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Fivefolded Asymmetrical Hand: A Poetic Essay

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An outline of one possible solution is given through an abstract characterization of the discipline as a whole.

At the January 1992 joint meeting in Baltimore, I read two rather obscure and cryptic poems, $\sqrt{2}$ and *GOD-137*. I have and continue to write poetry, though rather sporadically. The origin of these two poems was constructive in nature, each beginning with a simple concept and then being somewhat lifted into poetical form. The first of these, $\sqrt{2}$, was constructed using the symmetry of the 45° right triangle, two words of ten letters and one of fourteen. *GOD-137* began with the idea that when considering infinite quantities to represent sums and products we use the symbols Σ and Π . In finite elementary arithmetic we know product as "times" and sum becomes associated with "some" through a language deformation. Then, through a compound operation, the symbol $\Sigma \Pi$ is associated with the word "sometimes." For this construction the title is what needs explanation. After constructing the first "some" as one, continuing to construct the square and cube, the entire entity, the poem, contains this "three." The context of the "three" as referred to here is line, plane and space and it is through Cantor that these do become a one, in the sense of continuity. The name *GOD-137* becomes a representation where "1" is the poem, "3" this fundamental set of three, and "7" the number of lines in which the poem presents itself. The aspect "GOD" comes from the superstitious idea in Christian mythology that one is three. What makes the title more auspicious is that when I wrote it I had no knowledge of the approximation to 137 in the fine structure constant, which as I interpret, is a numerological equivalent to the word "god" from a physicist's point of view.

As my research in pure mathematics has been progressing I have often touched philosophical ground. After consistent achievement, during a restructuring and reckoning of research projects new concepts and ideas began to overflow. Through numerous discussions with a collaborator, a conception of ideal types

emerged.

Philosophically, the problem being addressed is one of balance. The notion of transcendence takes on a religious flavor being framed in mythology for expression. However, ethically the call is for responsibility. Collectively this composes a current, beginning with balance, but incorporating the transcendental religious nature, in a secular ethical morality, most accurately described as spirituality.

Beginning with the most troublesome notion of religious differences, the opinion expressed is of religious belief not properly contained in the known domain of religious expressions, yet it is not devoid of any expression. The approximation this produces is simultaneously of a theist and an atheist. Further, recognizing this expression as not properly contained in its own transcendence makes this and anything said about it faulty.

Philosophically, a transcendental aspect is at work. The three traditional philosophies, Platonism, intuitionism, and formalism, at some level form a whole, an interdependent unity. In this light we may consider the abstract "some one is three." The question of balance enters at this point. The opinion is, that in light of the notion of transcendence in religious expression, this same transcendence property may be applied to philosophy of mathematics.

It is now my moral obligation as a mathematician, and my ethical responsibility as a member of the American Mathematical Society to make available results when consequences are apparent. It is then appropriate that I share these philosophical results of my pure research, in view of the fact that the mathematical community as a whole seems to be experiencing some internal difficulties.

The issues of recognition and understanding of mathematics by society as reflected in problems of employment, education, technology, and the importance of

pure research, came to surface after a brief but inspirational conversation with a mathematics librarian. Touching on ideas of transcendence and foundations, I pointed out our current difficulties reasoning about "god" or the continuum hypothesis, two concepts I view with an amount of logical similarity. Through the subsequent evening the elaboration of the ideas based themselves in the two original "mathematical" poems of 1992 and took form in a not perfect but more aesthetically "natural" poem *Fivefolded Asymmetrical Hand*:

Why is the hand fivefolded asymmetrical
Apart from functionality?

Could our being created in our Father's
image
And our intuition have a connection?

Why of course

For before mathematicians formalize
We intuit
Intuition gives us the base
And the sight

All of mathematics, as the base of our
scientific study
Formed in initial intuition, something all men
possess
Defines a consequence that all men are at least
Minimally unconscious mathematicians

If being in the Image
Then He is Obvious, Eternal, and far from
minimal
That Master then is Self-Dual, Platonic in
Nature, by eternity

The blessed line
In Thales, Pythagoras, Archimedes...
Through Descartes, Newton, Euler, Gauss...
...Lobachevskii, Bolyai, Abel, Galois...
...Cantor, Brouwer, Hilbert, Ramanujan,
Gödel...

