

## Article 4: Alpha Space: The Undiscovered Country

Note- Need to include discussion on nature of a metric and how God is the only universal metric in Alpha Space. While a particular metric can be used in particular regions of Alpha Space very metric besides God will eventually failed when moved out of its domain where it works.

### Part 1: Where is the love?

Given my argument from the last article, one can ask where is the love? How does a person attain this feeling and understanding of love? This article is to provide one of the conceptual foundations to answer that question. Here I will introduce the concept of Alpha Space as an important conceptual reference to understand the extra-dimensional nature of our reality.

Before describing Alpha Space we need understand why do we live in a the 3-spatial dimensions plus 1 dimension of time? For future reference I shall refer to our reality's dimensionality as 3+1 dimensions with 3 meaning the three spatial dimensions and 1 is the temporal dimension. One way to probe for an answer is to ponder why don't we live in an infinite dimensional reality? Considering that humans have been using many dimensions or infinities to explain ideas for thousands of ideas why are we in 3+1 dimensions. Using infinities has been around for at least thousands of years since ancient Greece. Some of the earliest understanding of  $\pi$  rely on this idea of inscribing an infinite amount of triangles in a circle to then reach  $\pi$  (1) . Using infinity could have an even longer history since a lot of the early thinking on this issue was destroyed during the Bronze Age Collapse starting around 1200 BC. The reason being that the earliest record of the Pythagoras formula is from an ancient Babylonian tablet from around 1900BC(2).The point is that thinking in such huge amounts indicate the concept of infinity as a description of a thought process is an ancient human practice. While most people today will not use infinities to do mathematics unless they learn calculus, there nonetheless exists a long-standing understanding of infinity by humanity. There is infinity within the conceptualization of the relatively mathematically simple Euclidean plane as it can be conceived easily to extend geometrically without end, just as Euclid conceived of it thousands of years ago. Note that this notion of infinity is key to Euclid's definition of parallel lines never crossing in a Euclidean plane. These few examples show how it is well within a human's ability, without any access to modern technology, to apply this "without end" notion to the number of independent dimensions needed to describe a

system. Therefore, a system which requires dimensions without end to describe it has an “infinite” number of dimensions. What is so special about the 3+1 reality that it is 3+1 than infinite dimensions without end? Is 3+1 dimensions somehow more special than the infinite dimensional universe or are we just unlucky and we all got born in a less interesting, lower dimensional universe?

From a mathematical physics perspective, three dimensions are extremely special for that is the only set of dimensions on which the properties of the mathematical concept of the cross product hold true. Mathematical proofs seeking to find if the properties of the cross product can be preserved in any higher dimensional space indicate that those properties will either fail to continue or will carry additional baggage that is untenable to use in mathematics (3). Long story short, only in 3 dimensions does the cross-product work.

The cross product is fundamentally important in physics as it is what mathematically defines the effect of magnetism in classical electrodynamics. Note that in physics magnetism is recognized as a fundamental force. This means magnetism cannot be defined by other things. In fact there is a fun interview on YouTube of the famous physicist and Nobel laureate Richard Feynman being asked why two magnets come together and his response is quite interesting and includes that he can't fully explain it because it is fundamental(4)! As magnetism is a physical phenomenon that is widely empirically validated but, to do the math that predicts how magnetism effects a physical system one has to use the cross-product. The resulting conclusion is that the use of three dimensions is a physical necessity to empirically explain magnetism as we know it.

If all one took from the last paragraphs is that magnetism forces us into three-dimensional reality, then you got it! This poses a profound problem with the thinking of the last article as I effectively argued that extra dimensions are needed to explain the internal moral compasses people have. To summarize the argument of the last article, the 4D reality we live does not by itself seem to have enough information in it to explain people's internal moral compasses. Now, I am going to do some radically simple things that might seem strange to state but bear with me. First, I am going to put aside time for now since time is special and strange and understanding from a physics perspective requires understanding entropy which I will address in more detail later. Therefore, let's just consider the 3D world we live in.

