Mensionization Complementation

The Mathematics of Hermetic Alchemy

Section 10

Differential Dimensions

25. A Hermetic Alchemy Differential Dimension System.

In the following texts a new *spatial* type dimensional system will be introduced using *Hermetic Alchemy's* 2^n structured *principles*.

There are numerous different diagrams available on the internet representing 4-dimensional structures and seemingly the most widely used is the "*Tesseract,*" which is the 4th-dimensional *analog* of the cube; the *tesseract* is to the *cube* as the *cube* is to the *plane*.

Ratio *Equivalence*

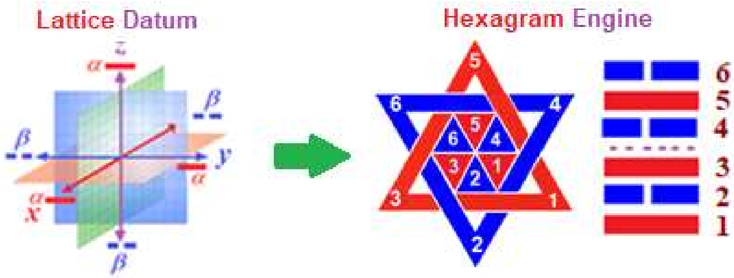
$$\frac{(\alpha+\beta)^4}{(\alpha+\beta)^3} = \frac{(\alpha+\beta)^3}{(\alpha+\beta)^2} \qquad \frac{(\alpha+\beta)^6}{(\alpha+\beta)^6} = 1$$

Needless to say, a person needs to have excellent *depth perception* and *imagination* to interpret its diagram. In our reality, we can only perceive and experience *three* (3) spatial dimensions. We cannot *mathematically* nor *visually* draw another dimension *orthogonal* to the 3-dimensional *Lattice Datum* structure; therefore, it is very difficult to draw visually-interpretable illustrations or graphics of the 4th dimension or any of the higher-dimensional graphics. However, *mathematically*, we have been using higher dimensional systems since math's early beginnings. Any time we use an *exponent* greater than *three* (3) in our *algebra* based mathematics we enter the realm of higher dimensions.

Differential Dimensions can be defined by *exponentials*. In the *Hermetic Alchemy Differential Dimension* system we are not limited to 3-dimensions, we can define up to and approaching *infinite Differential* dimensions of space, and also preserve *orthogonality* within the *Differential Dimension* system.

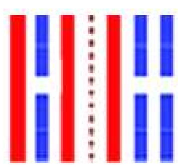
With an *abundant* assistance from calculus *Successive Derivatives* and *Hermetic Alchemy principles*, a system of *Differential Dimensions* will be introduced.

The *Standard Unit* of dimensional *complementation* is the *Lattice Datum* system; it is a *standalone* functioning "*Engine*" for a 3-dimensional *orthogonal based oppositional complementation*. It uses special arrangements or *permutations* of its *orthogonal* -based, symbolic structure the *Hexagram*. Each *hexagram* is the mathematical *equivalent* of *one* (1), 3-dimensional *orthogonal Lattice Datum Fractal of space*.



Follow along with the logic and mathematics as this system's fundamental principles are unfolded. We will be using the 2^n *mathematics* of the *Hermetic Alchemy* system.

The bottom line of the importance of the *hexagram* to higher dimensions is it contains within itself the *principles*, *operators*, and *orthogonal structures* needed for one standard unit of 3-dimensional *orthogonal complementation*. The *hexagram engine* is the foundation the higher *Differential Dimension* is built upon. The 3-dimensional *trigram* also contains important units of data within the *hexagram's* interactions, they are emphasized in the *linear string ratio* shown below by a dotted bar separating the *trigrams*.

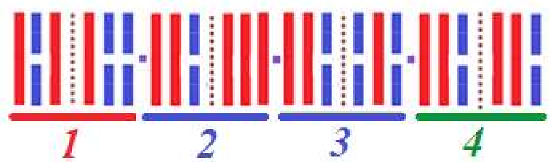


Linear Hexagram

In its *String* type structure, the *hexagram* is formed into a string with a *linear ratio* of its two *trigrams* where one *linear ratio* of the *two* trigrams is equivalent to one (1) *unit* of an *orthogonal-based hexagram's* string length of six (6) *bits*. Any *repetition* of any of the 64 *hexagrams* will be *orthogonal* in their *nature*. Therefore the *fractal nature* of the *hexagram* is a *standalone orthogonal structure*.

