The Language of All Languages

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Introduction

Time, space and energy are all there is. Everything else is merely an arrangement of these three things. The universe and all therein are endlessly layered and hopelessly complex arrangements of time, space and energy, and of course language is a part of the universe. So on some meaningful level, language is also an arrangement of time, space and energy. But what precisely is the nature of that arrangement? What property of the universe gives us any language at all? The eternal dream of man is to know answers to deceptively simple questions like these. After all, to know them would be to look directly into the mind of God and somehow share his thoughts. It would be to converse, if only momentarily, directly with the universe itself. It would be to "know" something in the deepest sense of the word, or to be "informed" at the ultimate level of reality. So, in these brutally simple terms, if one could ask God but one question, what would it be, and in what language might it be asked?

Science has evolved as the de facto home of a common human language used to query God directly about the innermost workings of this physical universe, about how it is constructed, about how we might logically fit within it. More accurately, science nurtures a diverse family of many languages, all connected in some loose way, all bound together logically yet mysteriously by the very fabric of the universe itself. There seems to be a natural hierarchy, or a broadly branching tree of these scientific languages, where physics provides the trunk in addressing the relationships between time, space and energy directly. Countless other languages then build upon its base, spread out quickly, and evolve away in tangled branches. Of course, the science of language itself must fall within this hierarchy, and so the grand hubris of physics has become the notion that all other sciences are derivative of it. Can it be said then, in some perverse way, that language is physics? Or is it the other way around; is it more true to say that physics is language? I am eccentric so I say the latter. Still, science in general and physics in particular is a decidedly poor surrogate for any language that allows us to ask God in any coherent way about our place in the universe. For that we generally turn to the languages of religion, philosophy or perhaps even the language of biology.

Many of us lesser talents can never hope to query God directly, so we must be clever about who and how we ask our most profound questions. We can, for instance, seek all those who have worked the hardest and the longest to answer these kinds of questions, and we could pool their many and various answers, trying then to distill the essence of their wisdom into a common logic or a common framework of human understanding. We could include the shaman and priest, the artist and actor, the politician and thief, the scientist and layman; but assuming we successfully did all this, in the end, how could we actually know that we had found the correct answer? Who is the authority that can tell us unequivocally that our answer is appropriate let alone correct?

How could we be sure that we properly understand the languages in which these answers are given? By what metric can questions and answers of this nature ever truly be judged?

Sadly, a human consensus on ultimate truth, reality and meaning now appears to be just slightly out of our grasp here. Asking God and asking everybody are two options we've now briefly considered and rightly rejected, so let's see if we can go about this yet another way. Let us pick a person, living or dead, and pick just one question to ask him. Who would it be? What would you ask? And how would you ask it? I choose to go directly to the foundation of reality – time, space and energy – go directly to the utmost authority and find the one question upon its answer we might hope to build our way back up through the hierarchy, the dense tangled branches of scientific jargon, and glean some fundamental understanding of language in our universe. Since, ironically, this is a question about the physical and not the spiritual universe, and since physics is the formal study of the physical universe, I shall choose perhaps the greatest physicist of all time, Albert Einstein, and here is what I choose to ask him: Can you tell me, Albert, one true thing about the universe? His answer, almost surely, would be this: Reality has no preferred frame of reference. As luck would have it, herein lays the essence of all language. To crudely paraphrase dear Albert, no thing exists in this universe except by comparison to other things. All reality, time, space and energy, is a process of endless comparison, and so too is all language. Language is inherently based on relationships between one thing and another. Indeed, all language is a formal act of comparison. Reality, at bottom, is language, or more bluntly, language creates reality.