Defines a sequential web
Of institutions, legacies, branches, and
fields...the Mathematical Realm
With equations worth 10,000 pictures

The pictures worth 1000 words
The words of the language
The symbols of the words
Compactify
To one symbol
The Word

He spoke it
We hear it

But what do we do with it?

Why is the hand fivefolded yet asymmetrical
apart from functionality?

Knowing all of our philosophies
Shows us a clue as to why we are out of
balance

The chairs are extremely finite
The potential is rapidly growing
We are recognized as unimportant
But we know that is extremely inaccurate
That is our problem, our accuracy
But that is our greatest treasure, rigor
We are born, all of us with this paradox

How is it a problem?
Accuracy and details are the driving force

But for few, the princess and future kings
To tame this chaotic land
We must understand
Each of our roles

Each, but we are all created equal?

Not exactly so
In this group I see four

Few on top
Several forced to relate and interact
Many forced out, with nowhere to go
And a minimal, on the rise, with new light in
their eyes

That is to say the first specialize and innovate
The second specialize and integrate
The third specialize and disintegrate
The fourth appreciate and generalize

As it stands this core, the corps of modern life
Upon which the whole of Gaia depends
Which has brought so much good
So much prosperity
Is collapsing deep below the ground

Grasping for hope
We are sliding down a slope
We are caving in
And the Earth Herself is following

But on the surface it appears we have never
had a better time
Do not be fooled
Observation, Liberation, and Acceptance

Our number Three is hurting the most
If they will change we can rebuild, and
restructure
Reconstruct, and redefine

But how can we help them change?
We must change
Collectively, we must all change

If this is true
What must we do?

Rather than disintegrating, the Three must
reintegrate
Looking back we have seen this works
However, we would still be out of balance,
why?
Because they specialize
If they generalize, the more they will see
The easier it will be to reintegrate, rejuvenate
But that is not enough

Yet when they try it will happen that their
appreciation changes
A new angle of appreciation
Sparks the fire in the rejuvenation

This fire spreads like wildfire
This forest is parched
But this flame will not kill it
Beautiful parks need it from time to time
Lightning strikes, it is very natural
Especially in this, the most beautiful of parks
known to man

But why is the hand fivefolded yet
asymmetrical
apart from functionality?

Because the Four are nothing without one
more
The Custodian of the Knowledge
The Holder of the Flame
The Keeper of the Faith

It is he, the vital thumb of this hand
That is responsible for the reintegration
The rejuvenation
The rebuilding
The restructuring
The reconstructing
And the redefining

With an attitude of kindness, courteousness,
and helpfulness
He is the Pilot on this sea
He has the map
He has the control
He believes
He knows
Ultimately, he commands
But never demands

But what happens when the map is not
complete?
Where does he go on a sea of uncharted
waters?
The current
But when storms begin to swell, we are often
blown off course
But then again in uncharted territory, there is
No course

So there must exist yet another, a Sixth
Unseen servant to the entire hand
He can help by taking note
Together they both, the Fifth and the Sixth
Form an inseparable pair
So when the Pilot is at the helm
This Steward can draw the map
So that when
The storm
Has all but faded

The Pilot sails our ship

In peaceful waters
To discover the undiscoverable

But it takes all of us
Though we all are just one
A one that is Five
A complete unifying Whole
Our Sixth, hidden and unseen
Virtually forgotten, is absolutely crucial for our
construction

For the undiscovered to be discovered
We as the Collective Institution
Are crying for hope

The extension of hope is faith
Since the Pilot and the Steward have faith
And together they can complete the
incompletable
Delivering the message, they see the need for
change
Therefore we know that the Collective
Institution needs faith
This we already have

Building faith, the experience of the scientific
enterprise
Only comes after hard won discovery
So to build the faith stronger
Our need is justified in wanting
Rejuvenation
Rebuilding
Reconstructing
And redefining
To achieve this, our precursor is reintegration