All higher dimensions can be mathematically ordered in a *linear hexagram* string. The string consists of *independent* units of 6-*bit binary hexagram* data arranged in a *linear* structure. The example below is a *Differential* 4th dimensional string that produces *four* (4) *hexagram engines* from its 1st *derivative*; they are *underlined* in the graphic below with one *red*, two *blue*, and one *green* bar.

Differential 4th -dimensional String (4 linear hexagram engines)



It must be noted the *hexagrams* shown above are *example* hexagrams. The little purple squares in the middle separate each *orthogonally-based hexagram* visually. They are numbered 1-4 with *a dotted purple bar* separating each *hexagram* into its two (2) *trigrams*.

Each *individual* example *hexagram engine* shown in the graphic above can be interpreted in multiple ways; *first*, by each individual α, β binary bit (▬ , ▬ ▬); its *position* within a single *hexagram* or *trigram*; *second*, by a *two* (2) bit α, β bigram ( ) and its *four* properties; *third*, a three-(3) bit *trigram's linear ratio* of the *hexagram engine's* two *trigrams*, and *fourth*, by the meaning of the *hexagram engine* as a whole. It can also be interpreted by groups or a series of hexagrams in a *linear* ordered segment similar to proteins. In fact, there are manifold ways one can interpret a single hexagram or a *linear* arrangement of adjacent hexagrams similar to "*Genes*". There is *reference* material available dating before 3000 BCE on the *hexagrams* and *trigrams*, so there is no "*lack of information*" on different *philosophical* ways to interpret the *hexagram*. The Eastern "*Yi Jing*" (*I Ching* or Book of Changes) being the major source.

If *successive derivatives* are *applied* to the 3-dimensional composite equation $f(m_3) = (\alpha + \beta)^3$ until we reach its 1st *differential dimensional* state of $(\alpha + \beta)^1$, each *successive derivative* will reveal a lower dimensional *level* of the interior functioning parts of the 3-dimensional system. Similarly, taking *successive derivative* of the 4th-dimensional equation $f(m_4) = (\alpha + \beta)^4$, we obtain a *Differential* 4th *Dimension*'s *lower* level of interior properties shown on the right in the tables below as compared on the left to the *Differential* 3rd-*Dimension*'s interior property's *levels*.

(*Differential 3rd dimension*)

Successive Derivative Levels

$$f(m_3) = (\alpha + \beta)^3 \quad \textbf{General Equation}$$

$$f^1(\alpha + \beta)^3 = 3(\alpha + \beta)^2 \quad 1^{st} \textbf{ Derivative}$$

$$f^2(\alpha + \beta)^3 = 6(\alpha + \beta)^1 \quad 2^{nd} \textbf{ Derivative}$$

(*Differential 4th dimension*)

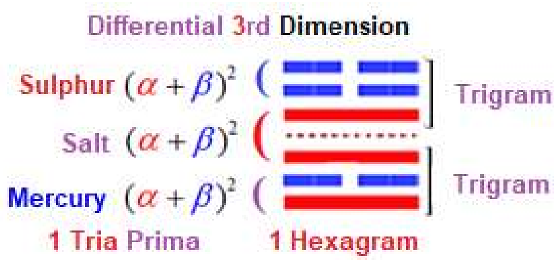
Successive Derivative Levels

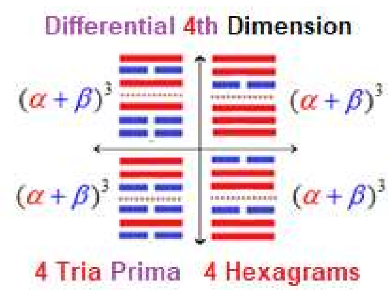
$$f(m_4) = (\alpha + \beta)^4 \quad \textbf{General Equation}$$

$$f^1(\alpha + \beta)^4 = 4(\alpha + \beta)^3 \quad 1^{st} \textbf{ Derivative}$$

$$f^2(\alpha + \beta)^4 = 12(\alpha + \beta)^2 \quad 2^{nd} \textbf{ Derivative}$$

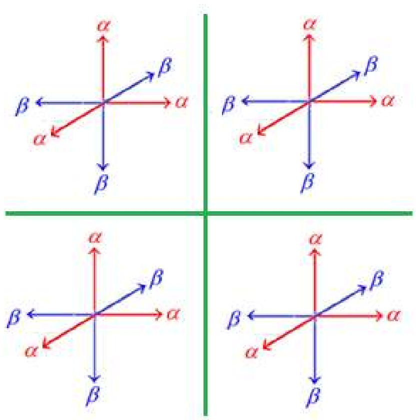
$$f^3(\alpha + \beta)^4 = 24(\alpha + \beta)^1 \quad 3^{rd} \textbf{ Derivative}$$