Within the fundamental relationship between time, space and energy lies the language of matter. We struggle mightily to translate this natural language into our crude human language of quantum physics. What's more, emerging from the fundamental relationship between all matter lies the language of chemistry, and from all matter emerges our concept of mass. Of course emerging from the fundamental relationship between one mass and another is the language of gravity, which in turn we humans struggle to put into words and symbols, and so on ad infinitum. It is endless this process where reality layers and combines the relationships between one thing and another, and it is obvious the fact that natural languages must exist to do this. It is endless how curious humans translate these natural languages into many human languages that must involve heroically creative mental imagery, verbal nuance and extravagant written symbols. Awkwardly and quaintly nestled - and quite well-hidden I must add - within the remote recesses of these many fundamental relationships between chemistry and physics lies the language of life. Indeed, life is a language unto itself. There is a language that is life and there is a language that creates life, and of course we have many human languages that attempt to translate these vital natural languages of life into something that our brains – a mere product of life – might possibly understand.

Lest we soon forget, our languages are merely toys, cartoons or crude models of the languages of reality; nonetheless, they are the best we have. Our most solemn task, then, is to make them better, and the happy fact is that our many languages of physical reality do indeed seem to curiously be getting better. One might even get the impression from this seemingly endless process of language invention and refinement that the singular goal of the universe is to create a language in which it can communicate with itself. We humans appear to be an important player in the game of achieving that goal. Who could disagree?

Language of Numbers

Some say that God is a mathematician. They say that mathematics is the language of science because it is the language of the universe. Did man invent math or did math invent man? Nobody knows. I am eccentric so I believe that math invented man and then man returned the favor. Granted, nothing could ever be that simple, but what really is math? Math is a language, to be sure, many languages really, so math is at heart a formal system of comparison, or many layered and complex comparisons. Without symbols we have very little math, but the purpose of all our funky invented symbols in mathematics are merely to help us make comparisons, each more complex, subtler, more nuanced, yet perhaps more powerful and profound than the next. So mathematics is the formal symbolic demonstration of the natural and logical relationships between all things in the universe. Naturally, from this perspective, mathematics has become the preferred language of physicists, the one most often used to augment and communicate the really profound concepts of physics, which are themselves nothing more than comparisons.

The most indispensable sign in all of mathematics is the equals sign "=". Nothing hits home more than when one realizes that one thing equals another. 2 + 2 = 4, mass equals energy, time equals money, etcetera. Conversely, another law of our physical universe – the Pauli Exclusion Principle – says that no two things can ever be the same thing. How to reconcile? Symmetry is the answer. Symmetry is a special kind of comparison, or a kind of equals where one thing is compared to another yet an important part of the thing remains unchanged. Symmetry is change without change. The spokes of a wheel, the tiles on a floor, the points of a cube, the two sides of an equation, these are all examples of things that can change yet remain unchanged. We all know that 2 + 2 + 2 = 3 + 3 and so this also means that 3 + 3 = 2 + 2 + 2. Many of us can then also quickly realize that 3 * 2 = 2 * 3 and so the magic of math begins to metastasize from deep in our souls. The universe loves symmetry and so too do humans. This magic is purely the magic of comparison, but it is especially magical when comparisons are made through purely symmetrical transformations. Note once again that this is the magic of language at its very core.

Mathematics has given us many fabulous and important offshoots. Perhaps the most important and fabulous offshoot of mathematics today is the digital information revolution, or the conquest of mankind by computer technology. Symbolic logic lies at its heart, and this too pumps blood through all of mathematics, so perhaps math and computers represent less a lineage than a dichotomy. All languages traffic in one way or another in the nebulous currency of "information," but in digital technology this currency cannot be nebulous at any level or in any sense. All transactions are precise and all information is precisely defined. All digital languages are merely formal methods of transacting with information, comparing one set of digits to another. Language is comparison and language compares information, so it stands to reason that information is also comparison, which is true.