Now, for the simplified explanation. I am going to state that the 3D world we live in, where each dimension is a dimension of space is correct. I am then going to state that morals, or more specifically “good” or “evil” in all their full, infinite, platonic meaning has its own domain in which it “exists”. Then I am going to state, with absolute certainty, that the spatial dimensions of reality have nothing to do with goodness, in effect stating that Space(X,Y,Z)Goodness. I will also define “real” to mean that the 3D space is “real” and constitutes reality. Therefore, goodness, by itself, in its platonic meaning is “not real” for there is not a goodness dimensions which constitutes physical reality. Note that I am not using space in its more generic meaning and I am not going to argue that somehow neurons in the brain are able to effectively replace one of the special dimensions of 3D Space to then be 2D Space with 1D Goodness. A spatial dimension is just that, a spatial dimension. Nothing more, nothing less. While people can think of ideals where the number of spatial dimensions is infinite, in literal reality, it is just 3.

This might seem to be running logically backwards from the goal of trying to attach the information from other dimensional realms into our reality. To explain the issue, take it as a fact that one of the key observations of mental illness and psychosis is that it happens mainly to people and perhaps to some animals. In other words, physical inanimate objects like the Milky Way does not go through psychosis, rocks do not go through psychosis, and shrubs do not go through psychosis. Effectively, let us assume that there exists extra dimensions which code for a different platonic ideal, like anger or lust, and if someone one can intersect those extra dimensions with reality then intersection will cause something new to happen based on what the extra dimensions is. In fact those extra dimensional intersections will sometimes result in seeing things that are not there. Unless one can argue persuasively that rocks can see things which are not there, we need to conclude that, based on a massive and reliable body of experiments, that rocks do not experience psychosis and therefore these extra dimensions rarely intersect reality. This suggest we need to understand how the reality of the world, independent of humans, is shielded from these extra dimensions in rocks and why it is that this shielding “fails” or is bypassed in advanced organisms. From our earlier statement of Space(X,Y,Z)Goodness we can generalize it to a statement of Space(X,Y,Z) “Some platonic ideal” and then re-understand this inequality as effectively shielding our reality from those extra dimensions. We then also have a good starting point to understand when, the

“platonic ideal” sometime can pass through the shielding so that the inequality is changed to an equality, in other words . When some ideas cannot be made to equate to the spatial dimensions of reality, they cannot attach and feed in its information. However, if the platonic plane of which that idea “lives” can be made to equate to a 3D reality then it can transmit its information. Hence, when the “Goodness” domain can be equivalent to the spatial 3-D domain, goodness can prosper.

I should note that I was inspired for these “not real” or “real” definitions from discussions among mathematicians about the nature of pure, esoteric mathematics. I had the pleasure to go to Oxford in 2023 for the Mathematics of Consciousness conference where I had the great opportunity to ask a question of physics Nobel Laureate Roger Penrose. For full disclosure, I have read all but two of Penrose’s books and I greatly admire his thinking. The question I asked was if Penrose ever thought there would be a point in time where humanity would develop a true language e.g. where he and other pure mathematicians could use some means or notation to perfectly communicate ideas. He first replied that the building in which we sat was named the Andrew Wiles Mathematical Institute. Andrew Wiles' work was about proving Fermat's Last Theorem. Fermat's Last theorem does not relate to the mathematics which define the current laws of physics; therefore, it is “not real” mathematics. He then gave a story about how when he was an undergraduate doing an advanced geometry test, he made a lot of drawings which he found extremely useful in answering the questions on the exam but which his instructor found to be “complete nonsense”. Penrose, while being the mathematical physicist who first demonstrated that singularities exist in black holes as a general mathematical consequences of General Relativity, takes a hard nose distinction between mathematics and physics. Physics only uses a small portion of mathematical ideas. A lot of the work in pure mathematics is not related to the mathematics of physics and is therefore not “real”. Therefore, keeping in mind that most mathematics is not real, in his view, the idea that there could exist a language which when expressed physically as sound waves, drawings or numbers that fully explain the extra-reality cannot exist. I believe Penrose was communicating how meaning runs deeper than the capacity of humans to communicate physically. Therefore, he suggested a physically real true language is an impossible possibility.

Now if we believe that all these esoteric ideas do have a fundamental truth to them, including the many mathematical ideals that have nothing to do with physics, let us assume for each concept, like love, lust, anger, justice, sadness, resignation, etc. it has its own “realm” or dimension where it exists in the full expanse of its truth. Note that usually, when people try to create a theory of everything, typically they try to appeal to a finite set of rules which then can explain anything. In this approach everything has been redefined as clever combinations of those finite, fundamental rules. Therefore, “justice” can be reduced or approximate by some combination of rules. I am doing the opposite. Instead of trying to use some esoteric ideal like how strings are used in string theory to then explain all physical phenomena, I will state that the full understanding people have of “justice” is not something which can be reduced into some clever combination of a logical basis vector. For reference, the 2D Euclidean plane can be well described by a basis vector of just X and Y and all their infinite additions together. I would argue that if one wanted to geometrically “draw” the entire justice plane with a single basis vector they could not find one.

