Points about Points with a Point: Nature of Smallest Scale Universals

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ABSTRACT

This paper is an investigation of different aspects of the smallest scales possible and their relationships with larger scale phenomena. The relationships between the abstract and the concrete aspects of perspectives about time and space are considered. The phenomenon of continuity of motion is discussed, and the small-scale philosophical implications of continuity of motion could help to explain the reasoning behind why the speed of light is the way that it is, and why the speed of light squared is a constant. Fractions of a point are proven to an extent to be a useful idea, and a thought experiment that demonstrates speeds of fractions of a point per instant is included in this paper. Possible paradoxes related to singularities are discussed briefly within this paper, too. Absolute, relative, and unpredictable definitions of points and instants are discussed and shown to potentially provide some natural reasoning to observed discrepancies between scientific theories, perceived warping of space-time, and the uncertainty principle. Also, a philosophical interpretation of the term extra dimensions which involves the idea of fractions of a point could be useful for attempts at a unified theory of science and is included in this paper Nature of Smallest Scale Universals

The nature of the smallest scales theoretically possible can have large-scale ramifications when the large-scale is considered as the philosophical sum of it parts. When considered cumulatively, the nature of the smallest scales can really add up to some larger scale repercussions. Even in the mystery of how something could exist instead of nothing, something existing at all is made more feasible by the realization that it is only asking the smallest possible amount, or an infinitesimal amount, or a mathematically approximately equal amount for the smallest scales to manifest as a phenomenon. This means that in one light, it's only asking for a whole lot of approximately nothing for a whole lot of stuff to manifest. That sounds approximately like more reasoning behind how something could exist at all than just not knowing. The nature of the smallest scales has other philosophical insights to offer as well. This paper aims to investigate the philosophical nature of the smallest scales, some of the small and large-scale relationships that are implicated by those philosophies, and some of the different repercussions that are results of the philosophies involved.

STANDARD, INTEGER-BASED CONTINUITY OF MOTION

Continuity of motion or movement at the smallest scales has several implications. As opposed to something like teleporting, where there are gaps of space between point a and point b that are not traversed through or accounted for, to move or be motion with continuity will be defined in this paper as travelling through each consecutive spatial amount that makes up the line between point a and point b successively. The term "standard" continuity of movement or motion will be used to describe continuity of motion or movement that does not reference any special, unusual, or partially inexplicable types of continuity like teleporting or super-positioning. The term integer-based movement will, in this paper, refer to movement describable using integer-based amounts of points per instants. The fastest speed that movement with standard, integer-based continuity could happen at on the smallest scales could would be 1 of the smallest definable areas, or an infinitesimal amount of space, or 1 point per instant. This is because a greater rate of speed, like even 2 of the smallest definable, or infinitesimal amounts of space, or points per instant would either be like teleporting, not accounting for all of the space being travelled in some way, or would otherwise not exhibit what has been referred to as standard continuity of movement. One infinitesimal, point-like amount of space per instant would also be the slowest speed that movement with standard, integer-based continuity, could happen. This is because slower speeds would involve amounts of space less than a point in value which are either zero, or describing fractions of a point in some light, and what is being defined as "integer-based continuity of movement" is by definition a phenomenon which involves amounts of space and time that are integers, such as one point and one instant. The rate of one point per instant would also, for continuous movement with standard, integer-based continuity, be a constant, since there are no other rates that it could be happening at. This is arrived at via process of elimination, since the constraints of traveling at a rate slow enough to not be teleporting and still traveling fast enough to be moving in integer-based amounts greater than zero restrict the possible speeds that it could be happening at. This information could help to explain why there is a speed of light that is both a constant and a functional speed limit.

Besides being a very intuitive speed for movement to happen at on the smallest scales, 1 point per instant would also be an example of naturally occurring reasoning for a scientific constant that is the speed limit for a type of phenomenon. This is fundamentally important because the implications of nature having good reasoning behind the way that it behaves are vast, and much more logical than having to work with unknown reasoning behind naturally occurring constants and laws. There are several reasons why working with scales so small could force us to have to use logic to find the larger scale implementations of the one point per instant speed. The quantities are so small that they could require an infinite amount of sensitivity of any instrument or method used to measure them, which may not be attainable. Secondly, even if we could measure things that small, the act of measuring would surely change the result. This means that out of necessity, logic may have to play a primary role in determining what larger scale phenomenon correlates to the one point per instant speed limit constant that logic has provided, and could be the only reliable method we have for putting the pieces together.