One bit of information is defined as the information contained in a choice made from two equally probable choices. Two bits of information is the information contained in a choice made from four equally probable choices. Three bits of information is the

information contained in a choice made from eight equally probable choices. We can begin to see the simple pattern emerge, and indeed we can use inductive reasoning to create a precise formula that relieves us of the need to continue: Information = Choice made from $\log_2$(# of Equal Choices). Therefore, information is explicitly measured by the comparison of a particular choice, or a set of choices, that is made from a set of all possible choices. It is a form of probability, or a ratio, which is a pure comparison. One bit equals one side of a two sided coin. Two bits equals one sister from a set of quadruplets. Three bits equals one tentacle from an octopus, etcetera. This is what it means to be digital, to reduce all things to digits, and reduce all digits to just two: 0 and 1. All computer languages are merely formalized ways of comparing digits. Computers simply and blindly go about the task of methodically and rapidly making these comparisons. Each clock tick of each computer is merely a comparison made between a set of digits before and after a prescribed logical operation upon digits. Each language is merely the layering of evermore complex comparisons. We then, of course, have many human languages that help us understand the computer languages, but they are merely toys, or cartoons of what the computer is actually doing. The net result is that we have rapid and efficient ways of comparing a set of zeros and ones to virtually anything.

Digits can be made to compare favorably to the visual results of light waves bouncing off the Mona Lisa, or of sound waves emanating from precious strings performing a Mozart concerto, or the stark printed symbols that mystically conger up ideas and emotions in a human brain reading a Shakespearean Sonnet. Miracles all, but all miracles of language. Digits can be made symmetrical with or equal to virtually anything we might conceive. When then shall we expect to see the string of digits that equals love or perhaps eternity? Note, however, that the real magic here lay not in the digits but in the languages that make the critical comparisons. Language, once again, creates reality. Just as computers use language to create a digital reality, the universe uses language to create our reality. The computer is a product of the universe simply because the universe is the product of language. The computer is merely the universe's latest attempt to better know itself.

Language of Life

As famous and important and successful as Albert Einstein was in physics, Charles Darwin was more so in biology. Most people do not realize that both men discovered the exact same principle at the foundation of their respective fields, and both were able to reduce their clarifying ideas to simpler formulas. Einstein said that all things physical are at first relative to each other, and this principle can be seen in a formula that plainly tells us that energy equals matter, $E=mc^2$. Darwin said that all things biological are at first relative to each other, and perhaps we could write his formula as Life = Comparison. Biological systems – in Darwinian terms - are nothing but systems of comparison. The formula that Darwin actually gave us is called natural selection. This is indeed the generative formula of all life, and so it has been used as the organizing formula for all of biology. It can be thought of as the machine-level language that leads to the many and diverse languages of life. Here are the simple steps for executing the formula:

1. Produce a set of things for comparison.
2. Select a subset of those things.
3. Use the subset to produce a new set of things for comparison.

The set of things for comparison is always the set of all living things. Survival is the criterion on which the set is compared and ultimately selected. Nature does the comparison and the selection, ergo the name natural selection. One cannot help but notice a few things about this formula. First, it is a pure language as we have defined it here; it is the natural language that compares survivors to all else. Second, it is a perpetual generator of information as we have defined it here. In other words, the act of survival contains real information. Third, it is a fractal algorithm, and therefore it is a generator of complexity of a specific type – self-same complexity. In other words, life exhibits a curve of detailed complexity that resembles the famous curve known as the Mandlebrot set. The formula of life accepts an input and produces an output. The formula then accepts the output as the next input in an infinite recursive loop of the formula. This is a fractal formula and so it reliably produces patterns of layered fractal complexity that share features at each level of complexity. Life is an inherently fractal language, and once again, language creates reality. I am eccentric, so I say that life is no different than the rest of the universe, but it is the most intricate and frilly edge of the fractal curve of the universe. Life is where information is created the fastest within a universe hell bent on creating information.

Inventing Language

So now we've used a lot of flowery prose to demonstrate the connectedness of all things, a common theme that permeates the complex matrix of reality that is our universe, and we've emphasized the central importance of language not just to man but to all life and all reality. So what? What can we do with these deep insights? How can we take what we now know and come up with one single tangible example of a language actually being put together? Well, it just so happens that there is a toy language that we will find right here in our philosophical wheelhouse, a language that starts with the fabric of the universe and extends all the way upward to our everyday lives, a language that compares space to itself. We will call this new language Polyhedrish.