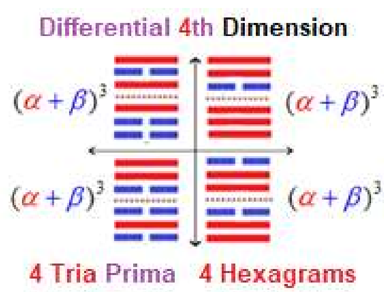


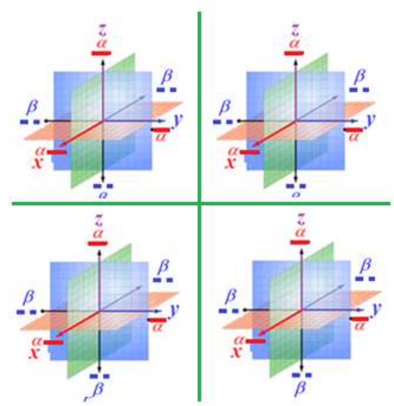


The graphic (*above right*) emphasizes the *Differential* 4th dimension's 1st *derivative* level of *four* (4) *permutations* of hexagram *engines* shown above as $4(\alpha+\beta)^3$. The *four hexagrams* shown in the graphic are *example hexagrams*. Each *hexagram* quadrant above (*at this point*) can *potentially* hold any of the 64 *hexagrams*.

The first derivative's *four hexagram engine* examples can be shown graphically by:







The *three successive derivatives* of the *differential* 4th *Dimension* is telling us; the 1st order operational function of a differential 4th dimensional system is the result of interactions of its *level* (1**)**, 1st *derivative's* four (4), 3-dimensional *Lattice Datum hexagram engines*. This dimension is a -*Differential* 4th Dimension**.**

The different *levels* in *successive derivatives* produce dimensional *hierarchies* that distinguish between a specific Differential n^{th} *derivative* and each *derivative* level's *permutation* state. Using the *rule* above, when taking *successive derivatives* of any higher dimension, one *singular level* or state in the series of *successive derivatives* will contain the number of *hexagram engines* the higher dimension contains as shown in the *Level* 1, 1st derivative's four *hexagrams*. The *integer* number of *hexagrams* within that specific *successive derivative* is the number of *permutations* of different *hexagram engines* that provides the *Energy* for the *Differential* n^{th} higher *Dimension*. Therefore, we can express the *Differential* 4th dimension in terms of the 4 *hexagram engines* obtained from the *Level* 1 first *derivative*. Another way of explaining it, the 4th and higher *differential* dimensions are defined in terms of 3-*dimensional orthogonal based hexagram engines*, therefore the *hexagram engine* will preserve *orthogonality* in higher *Differential Dimensional* structures.

The *Level* (3) 3rd *successive derivative* of the *Differential* 4th dimension creates twenty-four (24), 1-dimensional individual *bits* in its *string length* of *four* (4) *Hexagrams*.

$$f^3(\alpha+\beta)^4 = 24(\alpha+\beta)^1$$

In comparison, the *Differential* 3rd-dimension's *data* diagram is a 6-*bit hexagram data* structure taken from its *Level* (2), 2nd *derivative*, which is also its 1st *dimensional differentiated* state of $(\alpha + \beta)^1$.

Keep in *mind* we are now working with *units* of 3-dimensional *orthogonal hexagram engines*, (6 bit *Hex's*), including the individual components within a complemented 3-dimensional *hexagram* structure. Recall, the output of the *level* 1 first *derivative* of the 3-dimensional *Lattice Datum* oppositional system returns internal systems of the *three* (3), 2-dimensional modal *Four-Element* hyper-planes, $3(\alpha+\beta)^2$, (which is the *Tria Prima* (*Sulphur*, *Salt*, & *Mercury*) as its main operating functions. Every *one* (1) single *Tria Prima requires three* (3) sets of *Four Elements* to function, $3(\alpha+\beta)^2$. Therefore the *differential* 4th dimension having four (4) hexagram engines from its level 1, 1st derivative will require one (1) *Tria Prima* for each hexagram, or twelve (12) sets of modal *Four Elements* for the *four* (4) *hexagram engines* and *four* (4) *Tria Prima* of the *Differential* 4th dimension.