THE SPEED OF LIGHT'S CORRELATION WITH THE SPEED OF STANDARD, INTEGER-BASED CONTINUITY

When looking in nature for the speed that would correlate with this one infinitesimal amount of space, or point, per instant speed, the speed of light is the prime suspect. Not only is it a functional speed limit and a constant in some light, but the speed of light is also associated with all known atoms in chemistry and is the speed at which all known phenomena in the electromagnetic spectrum occur. Another key point is that it is also a constant in relation to matter and energy specifically, and continuity of motion has to do with that relationship to an extent. When looked at on the infinite scales the speed of light, as fast as it may be, is still proportionally approximately equal to zero in comparison to infinity. This is in tune with the idea of movement with continuity happening an infinitesimal, one point like amount per instant, which is also in one light mathematically approximately, but not exactly equal to zero in terms of the amounts of time and space.

The speed of sound can be ruled out as the larger scale correlation of the one point per instant on philosophical grounds. First of all, it is not the greatest speed that we know of that large scale objects can move with standard continuity. Secondly, there is no sound at all in a vacuum where the speed of light is constant, which would be expected of it, and faster than the speed of sound. Third of all, the type of continuity that we are looking for in a constant is more generalized and should not be strictly dependent on interactions between multiple objects as much as the way that sound is. This leaves us with the speed of light to meet the criteria of being a naturally occurring speed limit and constant for movement with standard continuity described by the 1 point per instant logic.

It is unlikely that the speed of light is not the constant that matches the 1 point per instant speed of movement with standard, integer based continuity because both describe a concordant speed limit for the same type of natural phenomenon that is a constant, and it would be adding unnecessary complexity to the issue of deciphering the large scale equivalent of the 1 point per instant speed if the candidate that fit the bill was assumed to be just a possibility. It is at least more rational to think that it is not coincidence that there is mutual logical harmony in the description of movement with standard, integer based continuity and the role that the speed of light plays in nature, and therefore that they are correlated.

CONCRETENESS AND ABSTRACTNESS OF SPACE AND TIME PERSPECTIVES

If the speed of light does correlate with the speed of movement with regular, standard, integer based continuity, then there is the issue of what is happening with all of the movement that we see around us that happens at speeds slower than that to resolve. One center of this discussion is the notion of a point, an infinitesimal amount of space, or the smallest possible unit of space, depending on how it is defined. In one light, a point is so small by definition that it can be referred to as one-dimensional, meaning that we are referring to only one precise dimension of space, a normally three dimensional entity. This is as concrete as we can be about what it means to be a point, but is still an abstraction to some extent, since referring to only one dimension of a three-dimensional thing is an abstract thing to do to an extent. It surely correlates conceptually to what we mean it to, but to talk about space, which is three-dimensional and logically a continuum as a strictly one-dimensional thing to an extent is an abstracted frame of reference. If space is viewed as a continuum that you can zoom in on infinitely and therefore infinitely divisible, then it is quite possible that the notion of a point is approximately correct in some light, but still subject to some philosophical limitations.

In one light time is treated more abstractly the more we view it as the sum of its parts, and is treated most concretely when it is related to the instant we refer to as the now. Instead of something like space that is most concretely viewed as three-dimensional being abstracted as being composed of abstracted one-dimensional objects, the opposite is the case with time, being most concretely viewed in terms of its one-dimensional instants, and being abstracted to an extent when we refer to it as having three dimensions of past, present, and future. This is because we only ever can definitively observe one instant at a time, the now, and to speak of past, present, and future dimensions of time is to abstractly construct a continuum to an extent. We never actually witness a past, present, or future that is not to an extent describable as an abstract representation of the things happening in the most concrete amount of time we can observe, which is the instant known as the now. It is not to say that we cannot describe theoretical past, present, and future dimensions of time, do so with use of infinitely divisible continuum logic, or do so with a degree of somewhat solid accuracy, but more to say that the more that we consider time to be three-dimensional, the more we have done so with abstractions. This entails that there may be discrepancies in the way that time is treated when abstracted like that as a result of the lens of our abstraction, just as there may be for space when we abstract one-dimensional aspects of a more concretely three-dimensional thing.