Now that we have set the field if an extra reality that cannot be reduced to 3D reality rules, I can now give a name to the idea to the extra reality that we are approaching, which is what I call Alpha Space.

## Part 2: Alpha Space: The Full Domain of Ideas

Alpha Space is a construct and name that I coined myself to represent the extra reality beyond our 3D world. While inspired from other people’s work and grounded in trying to explain empirical phenomena, I have not found a similar concept used in this context. The simplest definition of Alpha Space is that it is the largest phase space; there does not exist a phase space (concept explained below) larger than Alpha Space. This means that all other phase spaces considered in other contexts can be thought of as smaller regions of the greater Alpha Space. In fact there is a simple conservation equation attached to this idea where then Alpha Space(AS) is equal to total amount of Real Space(RS) plus Not Real Space(NRS).  $AS = RS + NRS$ .

Now the term “phase space” is a generic math term for when a person has a lot of rules that they want a system to follow. The “phase space” is the literally conceptual drawing of all the combinations of those rules. In this sense, Alpha

Space is the phase space for all possible rules in it and their connections, including reality and extra reality.

This ridiculously simple definition has a very important consequence that at first seems to be a bug, but is actually a feature. That is because I am not limiting Alpha Space to only logical statements or combinations. If I did, the basic definition of Alpha Space would not work because I could simply then define a phase space that includes all logical ideas and illogical ones and it would be necessarily bigger than Alpha Space. Usually, positing one's metaphysics on a massive space filled with contradiction and illogical statements is not a good idea but I have been led to this conclusion for several reasons.

One reason is for a basic, fundamental demand for truth conservation. While I was interning at a particle physics lab, I learned about how the conservation of momentum and the conservation of energy, by Noether's theorem, implies temporal and spatial symmetry to the laws of physics. In other words, Noether's theorem gave a mathematical backing to assuming that laws of physics are the same across all of space and time. Immediately when I heard this, I wanted to extend this idea not just to momentum and energy but to any "truthful" idea. Simply put, I wanted a concept of a universal truth symmetry. To be clear, I am not extending the specific mathematical proof of Noether's theorem to apply to all of Alpha Space. Rather, I am positing that any "truthful" idea has a system of symmetry attached to it so that in that system, the "truthful" idea remains true and valid in all parts of that system.

Another reason Alpha Space is useful conceptual for provides a clear conceptual mechanism to explain a huge amount of empirical phenomenon. A first example is art. While most physicists would not consider human art an empirical fact on the same basis as discoveries from CERN, I actually consider art to be a better grounded empirical fact than the Higgs Boson. The reasoning is simple, but highly backed by the standards of scientific thought. 1) Art has existed for 10,000s of years going back to cave painting. 2) There are millions of examples of art that have been created throughout human history. Usually in science one makes an experiment to see if the experiment is replicable and reliable, if so it is considered a valid empirical fact. If one considers art generation as an experiment, it clearly fits the replicable and reliable criteria. As we all know, even very young children create art. As I see it if real space and Alpha Space both exist and humans can have access to both, then it seems obvious to conclude that a human mind traveling in Alpha Space can gain inspiration from

information encountered in Alpha Space and then through some physical mechanism carry them back into reality. The artist will carry this idea into reality with the manifestation of a sculpture, painting, or story. Having a framework to describe human creativity is, I believe, one of the biggest problems facing physics and neuroscience.