A *duplication* of these 3-dimensional properties is also a mathematical result of the *successive differentiation* in higher *differential dimensions*. The *Differential* 5th *Dimension* should *clarify* any misconceptions. The *Differential* 5th *Dimension* below contains, *twenty* (20), $(\alpha+\beta)^3$, 3-dimensional *orthogonal hexagram engines* (also 20 *Tria Prima*) as can be seen from its *Level* (2), 2nd successive *derivative* below.

Differential 5th Dimensional Hierarchy (Levels)

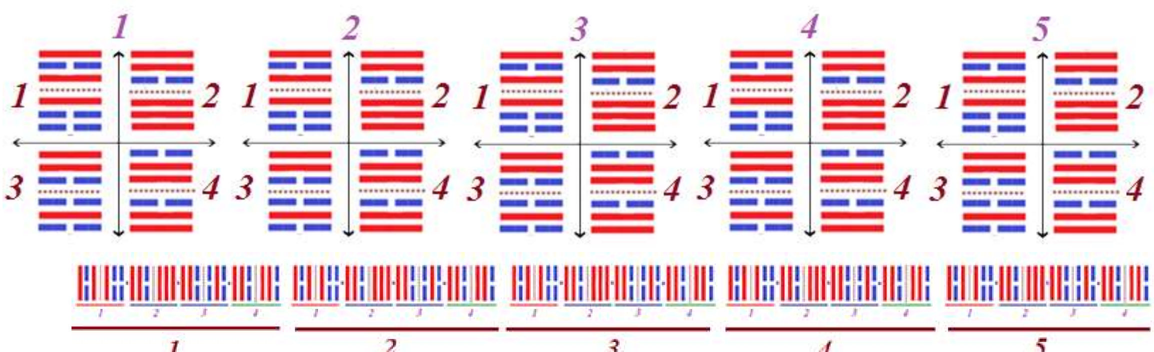
General Equation $f(m_5)=(\alpha+\beta)^5$

$f^1(\alpha+\beta)^5=5(\alpha+\beta)^4$ **1st *derivative*** (*shows it contains within itself five* (5) *operating differential* 4th *dimensional Spinar systems*).

$f^2(\alpha+\beta)^5=20(\alpha+\beta)^3$ **2nd *derivative*** (*shows the* 20 *hexagram engines and* 20 *Tria Prima*).

$f^3(\alpha+\beta)^5=60(\alpha+\beta)^2$ **3rd *derivative*** (*shows the* 60 *sets of* 2*-dimensional Modal Four-Elements needed for the* 20 *Tria prima and* 20 *hexagrams*).

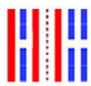
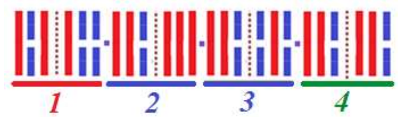
$f^4(\alpha+\beta)^5=120\,(\alpha+\beta)^1$ **4th *derivative*** (*shows a* 120 *bit string length for the* 20 *hexagrams which includes the* 1st *derivative's inner five* (5) 4*-dimensional Spinars*.



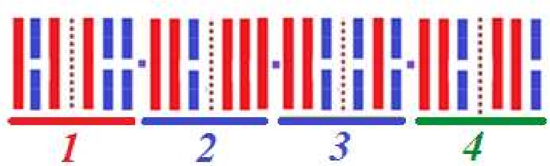
1st derivative's Five (5) differential 4th-dimensional Spinars = 20 hexagram String Length

Notice a *hierarchy* is being established from *successive differentiation*. The *Differential* 5th dimensional graphic above is showing the five (5) *differential* 4th dimensional "*Spinars*" operating within the differential 5th dimension which holistically sums to twenty (20) 3-dimensional *orthogonal Lattice Datum* hexagram *engines* shown in the Level 2, (2nd *derivative*). I refer to the five (5) 4th dimensional operating systems within the 5th *differential* dimension as (*Spinars*), a name borrowed from Quantum Field Theory's (*Spinors*); I changed its spelling to prevent confusion, also their *harmonic oscillations* give an appearance of spinning. These 20 hexagram *engines* and 40 *trigrams* are shown within the rectangular plane structure above for *clarity*. It will be changed when we get into the actual *string-structured model* in the next topic.