A polyhedron is a physical object that consists of faces, edges and points, where a face is a plane, an edge is the intersection of two planes, and a point is the intersection of three or more planes. In Polyhedrish we want to maximize the symmetry of our comparisons, so we will restrict ourselves to only polyhedrons that are perfectly symmetrical. There are only five perfectly symmetrical polyhedrons in the universe, and they are the tetrahedron, octahedron, cube, icosahedron and dodecahedron:

Figure 1.

Polyhedrish could start with a simple comparison between any two of these structures, however, we will at first focus on the points of our polyhedrons, so we will start with the two polyhedrons that have the most and the fewest points – the dodecahedron and the tetrahedron. The first thing that we can notice is that the four points of a tetrahedron can be made to perfectly correspond to four of the twenty points of a dodecahedron. This demonstrates an equivalence of some kind, so in this sense we can say that tetrahedron = dodecahedron. In a very real way a dodecahedron now is a tetrahedron and a tetrahedron is a dodecahedron. We can also now quickly notice that five tetrahedrons can be perfectly placed within the dodecahedron to occupy all of its points. Perhaps less intuitive is the fact that this procedure can be done in two equivalent ways – mirrors, or duals if you prefer. We will use the not sign "¬" to stand for a dual form or a mirror form. Perhaps it goes without saying that every tetrahedron can be rotated twelve ways into itself, and another simple yet convenient fact is that each tetrahedron and its dual form a cube. Also allowing T = tetrahedron, C = cube, and D = dodecahedron, the formula for this new collection of insights might look like this: 2(5T) = D. Or perhaps like this (5T) & ¬(5T) = D. In addition to rotations into itself, every tetrahedron can rotate into one of the dual tetrahedrons of the other four mirror cubes. So now we can say that T & ¬T = C, and 5C = D, and finally say that each C = every other C* by TC & ¬TC*. In other words, a dodecahedron defines or is defined by all the logical rotations of a tetrahedron. We can demonstrate this with symbols, pictures, words or actual polyhedrons. These are simple, basic facts or truths about the spatial logic of perfect polyhedrons. This is merely the universal logic upon which we can now build our own form or idiosyncratic dialect of Polyhedrish.

Another way of saying this is that a natural relationship or a language already exists between the tetrahedron and the dodecahedron, and we can translate it into any number of human languages. There is an entire city of tetrahedrons within a dodecahedron, if you will, all connected by pathways of rotational logic. We now merely need a system of communication for the city and its pathways. Of course the other three perfect polyhedrons are related in similar ways, but our language here will focus only on the above rules of this one basic relationship.

The questions that need answers for any language are always the same: what are the semiotics, pragmatics, semantics and syntax of the language? We can tear through all of them in short order for Polyhedrish. The semiotics or the purpose of this language is to describe and communicate in human terms a natural comparison, or a symmetrical relationship between a dodecahedron and a tetrahedron. In this case we know that there are ten tetrahedrons within the dodecahedron and each is related to the other by a series of rotations. Each tetrahedron is related to itself by twelve distinct rotations, so our language must capture the logical relationship between a dodecahedron and 120 unique tetrahedrons. The next thing that we need is a set of symbols and their meanings, or some basic sematics. We could chose whatever we like to stand for whatever we like in whatever relationships we might prefer. Of course, we prefer the "best possible" solution, but who is to say what that might be? The pragmatics of this language involve the fact that humans will be communicating about shapes, so we pragmatically might

want to chose symbols that are recognizable and already have simple, recognizable names. In this case we will chose colors, and we will assign colors to the planes, or to the faces of our two polyhedrons. We will start with the tetrahedron, and we find that we need only four colors (red, yellow, blue and green) one for each face. The dodecahedron then inherits this exact same arrangement, but in this case there are twelve faces, so each color must be assigned to three faces. This is okay because a dodecahedron is a tetrahedron. Remember?