It is not to imply that our abstractions, which are based on concrete ideas, would not be expected to correlate reality in either case. There is still something logical about the abstractions of one-dimensional points of space and time with three dimensions of past, present, and future. It is more to suggest that in order to be as concrete as we can when dealing with abstractions, the differences between the abstractions and the concrete should be accounted for and accommodated by the abstractions in as concrete a way as possible, if we want our abstractions to be as accurate as possible representations of the concrete. This has some serious ramifications in the cases of space and time.

In the case of time, if one would like to be as concrete as possible, it would most definitively be described in terms of instants, since that is the most concrete amount we have ever witnessed, and we know for sure that an instant exists because we are experiencing it right now. If we are going to extrapolate additional dimensions of it, since we know that it comes in amounts of one instant called the now from experience, constructing the abstraction of a sequence of instants would be the more concrete way that we can do that, as opposed to treating it just like a continuum and not instant-based. If one would like to treat time like an infinitely divisible continuum, that is an abstraction to an extent which would only really work completely accurately if it factored in that its infinitesimal, or smallest units come in a size that is at least in some light constant, known as instants. Instants can be relatively defined, too though, since three-dimensional time as a continuum is infinitely divisible, and you could define an instant as a relative relationship derived by dividing a portion of three-dimensional time by infinity, representing infinite parts and divisibility. That type of methodology somewhat preserves the notion of an instant, while factoring in the relative nature of defining quantifiable increments of a continuum. This type of reasoning could be shed some light on why time is only allotted one dimension even in relativity theory, instead of three. Another example of why instants are in some way concrete is the fact that we all know exactly what is meant by an instant, with a degree of complete precision. We could not know what we are talking about with a complete degree of precision if there was nothing to it. An instant is also logically the only amount of time able to happen at once, which entails that if time is happening, an instant is happening.

This means that to treat time like a continuum, which is still to some extent a logical thing to do, to be philosophically appropriate about the fact that an abstraction is being applied, one should limit, to some extent, the quantification of time to increments of instants, in order to preserve that which is concrete about the abstraction's logic. The fact that abstractions of multiple dimensions of time should be accommodating of the smallest units to an extent is because the smallest, infinitesimal units (one instant out of an infinite amount of a theoretical infinitely divisible time continuum) are the more concrete part of the abstraction in some sense. This is backed by the fact that if you cannot use an instant or instants, known as a now, to describe something that happens in time in some way, you can't be describing something that happened in time at all since every type of thing that happens that is time-related has to do with an instant known as the now in some way, shape or form. This does not completely eliminate the notion of time as a continuum. In fact, referring to time as a continuum can be a concretely useful tool to an extent, since the now manifests seamlessly and fluidly from one moment to the next in one sense. Since you could relate to time as a continuum composed of an infinite amount of theoretical instants known as the now, that means that in a sense, three-dimensional time is still referable to as an infinitely divisible instant known as the now. Referring to time in terms of instants restricts it to the most concrete possible interpretations, and implies that where the continuum and instant logics may be dissonant, the resolution should reflect the concreteness and abstractness appropriately. This means that any continuum based time representations should be able to describe what is happening in each instant of proposed time, and that the now should be accounted for in some way shape or form for all proposed times to be concretely accurate. In one light, there is only one instant, the now, and 3-dimensional time is a perception based construct, but it could be implied that in another light, we always see a continuum style series of instants, and therefore an instant is meaningless in and of itself and time is still somewhat infinitely divisible. Therefore, both concepts are useful, but to combine the two completely accurately, logical accommodations must be made when dealing with abstractions that factor in the logical limitations and parameters of the abstractions if one would like to be more concrete about it.

