the Code cube context.



The Code Cube Light-cones

The pictographic of the red Code cube light-cone pair on the right shows that it is equivalent to two merged spacetime lightcones. (Note the different spelling of Code cube light-cones vs spacetime lightcones). There are three such Pattern Light-cone pairs (red, purple, blue) in the three orthogonal planes of the cube.

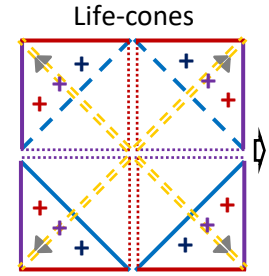


The Code Cube Life-cones

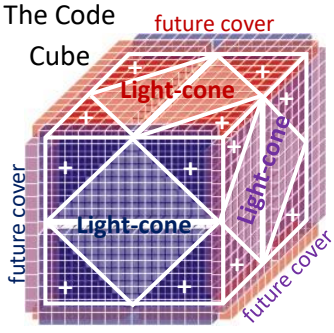
A pictographic of the eight triplets of the Code cube is shown below. A triplet consists of three filler terms (ab/ba) of the Pattern equation. (Note that the terms are indicated by '+'s if their detail is not important.)
The triplets occupy the (extended) present in between the three (orthogonal) Code cube Light-cones in the eight vertices of the cube.

The Code Cube

The conserved Code cube consists of three Light-cone pairs and four triplet pairs. The cover of the cube represents the future and the inside of the cube represents the past.
The triplet pairs are actually the Life-cones. The chains of the triplets represent the codons of the genetic code which is the reason for the Life-cone designation. See Folder 6 *The Cosmos Code* in the patternbook.com for descriptions of the light code (spectrum) and the life code (genetic code) of the Code cube.



Eight Triplets, Four Cones



The Code cube represents the light spectrum and the life (genetic) code.

The Anti-Cube

The Anti-cube is not a Pattern cube model in its own right but it represents the inverse of a compact cube. It could be called 'an inverted cube'. The cover of the Pattern cube also serves as the cover of the Anti-cube.

The outside of the Pattern cube is the inside of the Anti-cube.

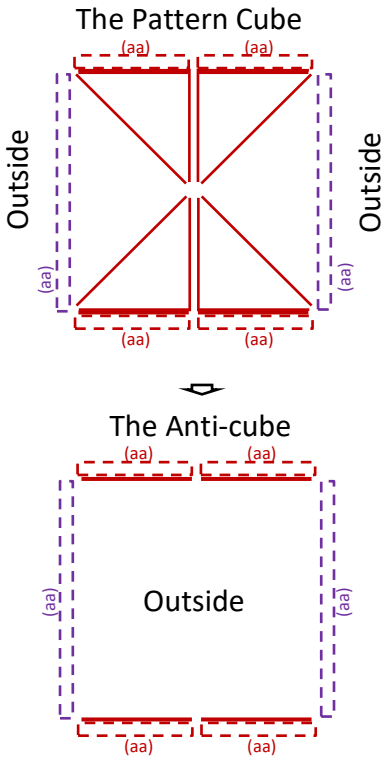
The Anti-cube could be a model of black hole with the cover being the surface of the hole.

The cover of the cube typically represents, amongst others, compressed antimatter, imaginary-time and antigravity. The covers could also be (2D) holographs of the 3D quantum 'anti-fields' as explained in *The Gravity cube* on page P18:13.

Model Classification: Anti-Cube

Generic	Y	Specific	N
Basic Eq.	N	Squared Eq.	Y
Duonity	N	Disduonity	Y
Linear	-	Nonlinear	-
Noncompact	N	Compact	Y

Pair of quantities:anti-*a,b (complements)*
Conserved quantity: anti-energy



The Anti-cube

The Pattern cube is a compact cube and, therefore, has a cover of twelve (compressed) *aa* plates.

The covers could represent, based upon the Pattern cubes models that are described here; *antimatter*, *imaginary-time*, *antigravity, anti-energy* and *future*. Note that *imaginary-time* could be designated *antispace* and *future* could be designated *antipast.*

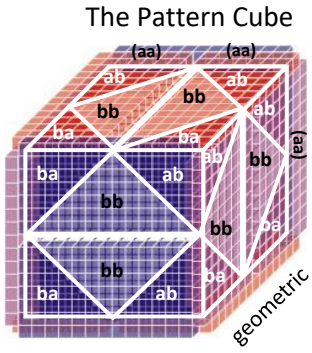
The cover protects the Cube from being pulled inside the Anti-cube black hole.

Anti-cube Models

The following cube models described in this folder have anti-cubes:

1. The Anti-Pattern cube with compressed *(aa)* covers;
2. The Anti-Atom cube with compressed *antimatter* covers;
3. The Anti-Spacetime cube with compressed *imaginary-time* covers;
4. The Anti-Gravity cube with compressed *antigravity* covers;
5. The Anti-Energy cube with compressed anti-energy covers; and
6. The Anti-Code cube with compressed *future* covers.

Note that the Vacuum cube has no cover because it is a non-compact cube.



A Black Hole

The properties of the Anti-cube are essentially the properties of the different covers mentioned above combined.

Anti-matter covers typically consist of anti-leptons because anti-quarks (from the ab and ba cube parts) do not form part of the covers which are only (aa) parts. Owing to its signature 'wave' sequence the anti-gravity covers could have a 'diluting' effect that facilitates the expansion of the Gravity cube.

The Anti-cube Surface

An interesting question about all the different types of cover is whether they could all be present in each black hole. The composite effect would truly be a magnificent illustration of the representativity of the Pattern. If, ultimately, there is only one type of cube, the different instances would then simply be differences in manifestation.