The last thing we need to complete our Polyhedrish are some rules or some syntax. This is a symmetrical language, so we could focus on the tetrahedron or we could focus on the dodecahedron. We either describe one tetrahedron from the set of 120 by using the dodecahedron, or we describe one tetrahedron relative to another by using the rotations of the tetrahedron. It is simply a matter of personal preference. If you are a dodecahedron you surely will chose the former and if you are a tetrahedron you might go with the latter. If we focus here on the tetrahedron we note that each rotation within the dodecahedron will leave one of the planes in an unchanged orientation. There are four colors, so merely by creating a sequence of colors – i.e. red, blue, green, blue, yellow, blue – we can conveniently specify a sequence of rotations. It turns out that all rotations of any of the 120 tetrahedrons can be reached in six moves or less from any of the other tetrahedrons. Conversely, if we focus on the dodecahedron we notice that each of the points is a unique intersection of three faces, so each point will have a unique set of three colors. There are six unique permutations of three things, so there are six ways to "say" one point within a dodecahedron. There are twenty points, so conveniently, there is one unique "word" for every tetrahedron. However, since we have selected only four colors, some of the faces within each point are the same color, reducing the number of unique permutations, so our number of unique words for a dodecahedral point has now been reduced to only sixty-four; therefore, to cover all possible rotations of the tetrahedron we will need to specify two points. Again, we can specify any tetrahedron within the dodecahedron with a sequence of six colors when choosing from a set of just four colors. Our whole language can once again consist of just four colors grouped in threes, and all information can be communicated in six colors or less. The number of complex combinations is now infinite, and there are an infinite number of codes that might also take advantage of the structure of this basic natural language.

It is critically important at this point that we can make the distinction between a natural language and any other language that models or leverages the natural language. Gravity has a natural language, obviously, yet humans have many symbolic languages of gravity that allow us to approximately predict the behavior of objects in time and space within our universe. Likewise, Polyhedrish is a toy language that we have just invented here to compare and communicate the symmetrical and entirely logical relationship between a dodecahedron and a tetrahedron. This natural language exists within the fabric of the universe, and we have merely selected one dialect from the infinite pool of possible dialects to speak this peculiar language of space.

The Inevitable Big Oops of Science (some say eureka!)

An insightful reader of biology might now notice something extremely funny about this particular language, Polyhedrish. What is it about this language that we've

seen before? As luck would have it, Polyhedrish shares the exact same structure as the genetic code, that's what's funny about it. Now, if that's not hilarious, what is?

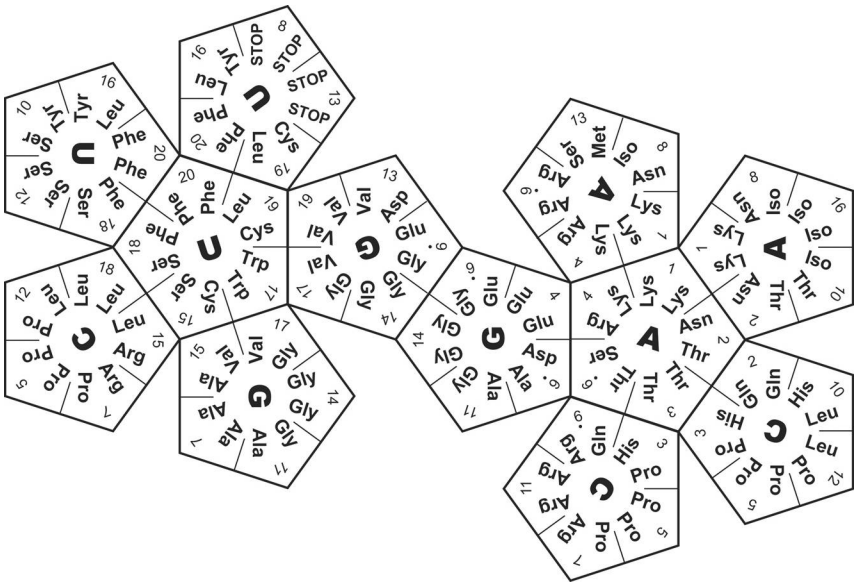

Figure 2.