In the case of space, the inverse is true, and the infinitesimal, or "smallest units", or one-dimensional points are the more abstracted, and could accommodate the larger, more concrete notion of space as whole three-dimensional continuum in order to have the more abstracted notions be in tune with the concrete. This means that while abstractions about one dimension of space can still be logical to an extent, and even approximately accurate, some accommodation of space as more holistic than that are required to produce the most completely concretely accurate abstraction. Space would be more concretely defined as a collection of parts than just a one-dimensional point, and most concretely defined as a continuum, since its one-dimensional parts are, in part, abstractions of limited perspective. Not only is a one-dimensional point an abstraction to an extent, but in addition to that, you could logically zoom in infinitely on any possible three-dimensional space, which logically proves that space is concretely defined as a continuum and infinitely divisible, and not as indivisible parts. That proves that space's continuum nature is more concrete and that the nature of points is more abstract because if you can theoretically zoom in infinitely, then any quantifiable quantity, even if it is trying to be by definition as small as possible, is still not a hundred percent as small as possible because you could still zoom in on it or divide it further. Since a one-dimensional point is an integer-based abstraction of a more concretely described 3-dimensional continuum, in order for the abstraction of points to function as concretely as possible some philosophical accommodations must be made about the point system so that it is in tune with the concreteness of space as a 3-dimensional continuum if one is trying to refer to space concretely, or to its concrete aspects. The point system, being more of an abstraction, should be the part that compromises to accommodate for the concreteness of the continuum aspects to achieve that type of result.

It is not to say that points are not a useful tool, or that a one-dimensional point as an idea does not correlate in some way shape or form with reality. If we are referring to an area of space that is a square, we can talk about the corner of the square and the point that defines it, and without this point based logic it is impossible to speak with precision about what we are defining, and it could be impossible for nature to manifest the phenomenon without using points. Even if space is most concretely viewed as a continuum that is infinitely divisible, that theory still leaves room for the infinite amount of precision that is part of the point based logic, by definition of being infinitely divisible and infinite precision. It is more that if one would like to refer to an infinitely precise portion of an infinitely divisible continuum as concretely as possible, a compromise is required to factor in both types of logic.

It should be noted that the more concrete aspects of time and space are not necessarily the more correct aspects of them. That would only be true in the case that space and time are concrete phenomena. There is enough scientific evidence out there that defines space and time in ways that are not completely concrete to bring into question dealing with them in the most concrete ways, since that might not be a completely accurate way to deal with something that is not concrete, has non-concrete aspects to it, or in some other light is not concrete. There very well could be more truth in the more abstract lights and approaches available to deal with space and time, and there is not anything other than the intuitiveness of concrete definitions to predict that space and time are actually concretely definable in every way. Therefore, a concrete definition may be more solid than what the abstractions have to offer, but if space and time are not in every light solid phenomena, the concrete definitions could be expected to be limited, not the whole story, and in some light flawed. To deal with the more abstract definitions of time, it could be that accommodations should be made in some sense by the concrete definitions such that the abstract definitions are factored in appropriately.

If time and space are realistically approachable in non-concrete ways, then we could expect to see some non-concrete natures of phenomena occurring. The nature of space may very realistically have to deal with the more abstract nature of points as strictly one-dimensional somehow, and that may be in not concrete ways to some extent. Time as an infinitely divisible continuum may also have to be dealt with in more abstract and less concrete ways in order to be realistic about a more abstract and less concrete entity. In order to factor in both the concreteness and abstract natures of space and time, both methodologies may have to be compromised. It is also feasible that one could expect to achieve different results from different approaches, especially if time and space's natures are naturally able to manifest in different ways, to be approached in different ways, or to be perceived in differing ways. Nature itself could very well have to deal with the same paradox that we are philosophically faced with, and could be expected to behave paradoxically as a result.