Perhaps it is not a surprise that the same model that can explain art and creativity can provide an avenue of explaining mental illness. While I was earning my degree in neuroscience, I was always thinking about how it is that people can think of irrational, previously impossible ideas? Further, how is it that these impossible ideas can then become so powerful to a person as to induce psychosis? From a physical perspective, if all the information one receives comes from 3D reality, how could an architect envision the Taj Mahal before it is built? Continuing with this idea, humans should have just been making pictures of animals and trees and never anything more. In fact, this would mean that the concept of the minotaur, a human with the head of a bull, should never have been generated, written about, or drawn. Note that the argument that the minotaur is an obvious “average” of human bull anatomy is having to invoke the platonic ideal of “average” to make sense of man’s imagination, i.e. an extra dimension since Space(X,Y,Z) “average”. Furthermore, one of the most powerful rhetorical strategies that exists is to use logic to show the inherent contradictions in a person’s opinion and then convince them of how to change it to remove those contradictions. This requires that the person is in a state of contradiction where the neurons in their brain are faithfully encoding contradiction before listening to the rhetorical argument. As stated earlier, Alpha Space contains contradiction within it and as a human mind moves through Alpha Space, it can be exposed to the contradiction there. As part of the earlier description of Alpha Space being filled with the platonic essences of ideas one can ask the simple question of “I can draw the Domain of Justice, the Domain of Good, and show how they intersect and bifurcate, but then what is filling up the empty space between the two Domains?”. My answer is contradiction is filling the “empty” space. Some combination of events can produce a situation where one cannot both be Just and Good. Therefore, to try and make the event both Just and Good is contradictory. Graphically, this is well described by the empty space between the planes. This produces the intriguing but powerful idea if a human mind were to simply do a random walk through Alpha Space, it would

encounter massive amounts of contradiction. Depending on the ability to manage that exposure, such massive amounts of contradiction could produce psychosis.

A very important reason the idea of Alpha Space is constructive and supported as a construct is to explain the meaning behind communication. A key motivation for this idea was the desire to not assume moral ideals are just figments of man's imagination. Alpha Space provides a place where moral ideals of justice, good, happiness, etc. are "real" as anything else. When I talk about any sort of emotions, such as anger, sadness, or euphoria, these ideas can exist in their fullness in Alpha Space without having to give a reductionary definition. I believe the full connotation and meaning of many English words are not fully covered by their dictionary definitions. In fact, Alpha Space is the most powerful dictionary where when one looks up the meaning of "good" in Alpha Space they gain the full intrinsic meaning of it, including if it is a meaning which cannot necessarily be written or communicated. As Supreme Court Justice Potter Stewart so succinctly identified pornography, "I know it when I see it." These understandings mean that in a more philosophical and mathematical technical sense, all the meaning behind these concepts are independent, into the result that there is not a singular logical basis to explain all the concepts. In my own intuition this makes sense. If one imagines the Domain of Justice as some flat plane extending infinitely representing all the situations and combinations concerning Justice, and if one repeats this representation with the idea of Good, where we have the Domain of Good similarly represented, we can then say these two Domains should have lots of overlap or intersections where Justice is Good and vice versa. However, it is obvious that these two Domains should also bifurcate away from each other at some point as Justice is not always Good and Good is not always Just. Therefore, trying to create a logical basis that fully describes these two planes and their interactions is an impossible task. Therefore, it is better to think of them as independent entities bifurcating and intersecting with other ideas.

Alpha Space will prove to be an import conceptual focal point as we move forward in understanding the metaphysics I am proposing. The issue with Alpha Space is that even if it is beautiful, neat framework to understand reality and people, if the vast majority of is explicitly shielding from connecting to reality, how can any of this matter in an empirical, scientific way. Even if artists' minds are traveling in Alpha Space to seek inspiration how does that correspond to their physical neurons. If we take magnetism as the fundamental reason for our

three dimensional reality how about we look further into the physics of magnetism with an investigation into its quantum particle the magnetic monopole. Furthermore, once we have finished understanding the magnetic monopole we can then look at the relationship between magnetism and the Second Law of Thermodynamics which is the basis for the arrow of time. This will then final describe how magnetism forms the fundamental reason for not just our 3D reality but our 4D reality. Finally, we can look at how all these physics concepts converge on a special understanding of the mystery of superconductivity. Once we cover superconductivity we can then move to creating a device which can “detect” connections to Alpha Space and thus inspire a method for training and safe guarding AI development.

#### Citations:

- [http://www.physicsinsights.org/pi\\_from\\_pythagoras-1.html](http://www.physicsinsights.org/pi_from_pythagoras-1.html)
- .

McLoughlin, Peter. "(PDF) When Does a Cross Product on  $R^{\{n\}}$  Exist?" Research Gate, Dec. 2012, [www.researchgate.net/publication/233917724\\_When\\_Does\\_a\\_Cross\\_Product\\_on\\_Rn\\_Exist](http://www.researchgate.net/publication/233917724_When_Does_a_Cross_Product_on_Rn_Exist).