Coincidence? Hardly. The genetic code is merely one more of the infinite possible dialects of this exact same language. The genetic code, at the very bottom, compares space to itself. The genetic code is a language of molecules. What should now be painfully obvious is that the language selected the molecules, and not the opposite as we falsely believe from reading our miserably flawed textbooks of biology today. The language existed and the molecules filled it out with their own peculiar dialects. Language creates reality. In fact there are currently millions of unique dialects of the genetic code on our planet today. Life has a funny way of evolving. Molecules simply "survive" through time based on their ability to speak this language when compared to all other molecules trying to speak this language. What could be more obvious? Darwin's magic formula has been running its recursive loop for almost five billion years, all seemingly to select just the right combination of molecules to speak this vital language of molecules. Of course man has his own language of the genetic code, but man's current language is also merely one chosen from an infinite number of possible languages. Unfortunately, as man is prone to do, man has chosen the worst possible language. It is not a toy or a cartoon language but a clown language. In other words, man has chosen the one and only worst way to describe the genetic code, the way that best ensures that it won't be properly understood. Now that's really hilarious.

To understand any language one must first understand that a language is always at bottom a comparison between two sets. To best understand any language, then, one must first properly recognize the two sets. When you speak an English sentence to me, you have selected one thought from the set of all possible thoughts in your brain and encoded it into a sequence of sound waves. I receive that sentence and decode it into a thought taken from the set of all possible thoughts in my brain. Think of the sentence merely as a number chosen from a set of numbers. It is communicated to me and translated into another number chosen from my set of possible numbers. The chances that they will be

the same number, the number in your brain and the number in mine, are essentially zero, but so what? We already know that no two things can ever be the same thing, and after all, our brains are different. The set of numbers is different. Any number, or any information that you communicate to me will necessarily be different, yet it works remarkably well nonetheless. Don't you think? In this case, spoken English between you and me is a formal comparison between two sets: your brain and mine.

In these terms, what then is the genetic code? What are the two sets? Traditionally the genetic code has been seen as a cipher, not a language. This is comically false because the genetic code really is a language. In fact it is a robust language of molecules. However, the problem with the traditional approach is that two large mistakes were made in the creation of the human language of the genetic code. First, they picked the wrong two sets of molecules. Second, they grotesquely defined one of the proper sets so that it cannot work properly in any meaningful comparison. The genetic code was defined as a comparison between codons and amino acids, but this is a demonstrably false comparison. The proper comparison is between nucleotides and proteins. The high priests of scientific tradition now strenuously insist that we also must define a protein as a remarkably complex molecule that remarkably can have only one shape. It is nuts but sadly that's the way it is. There is nothing in the annals of man or science that should allow us to do this, but if we do not do this, then the genetic code can no-longer be a comparison between codons and amino acids, and this particular clown language will then need to pack up its clown car and leave the science stage. Clowns may be funny, but they can be extremely mean and extremely territorial. These clowns ain't goin' nowhere anytime soon, pal.

In the crudest possible terms, life consists of nucleotides and proteins. Nucleotides are anchored by a set of four nucleotides that make up all possible sequences of DNA. Proteins are anchored by a set of twenty standard amino acids that make up all possible proteins. There are of course, many and diverse molecules that exist in the translation between DNA and protein – the molecules that are the language - but for our purposes here we will focus mainly on these two types of molecules.