The Holographic Cover

The possibility that the cover of the cube manifests the holographic principle is an exciting observation. It would solve many difficulties with the explanation of the nature of black holes. The relationship between the information content of black holes and the discrete cell nature of the Anti-cube covers supports the holographic principle.

The Pattern cubes are members of a family that could grow to cover more and more types of natural phenomena.

The Cube of Cubes

The six specific cubes on the preceding pages could be represented on the faces of the generic Pattern cube to illustrate the idea of a common framework.

Note that the Vacuum cube actually fits inside the Pattern cube as shown below.

Also note that the Pattern cube and the Anti-Cube are not specific cubes.

The Different Cube Models

The Pattern cubes on the preceding pages illustrate the ability of the conserved Pattern cube to model different types of natural phenomena. The cube models are:

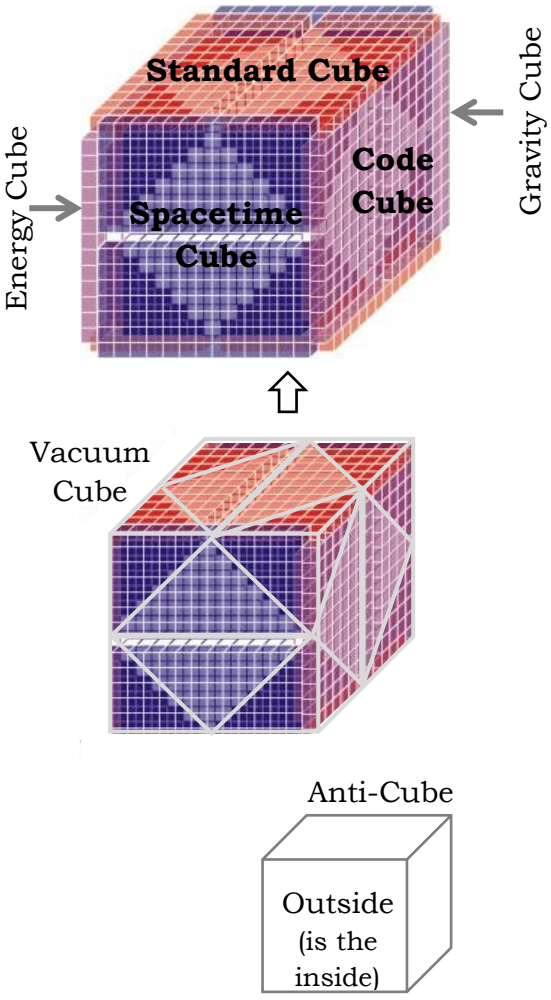
1. The Pattern cube – it shows the Pattern as a conserved cube;
2. The Vacuum cube – it shows creation in action;
3. The Atom cube – it shows the atom of atoms according to the Standard Model;
4. The Spacetime cube – it represents a spacetime with two types of time;
5. The Gravity Cube – it shows gravity as the (only) force of forces;
6. The Energy Cube – it shows the original conserved quantity;
7. The Code cube – it shows the two essentials of nature as two regions of one cube; and,
8. The Anti-cube - it shows a black hole. (The cover plates contain an inverted 'Outside' like the inside of a cube.)

More specific cubes, such as the (living) Cell cube, could be added to the initial collection that is displayed here. The Cell cube would have a *membrane,inner-cell* pair of quantities.

The cube appears to be a rigid shape but its innards are in flux. Some of its parts are lighting up while others are dimming down, some are decreasing, while others are increasing, some are speeding up, while others are slowing down. The cube is a lively show of energy and light, motion and rest.

The Pattern Cube of Cubes

A cube multiplied in perspective.



The Pattern Could Explain how Creation Happened

The different Pattern equations could, perhaps, represent different stages of creation as hypothesised by theoretical physicists. According to the theory, the two main stages are a very simple and symmetric original state and a more complex and less symmetric state after 'spontaneous symmetry breaking'.

The Pattern cluster with its basic Pattern equation (pair) agrees, in principle, with the original state (false vacuum) and the Pattern cube with its cubed Pattern equation agrees with the later 'true vacuum' state. The transition from the false vacuum to the true vacuum would then represent inflation.

One cube, many models!

One Pattern, One Cosmos

The central idea of creation is simple; there is a Pattern behind it all.

Different instances of the Pattern cube, of which only a few are described here, are able to match different types of natural phenomena. The diverse selection of specific Pattern cubes accurately reflects key phenomena as described by science.
The cube matches confirm that different types of natural phenomena develop according to the Pattern cube as the Pattern law predicts.

The Pattern Principle

George Johnson wrote, in *Fire in the Mind. Science, Faith and the Search for Order*:

Surely, if there is something fundamental in the universe besides matter and energy it is this thing we call pattern or form. Our science, our mathematics, our languages all are patterns of patterns. But where, in a material world, can something so seemingly ethereal as pattern exists? The platonists have a ready answer: the patterns – shapes, numbers, symmetries, concepts – come before all else. They exist independently in a separate realm of pure idea. The material world is simply their shadow.

Fire in the Mind. Science, Faith and the Search for Order by George Johnson; Viking, 1996.

The Pattern cube could be compared to a single entity that, by analogy, manifests light, music, speech and messages, but also physical things.

Light: One sun can radiate many colours.

Music: One flute can be used to make many music notes.

Words: One mouth can be used to speak many words.

Information: One code can be used to compile many messages.

Pottery: One mould can be used to make many pots.

This article shows that the Pattern represents one fundamental theorem, one fundamental law with one pair of quantities to be 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!

The Pattern Origin

The origin of the Pattern lies outside of the realm of science, but, Douglas Hofstadter wrote in his book, *I am a Strange Loop*:

'Where there's pattern, there's reason.'