FRACTIONS OF A POINT

There is a way to accommodate for the continuum nature of space within the construct of the abstraction of points. It may seem like splitting hairs, but since three–dimensional space is most concretely described as a continuum, splitting hairs may be required of the abstraction to be in tune with the concrete continuum aspects of space and to compensate for the logical bias inherent in trying to divide something that is most concretely a continuum into the smallest possible, integer-based parts. What this paper will philosophically suggest, and philosophically prove to an extent, is that fractions of a point of space are a valid idea and tool to use. Fractions of a point are the compensation for the abstraction of points methodology to factor in the concreteness of space as a continuum, while still preserving the abstraction of points to the greatest extent philosophically grounded to do so. If fractions of a point are used in conjunction with the point system, then the resulting theory represents a synthesis of part-based and continuum-based logics that is weighted appropriately to factor in that space's continuum nature is concretely relevant and its and that its point nature is to an extent an abstraction. The theory is an adjustment based on the fact that points, while still a useful concept, should accommodate the continuum logic.

The following is mathematical proof of the utility of fractions of a point. The conceptual validity of the use of fractions of a point will be proven by constructing a triangle at extremely small scales. Start with a straight, vertical line that is, for the purpose of defining something, 10 points long. At the top of the line, add one point perpendicularly to the right of the top point, right next to it, such that now we have two sides of a triangle, and a 90-degree angle, one complete corner, and two unfinished corners of a triangle. Now if we connect the point we just added to the right of the top of the vertical line with the bottom point of the vertical line to form the new line that is the hypotenuse of our triangle, you may notice some very interesting results. The points toward the bottom of the hypotenuse are a distance of fractions of a point away from the original straight, vertical line. Since the triangle gets thinner as it goes down and the top point of the hypotenuse starts at one point to the right of the original vertical line, the points being referenced are a distance of more than zero points away from the original vertical line since they are not the same as the original vertical line, and less than one point away from the original vertical line since it the triangle gets thinner as it goes down and started at a distance of 1 point to the right of the original vertical line. This is logical proof that they are fractions of a point are a useful description of quantities of space.

The implications of this somewhat strange type of math may seem small in one light, to say the least, but can be quite profound when considered cumulatively. While individually the sizes in question are fractions of an infinitesimal amount, which is already approximately, but not exactly equal to zero, if the whole is at all even theoretically describable as the sum of it parts, even if that is just to an extent, the implications of this type of math and logic can be expected to add up to a noticeable sum. There are at least some, probably a myriad, and quite possibly countless possible ways that measurements of space could be most accurately defined by fractions of a point, and therefore at least some, probably a myriad, and possibly infinite ways that these types of measurements can pervade science and life. If one factors in chaos theory and the butterfly effect, even one fraction of a point measurement could theoretically have a large-scale, noticeable effect on a system.

FRACTIONS OF A POINT PER INSTANT

These types of measurements and logic could be the explanation for the range of speeds happening below the one point per instant speed of standard, integer-based continuity of movement, or the speed of light. If fractions of a point are values that get factored into the physics of movement, which is a distinct possibility, then speeds like .5 points per instant are possible. If nature has to deal with irrational numbers like pi, rational numbers with repeating decimal activity, or even just the infinitesimal amounts of space with a value of .000…1, it is safe philosophically to deduce that a continuum with infinite divisibility and precision is required to accurately relate to those levels of mathematical precision. Since there are many plausible ways that fractions of a point values can pervade the math and science of the smallest scales, there are therefore many speeds that are fractions of a point per instant that are plausible, and potentially even likely to be expectable. This doesn't mean that points need to be thrown to the wayside, but rather that if points are in use, their divisibility is a compromise that must be factored in to adjust for the fact that it is to some extent untenable to simply divide an entity like space with a continuum nature into integer-based, quantifiable parts, even if the parts are by one definition as small as quantifiable parts can be.

It may be noteworthy to mention that there are other possible solutions to what is happening with all of the speeds we observe that are not happening at the suspected speed of light's rate, though they are not necessarily as philosophically sound as the portions of a point logic, and don't necessarily come with the same type of proof, either. Two of them have to do with the notion of a point as being the smallest, indivisible possible increment of space and base their logic around that. Neither one is a completely viable retort to the mathematical proof of fractions of a point, however, and both avoid the use of fractions of a point to at least an extent, which could be a partial mistake in light of the logic used about the concreteness of space as a continuum and the fact that a point is at least to some extent an abstraction, and therefore distanced philosophically from what is concrete about space. For the purpose of covering the bases philosophically and because it may be impossible to completely disprove them, this paper will discuss them both.