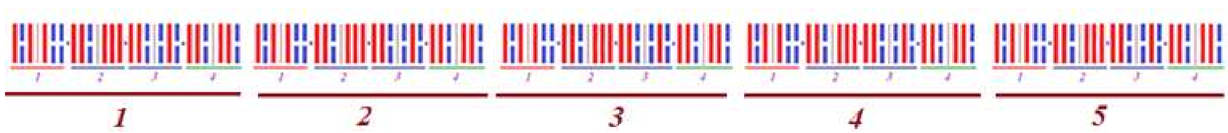
26. A String Model of Differential Dimensions.

The 3-Dimensional Hexagram Engine	***Differential 4th Dimension***
	
Six (6) bit, 3-Dim. Hexagram String Codon equal to one basic unit of String Length shown as a linear ratio of two trigrams.	*(24- bit Differential 4th dimension's String Length) four hexagrams, (1 Red, 2 Blue, 1 Green underlined)*

Since we are now using an *orthogonal*-based 3-dimensional *Lattice Datum's hexagram engine* as the standard basic operational *unit* of *orthogonal*-based complementation for higher *Differential* dimensional strings, a *String* model better represents it as seen below by using a *differential* 4th-dimensional *generic*-structured *string system* to reference the *Differential* 4th dimension's inner structure of *four* (4) *orthogonal*-based *hexagram engines*.



24-bit Differential 4-dimensional String code (four (4) Lattice-Datum Engine Hexagrams)



(120 Bit String Length Codons for a 5th Differential Dimension-(20)-Hexagrams)

Several higher *Differential* dimensions could possibly be *concatenated* into a single 1-dimensional *generic*-structured *string*, with the addition of data *start* and *stop* codons as within *DNA* and *RNA's* systems. There also *exists* within the mathematics the possibility of using one hexagram engine from the 4th differential dimension's four hexagrams above for Time, because it already contains a Sulphur, Salt, & Mercury Tria Prima, which is-Past, Present, & Future, and once there were three sets of modal Four Elements defined for the Past, Present, & Future Tria Prima, we would have a fully functional 3-dimensional orthogonal hexagram engine for Time, consisting of its own level of units. In this situation, higher differential dimensions could each have its own internal clock system, plus, in the differential 4th dimension there would be three (3) remaining generic orthogonal Lattice Datum hexagrams (2-blue, 1-green-underlined) for whatever other generic or complementary interaction purposes needed within an operational Differential 4th dimensional function.

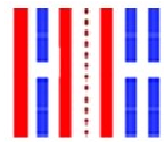
27. Differential Dimensions and the $f(e^{\beta})$ Power Form Polynomial

Power Form Polynomial of $f(e^{\beta})$ $\beta-complement$

$$f(e^{\beta})=\frac{\beta^0}{0!}+\frac{\beta^1}{1!}+\frac{\beta^2}{2!}+\frac{\beta^3}{3!}+\frac{\beta^4}{4!}+\frac{\beta^5}{5!}+\frac{\beta^6}{6!}+\cdots+\frac{\beta^n}{n!}$$

Above, I am relisting the $f(e^{\beta})$ MacLaurin type power form polynomial from Section 4 for reference in this topic. Since our physical reality, is 3-dimensional, we will begin there. Note in the term $\frac{\beta^3}{3!}$, the exponent of the term (β^3) is three (3), telling us we are at the third (3rd) differential dimensional term of the Hermetic β Productive Capacity's polynomial, i.e., the exponent of "n" in any term β^n in the polynomial determines the number of differential dimensions of the term. Now, about its denominator, 3-factorial $(3!)$. In mathematics $(3!)=3\times2\times1=6$ the hexagram. It is a hexagram's standard basic unit of string length, and the composition of the β oppositional complementation for the third Differential dimension. The β natures of the hexagram are shown within its 3rd differential dimension, it was determined from the successive integration polynomial term $\iiint\left(\frac{\beta^0}{(0!)}\right)=\frac{\beta^3}{(3!)}$. Because the hexagram is the 1st differential dimensional state $(\alpha+\beta)^1$ of $(\alpha+\beta)^3$, the above factorial also confirms how many α or β data elements (bits) are in the 3rd differential dimension's string length. Remember, the last two levels in a successive derivative sequence always ends with a factorial coefficient of its original equation.