DNA lives in sequences that are called a double helix. The double helix of DNA can easily be idealized as a sequence of dodecahedrons. Proteins live in sequences of amino acids, which literally are tetrahedrons, and they create all sorts of complex shapes. DNA is to protein as the dodecahedron is to the tetrahedron. The language between them is nothing but a grand and perpetual comparison between them. The genetic code is merely the global comparison between DNA and protein, not codons and amino acids. The genetic code is structure not sequence. Space is translated into space and then back again through time. It is a beautifully symmetric and breathtakingly efficient exchange of the world's most complex information. The language of space is universal and so the molecules have leveraged this language to create their own dialect of that language, the fundamental language of molecular life. In this context, sequence is to us merely an illusion. After all, to molecules it is all structure. The language of molecules is one of time, space and energy, not sequence. In other words, molecular sequences are merely sequences of molecular structures. Structural sequence is merely the ingenious molecular mechanism to methodically control time within the language of matter. The specifics remain hidden, and will remain so for years to come, to be quite sure.

The human language that we currently use to describe this natural language is one that only Lewis Carroll could love. The Mad Hatter appears and all at once we begin speaking of the non-synonymous synonymous nature of things, and then we begin living backwards! It is all so frightfully disorienting, to be sure. Fortunately, the fingerprints of God are all over this particular language, and so the insentient molecules of the universe know exactly what they are doing even if we do not. It should stop us dead in our tracks, though, to finally realize that mindless molecules are able to communicate the language of time, space and energy with one another, and the result of this conversation is life. What language do we possess that begins to approach this creative power? Yet the language of life leads to the language of man, and man can now only marvel. Words fail. In this case, words have failed us miserably.

Consider a beaker of salt water. It is a random riot of hydrogen, oxygen, sodium and chloride. Through time this riot will calm down and reveal to us that it really is a cube at heart. The molecules reliably find the language of cube sewn into the fabric of the universe, and they naturally begin speaking it to each other. Consider another beaker of water that contains amino acids and some other funny looking molecules with still funnier sounding names. Consider that we pull a random number from a hat, and we assign that number to a sequence of nucleotides. When we drop that number into that beaker, that beaker of water will treat it like a computer treats a sequence of zeros and ones. It will convert the amino acids into another number, except this number will come to us not merely as a sequence but as a fully formed molecule. Each molecular form is its own number, but this one molecule happens to be the one logically mapped to the other by the language sewn into the fabric of the universe, just like the salt. But this second language is fabulously more complex and so it had to be learned over billions of years by this specific collection of molecules that we put into that beaker. Now consider a single cell in a specialized beaker we call a womb. It too is like a number and it too will return a result. The result could be “frog” or “kitty” or “Bob” or “Sally” but it too must operate on a language that through time organizes molecules into cells, and cells into beings. After all, a being is merely a complex arrangement of time, space and energy, and so a language must exist, sewn into the fabric of the universe, that can translate the arrangement of time, space and energy in a single cell into the arrangement of an entire being. The being then conspires to create a unique arrangement of another cell, because after all, it is a symmetrical language. Language creates reality. We can only marvel at the complex efficiency of this particularly magical language, and perhaps it is a language that can only be spoken by God. Perhaps not.

When Good Languages Go Bad

The languages of science and math are axiomatic languages, so they are prone to collapse when their axioms prove to be false; however, they rarely go quietly into the good night. Scientists are extremely religious about their languages, and so they guard them jealously. I am not a scientist; I am an eccentric who does not particularly like scientists, so I have no problem blaspheming them and their sacred languages. After all, Gödel proved than no language can be self-contained and complete, so every language must have a leak of logic, so to speak. We call these leaks axioms. Euclid ruled over all of geometry for two millennia with his five cozy axioms and the complex deductive

system that we use to apply them in what we call "proofs." Eventually, however, his fifth axiom was found quite wanting, and so Euclid lost his monopoly. Rightfully so. Note also how the language of our heavens, astronomy, used to be founded upon the farcical axioms that the earth was the stationary center of the universe, and all else processed around it in perfect circular patterns. These two axioms were also proven false, and so the language that grew up around them had to be stripped bare and rebuilt from scratch. It took hundreds of years despite the obvious flaws in the axioms, but it happened nonetheless.