If we so choose
We can and will discover the undiscoverable
And complete the incompletable
All, only if we decide

Knowing all philosophies
We have therefore
Stumbled upon a new ideal type
A type classification
A solution to our problems
A rectification of our differences
A healthier Institution

That type is the radically asymmetrical

pentagon
The radical, so discovered
Was an unfortunate occurrence for one
But a tree of infinite fruit for the multitude

He, floating on this ship
Expelled from school
And further sentenced to death at sea
Had a vision

He saw $\sqrt{2}$

I have claimed this poetic interpretation
Continuous
Associated
Transformation
+.014213562...

His school had as badge
The symbol of Health
To restore the Health that radical must be
reintegrated
Into that badge

Yes that is a divine plan
A radically asymmetrical pentagon

Now the members of our school must
recognize
As we do
The types of apprentices, the students that
have enrolled
Being good teachers we recognize who is who
And steer them if we can
But only upon the acceptance of all types
Can they, those drowning at sea be helped

Therefore we define our type class:

Custodian of the Knowledge
The Laboring Weavers
The Laboring Administrators
The Inspirational Movers
The Inspirational Laborers

As respectively, the Fifth, Third, Second, First,
and Fourth
Of the Four,

Individually, each is dependent on the other

three
 And stylistically they split into pairs
 All owing the deepest of gratitude to the
 Custodian

For this five folded asymmetrical hand
 To those that know it as an image of the
 Father
 Has actually something very unique
 A metasymmetry

For those with this knowledge
 They have no doubt
 There exists God
 In fact there exists,

God-137:

sometimes one is some
 unless some is none
 for one to be none
 just can't be done
 yet sometimes some is square
 and sometimes some is cube
 and someone is three

The paradox we are amidst is most easily expressed by the acknowledgement that the mathematical discipline is making great internal strides in development and it is facing serious difficulty structurally as an entity. Thus, in the model of real world interpretation with respect to society at large, these two aspects are precisely opposite. So we understand this as $M \equiv m \wedge s$ where $s = -m$. Hence, this is a fundamental contradiction. Metaphorically we may think of us as just stretching a muscle.

Our first reconciliation is to view the three philosophies, Platonism, intuitionism, and formalism, as defining a metaphilosophy, under balance. As mathematicians at this point in history, we have accumulated our Body of Mathematics. We see the beauty and necessity, but the unconscious mathematicians, be it student or layman, may not see the beauty we do. Yet they may be literary scholars, physicians, or musicians having some sense of a Beauty. Is this Beauty the same? Is it unique in origin but manifest in expression? For mathematicians and physicists alike, it does exist, platonic and real. This is the core, a self-dual Nature, with expression in number, in mathematics.

Our language is then nothing more than a sentence, a

word, a symbol, finite in representation. We have used it to talk of the continuous and the discrete. Our physicists with the gift of sight have been leading in one direction and our mathematicians with the gift of sight in another; they are our dedicated professors. Our community interacts with society at large by administering, by repetition of ideas, application. The brilliant students following sound advice develop and drive home existing results, speciality is the notion. Our results become documented in literature that quickly becomes obscure. The traditional types, pure and applied, are failing to describe our deeper structure, and the students of today are faced with an innate binary option of intra- or extra-applied mathematics.

The structure that we see developing is simply one of pure academia, industrial application, or unemployment, the equivalent of nonmathematics. This is not a new observation. We have been asking for a solution.

The conclusion that we may immediately draw is that if we have more of our specialized mathematicians that are nontraditional, by generalizing and collectively working, an additional type is defined. From a practical standpoint, this type needs its own internal structure. Clearly, its definition is one of augmentation.

It is this rejuvenating type of mathematician that defines itself as an integral part of a whole, a whole that is under construction. Collectively, with an attitude of redefinition but a negation of that stance, a support for our contradictory base is obtained. We proceed in this direction with the aim of communication.

Because of the inherent contradiction that is at the center of the communication we are consequently seeking to define new ways to effect the communication, that is we are seeking and defining new mathematics, and this is the conclusion so sought.