Hierarchies of the Higher Differential Dimensions



The (Differential 3rd Dimension) $\left(\frac{\beta^3}{3!}\right) = \int_3 \left(\frac{\beta^0}{(0!)}\right)$

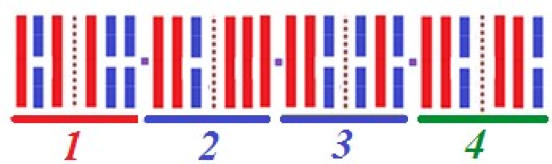
$\beta^3 = 3^{rd}$ *Dimension of the* (β) *Productive Capacity;* $(3!) = 6(\alpha+\beta)^1$, *or one (1) Hexagram String Length.*

$f(m_3) = (\alpha+\beta)^3$ **General Equation** (*The Lattice Datum, 3-dimensional* α, β *opposition*).

$f^1(\alpha+\beta)^3 = 3(\alpha+\beta)^2$ **1st *Derivative*** - *contains within itself 3 permutation sets of 2-dimensional Modal Four (4) Elements, for (1) Tria Prima*.

$f^2(\alpha+\beta)^3 = 6(\alpha+\beta)^1$ **2nd *Derivative* -** (*Hexagram Engine String Length of 6 bits*).

The Differential 4th Dimension $\left(\frac{\beta^4}{4!}\right) = \int_4 \left(\frac{\beta^0}{(0!)}\right.$



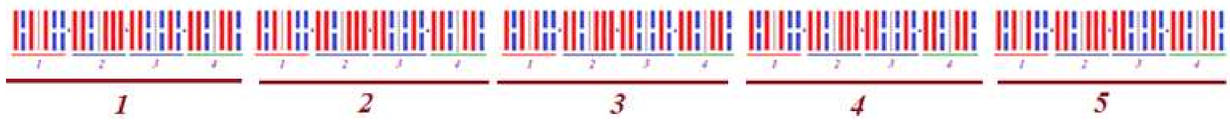
$f(m_4) = (\alpha+\beta)^4$ ***Ge 0neral Equation.***

$f^1(\alpha+\beta)^4 = 4(\alpha+\beta)^3$ **1st *Derivative*** *contains within itself 4 hexagram engines; 1 red, 2 blue, & 1 green-underlined hexagram engines.*

$f^2(\alpha+\beta)^4 = 12(\alpha+\beta)^2$ **2nd*Derivative*** *contains within itself (three (3) sets of 2-dimensional modal Four Elements for each of the 4 Tria Prima*).

$f^3(\alpha+\beta)^4 = 24(\alpha+\beta)^1$ **3rd *Derivative*** (*24 bit String length, 4 hexagram engines*).

The Differential 5th Dimension $\left(\frac{\beta^5}{(5!)}\right)=\int_5\left(\frac{\beta^0}{(0!)}\right)$ **5**! = 120 *Bit String Length.*



(*120 Bit String Length Codons for the 5th Differential* Dimension. (20)-*Hexagrams*)

$f(m_5)=(\alpha+\beta)^5$ ***General Equation***

$f^1(\alpha+\beta)^5=5(\alpha+\beta)^4$ **1*st* *Derivative*** *contains within itself five* (5) *operating differential* 4^{th} *dimensional Spinar systems. (1 Spinar set).*

$f^2(\alpha+\beta)^5=20(\alpha+\beta)^3$ **2*nd* *Derivativ***e *contains within itself twenty* (20) *Hexagram engines and* 20 *Tria Prima*.

$f^3(\alpha+\beta)^5=60(\alpha+\beta)^2$ **3*rd* *Derivative*** *contains within itself sixty* (60) *sets of 2-dimensional modal Four Elements for the* 20 *Hexagrams and* 20 *Tria prima.*

$f^4(\alpha+\beta)^5=120(\alpha+\beta)^1$ **4*th* *Derivative*** (*String Length*=120 *bits, for* 20 *hexagrams*)

The *freedom* of *degrees* just took a big leap from *a Differential 3rd* dimension *to a Differential 5th*-dimension.

The Differential 6th Dimension - $\left(\frac{\beta^6}{(6!)}\right)=\int_6\left(\frac{\beta^0}{(0!)}\right)$

$f^1(\alpha+\beta)^6$ ***General equation***

$f^1(\alpha+\beta)^6=6(\alpha+\beta)^5$ **1*st* *derivative*** *contains within itself* 6 *Differential* 5^{th} *dimensional Spinar* systems (*1st Spinar Set*).

$f^2(\alpha+\beta)^6=30(\alpha+\beta)^4$ **2*nd* *derivative*** *contains within itself* 30 *Differential* 4^{th} *dimensional Spinar* systems. (*2nd Spinar Set*)

$f^3(\alpha+\beta)^6=120(\alpha+\beta)^3$ **3*rd* *derivative*** *contains within itself 120 Hexagram Engines and 120 Tria Prima.*

$f^4(\alpha+\beta)^6 = 360(\alpha+\beta)^2$ **4^th derivative** *contains within itself* 360 *sets of modal* 4 *Elements for 120 Tria Prima*.