Today, there is a false axiom in the heart of biology that is more egregious and pernicious than all of these other examples combined. It is the axiom that all proteins can assume but one stable shape. Perhaps you've heard it in many of its hundreds of insidious forms, but this is the one axiom that founds the human language of molecular biology and by extension the many and various languages of general biology. One can hardly see a single orbit for all the absurd epicycles. This axiom was nothing more than the result of reckless and wanton inductive reasoning, an excited rush to generalize that led to untold numbers of false and farcical "scientific" deductions. Many of the wishful narratives that make up the languages of biology are now little more than pure jabberwacke. They obviously will collapse, but when?

If all proteins can exist in only one spatial configuration then the relationship between all DNA and all protein becomes entirely flat. In fact, flat is too generous a term that implies two dimensions to the language when in fact this language can have only one-dimension. This relationship is now the language between DNA and protein, so the language becomes one-dimensional as well. A one-dimensional language can traffic only in one-dimensional information, and so it goes ad infinitum. By destroying the natural richness of protein we have merely destroyed the natural richness of its language. Perhaps nothing more absurd could ever be suggested and accepted in the history of science, yet that is precisely what has happened in biology. We are now in the midst of a huge scientific hoax. It will be known as the grand hoax of the genetic code, the equivalent of the hoax of a geocentric universe. And despite thirty years of indisputable empiric evidence against the hoax, evidence that proteins can and do consistently assume many different spatial conformations, the axiom is religiously held and dogmatically transferred from one generation to the highly impressionable next generation. Consequently, the language used to do so is designed specifically for this purpose alone, and comically it can now be used for nothing else. It is a logical tautology built to support the language of tautology itself. How long must this continue? Is there not a clue among us?

It is from painful experience that I report to you that science is not as it purports to be; it is not the ever-vigilant seeker and defender of truth. Science is the creator and protector of human language. More specifically, I have yet to meet a single scientist who actually behaves in a way that betrays an ounce of natural curiosity or wonderment about this grand universe. In my experience a significant portion of scientists are crotchety old men who have lost their capacity, motivation or affinity for pure reason. The rest of them appear to me as crotchety young men beholden to their elders for the life-giving approval and grant money that keeps the labs, SUVs and baby's diapers in constant free-flow supply. Actual truth and discovery, rather than an overriding goal, are seemingly the source of all dread in science today. Consequently, the words "you are wrong" do not

compute in the mind of a modern scientist. Such things are unthinkable, so when they hear such things they strangely must interpret them into something else. Unfortunately, the modern concept and model of the genetic code, and by extension the entire language of molecular biology and general biology is based on a reckless induction leading to a demonstrably false axiom – the only axiom of the entire language system. It is a perfect example of a language that has gone bad, rancid to the core.

Despite the mock dreariness here, my outlook for the future remains cheery. I know that one day God will tap this tiny group of misguided scientists on the shoulder and say, "I haven't a clue what you are saying." And so an intrepid band of heretical linguists has now embarked with me upon the quixotic quest to right the ship that is badly listing in the linguistic sea of biology. It is our intention to rip out the old, cancerous language of flat proteins, flat languages and flat bio-information, and replace it with a vibrant new language that is more appropriate for its organic subject matter. In the spirit of organic information, growth and constant evolution, this language has been named Biosaurus Lex 1.0. It will be a living, breathing monster that will wreak havoc on traditionalists and strike fear into the hearts of all authors of biology texts. Perhaps it will be many years – perhaps centuries - before this monstrosity is terrorizing the classrooms of ninth grade biology, but it will one day become a reality, just as sure as the hundred years it took to move the earth from the central to the third body out in our celestial sphere. In this endeavor we must look away from the scientists who have created and now deny the problem, and look toward the linguists who are well positioned to understand and fix the problem. After all, language creates reality. All reality is comparison, and life is seemingly the language of all languages.