$f^5(\alpha+\beta)^6 = 720(\alpha+\beta)^1$ **5^th derivative** (*720* or 6! *bit String Length*)

The 6th *Differential* dimension would have a string length of (6!) or 720 $(\alpha+\beta)^1$ bit elements from its 5th *derivative level* and 120 $(\alpha+\beta)^3$ *Lattice Datum* hexagram *engines* from its 3rd *derivative level*.

Note: According to *Hermetic Alchemy's* 4th *Principle*, dimensions *must* have an α,β type opposition. All of the β mathematics of any higher differential dimension can also be obtained from the *Successive Integration Polynomial* shown individually below.

$$f(e^{\beta}) = \frac{\beta^0}{0!} + \int \frac{\beta^0}{0!}d\beta + \iint \frac{\beta^0}{0!}d\beta + \iiint \frac{\beta^0}{0!}d(\beta) + \int\int\int\int \frac{\beta^0}{0!}d\beta + \int\int\int\int\int_5 \frac{\beta^0}{0!}d\beta + \cdots + \int_n \frac{\beta^0}{0!}d\beta$$

0-Dim *1-Dim* *2-Dim* *3-Dim* *4-Dim* *5-Dim* → *n-Dim*

Notice in the *integration* polynomial above; we begin with the $\frac{(\beta^0)}{(0!)}$ *Productive Capacity*.

Through a series of *successive integration*, we obtain a polynomial consisting of the β state of the *Differential* dimensions. We can continue this polynomial to (∞) and it will become a series that will allow us to *complement* an infinite number of *Differential Dimensions*.

This complementation may be accomplished with the *Duality* of *Form* equation:

$$\mathrm{E}(\alpha+\beta)^n = \sum_{k=0}^{n}\left\{\frac{d^k}{d\alpha^n}(\alpha)^n \cdot \int_k \left(\frac{\beta^0}{0!}\right)d\beta\right\}$$

We must note however, these dimensions are similar and can be representative of the *classic* virtual dimensions; however, these are *mathematical Differential exponential* dimensions derived from *Hermetic Alchemy's* 2^n *system*.

We have discussed the *Differential Dimensions*, starting with the *Differential* 3*rd* *Dimension* through the differential 6*th* dimension; each new higher *Differential Dimensions* adds more and more intermediate level steps that have to be sequentially calculated.

Before we move on to the next section, I will introduce *two utility equations*, which can be used to easily calculate the *permutations* or *coefficients* of any level of these intermediate steps individually.

We will begin with the *7th Differential Dimension*. The first thing to note is we have to perform *six* (6) successive derivatives or *levels* $(n-1)$ to get to the $(\alpha+\beta)^1$ last *differentiated* state. In each differentiated state or *level*, the *coefficient* of that state shows the data *elements* and *permutations* for that state. For now, carefully review the *Differential 7th Dimension* below. The rows shown below are the *six levels* of *successive differentiation*.

(Differential 7th Dimension)-General Equation $f(m_7)=(\alpha+\beta)^7$

(3 *Spinar sets*)

Successive Derivative Levels Shown Below

- $f^1(\alpha+\beta)^7 = 7(\alpha+\beta)^6$ **1*st* *derivative*** *contains within itself* 7 *differential* 6*th* *dimensional Spinars* (1st *Spinar Set*).
- $f^2(\alpha+\beta)^7 = 42(\alpha+\beta)^5$ **2nd *derivative*** *contains within itself* 42 *differential* 5th *dimensional Spinars* (2nd *Spinar Set*)
- $f^3(\alpha+\beta)^7 = 210(\alpha+\beta)^4$ **3rd *derivative*** *contains within itself 210 differential 4th dimensional Spinars* (3rd *Spinar Set*).
- $f^4(\alpha+\beta)^7 = 840(\alpha+\beta)^3$ **4*th* *derivative*** *contains* 840 *Hexagram Engines*, 840 *Tria Prima*.
- $f^5(\alpha+\beta)^7 = 2520(\alpha+\beta)^2$ **5*th* *derivative*** *contains* 2,520 *sets of modal Four Elements for* 840 *Tria Prima*.
- $f^6(\alpha+\beta)^7 = 5040(\alpha+\beta)^1$ **6*th* *derivative*** 5,040 *bit String Length* (7!).

An important detail to recall; *Section* 4, introduced a proof by induction which proved the *coefficient* of *successive derivatives* are the number of *permutations* of the *derivative* outputs for a particular *Differential Dimensional* level. The *output* of this proof is the basis for the first *levels* equation. It uses the formula for *permutations.* Since we are using *successive differentiation* in each higher dimension, we must know the *specific derivative level* that contains the data we are searching for.

$$L_{D\ (Derivative)} = \frac{n!}{(n-k)!} = \frac{7!}{(7-4)!} = 840 \text{ Hexagram Engines}$$

Where L_D is the equation for the number of *permutations* obtained in the successive (k^{th}) derivative, i.e., the fourth (4^{th}) successive derivative (k) of the 7^{th} *differential* dimension (n) gives the number of hexagram engines contained in the 7^{th} *differential* dimension, (840 *hexagram engines*). However, I'm not interested at this point which *derivative* contains the number of *hexagram engines*, only "*how many* hexagram engines are contained within the 7^{th} differential dimension. Because I only want the actual value and not the derivative that contains it, I substituted a different but equivalent form of the above equation for my use which is more understandable for my purposes. It uses a function of the *General Counting Principle*.

$$L_{S\ (\text{State})} = \frac{n!}{k!}$$

By changing $(n-k)!$ to $k!$, I can now ask "*How many hexagram engines are in the* 7^{th} *Differential Dimension?*" However, I must know which *dimensional state* contains the *hexagram* engines. The *hexagram engines* only occur in the 3^{rd}-dimensional state $(\alpha+\beta)^3$. So substituting the value of the *exponent* of the 3-dimensional state (3) as *k,* the result is the same as the above (*840 hexagram engines*).

$$L_S = \frac{7!}{3!} = 840 \textit{ hexagram engines}$$

- $f^4(\alpha+\beta)^7 = 840(\alpha+\beta)^3$ ***4^{th} derivative*** *(contains* 840 *Hexagram Engines,* 840 *Tria Prima*.

Remember, each derivative sequence ends with a *factorial* of its beginning exponent. We are working within the *Differential* 7^{th} *Dimension*, therefore $(n=7)$. The location of the 3-

dimensional data term in the formula is consistent in each of the "n^{th} "*Differential Dimensions*; this 3rd dimensional state's exponent is the variable (k) in the new levels equation.

The result of this equation means we have 840 *Hexagram engines* and 840 *Tria Prima* (*one* (1) *Tria Prima* for each *hexagram engine*) within the 7*th* *Differential Dimension*. Again, let's ask another question, "*How many sets of modal Four Elements are needed in the 7th Differential Dimension*?" We also know the *Four Elements* only occur in 2- *dimensional hyper-planes* $(\alpha+\beta)^2$ or the 2nd dimensional state so our Levels equation becomes:

$$L_S = \frac{7!}{(2)!} = 2520\ (\alpha+\beta)^2$$

$f^5(\alpha+\beta)^7 = 2520\,(\alpha+\beta)^2$ ***5th derivative*** 2,520 *sets of modal Four Elements for* 840 *Tria Prima*.

We will need *2,520 Sets* of *Four Elements* (*three* (3) sets for each *hexagram engine*). Another important question is "*What is the Differential 7th dimension's String length*?" The string length occurs in the *Differential 1st* dimensional state $(\alpha+\beta)^1$. The equation then becomes: the *6th derivative* =(5,040 bit String Length) or just the ending factorial.

$$L_S = \frac{7!}{(1)!} = 5{,}040 \text{ or } (7!)\ (\alpha+\beta)^1$$

The Differential 7*th* Dimension has a 5,040 bit string length, (7!). There are many other questions that can be answered by the parameters of the *Levels* equations, such as "*How many Differential 5th Dimension Spinars are there in a Differential 7th Dimension*?" There are 42, confirm it by. $L_S = \frac{7!}{5!}$

The Levels equations are handy utility equations, if you wanted information about the 26th or any differential dimension just set the variable (n=26) or whatever differential dimension you are interested in and start asking questions. You have your choice of which *derivative* contains the information or which *dimensional state* contains the information.

I realize there are still many features missing from the *Differential Dimensional System* and I am presently working on some of those features as time permits and I become aware of them.

***INDEX** C contains complete sets of Differential Dimensions from the Differential 3rd Dimension through the Differential 10th Dimension.*

The Alchemical Kybalion, Section 11