THE STRICTLY INTEGER-BASED MOTION METHODOLOGY

If one ascribes to the notion of a point as being as small as possible, with no further division possible, it would appear that 1 point per instant would be the only speed at which movement with standard continuity could happen. It should be noted that a point as indivisibly small is a man-made construct to an extent, and could be flawed to an extent as an abstraction in and of itself. One point per instant would be the only speed that integer-based, standard continuity could happen at because increments of space would be dealt with in integer-based amounts, so 1 point per instant would be the slowest, fastest, and constant speed that movement with standard continuity could happen at. If it was happening any slower, the next integer based value below one point per instant would be zero points per instant, which would not be movement or motion at all. If it was happening at a rate greater than 1 point per instant, it could be perceived as teleporting, or not accounting for all of the space travelled in what has been defined as a strictly standard way, since it is at least not necessarily logically clear what it would mean to be travelling at a rate greater than 1 point per instant for a point sized object. If you ascribe strictly to the notion of all movement or motion happening at the rate of one point per instant because points are as small as possible in one light, then there is a convoluted explanation available for the speeds slower than that.

The first type of explanation for the case where there was only movement and/or motion happening with standard, integer based continuity, all at a constant rate of one point per instant, without any stopping and starting or slowing down and speeding up. In this methodology, things are either moving at a rate of one point per instant, or completely still. In this version of a response to why we seem to observe speeds slower than the speed of light or the one point per instant speed, on larger than infinitesimal scales, things could appear to be moving with continuity from large scale observable point a to point b. This would appear to happen at speeds slower than the one infinitesimal unit of space per instant speed, or the speed of light, but actually be an illusion. The illusion could be similar to using red and yellow pixels that are too small to see individually and produce the larger scale observable phenomenon of seeing the color orange instead of just red and yellow. It would not be the first of nature's illusions, like the flat Earth, or the illusion of standing still, when in fact the earth is spherical and rotating at speeds around 1000 miles per hour at the equator, while it revolves around the sun at speeds around 67,000 miles per hour. The illusion could work something like this. Because the microscopic movement of the points is in orbits or other circuitous paths is too small to be measured, they could theoretically still be travelling at a rate of one point per instant microscopically while they simultaneously seem to traverse from point a to point b of a larger observable scale at a slower rate by producing an illusion. This could result in movement that appears at larger scales to be happening continuously in one direction, but is actually a composite of microscopic subatomic orbital paths that backtrack and do not travel in a straight line from point a to point b. For example, a tiny object could make a small amount of progress from large scale observable point a to point b every revolution, a revolution could take one second, and it could overall make one inch of lateral progress. So it would seem to the larger scale that it is moving at a rate of one inch per second, which is slower than the speed of light. The overall speed of progress from larger scale observable point a to point b could seem like it was happening slower than the speed of light or the speed of standard, integer based continuity of motion, even though all of the microscopic movements of the object that were too small to be measured by the larger scale instruments was happening at the speed of one infinitesimal amount of space per instant, or the speed of light continuously for the duration of the second that it took to perform the revolution and register as a smaller than light speed rate of movement per second. This could be one explanation of the resulting illusion of speeds on larger scales that do not seem to be happening at the speed limit, while leaving the integer-based point-like amount of space per instant speed of movement with continuity rule strictly in tact.

This version, while potentially impossible to disprove completely, relies on the assumption that all of the movement we see that is not happening at the speed of one point per instant is an illusion, which is in the least asking a lot philosophically. While it is simple in terms of its treatment of points as the indivisibly smallest units of space, that costs it the added complexity of assuming that observable science is an illusion to some extent. This method also denies and tries to refute the validity of known scientific measurements of speed as an illusion, which is contrary to the body of evidence that we have to work with. It also does not deal with fractions of a point, which could have at least some mathematically valid contributions to make, and therefore it could be approximately correct in one light, but may not be a completely precise representation of reality in spite of that. It is an approach that seems to be by design avoiding the use of fractions of a point. Since fractions of a point have at least some mathematical and logical proof behind their use, this particular approach can be at least limited, probably not the whole story, and at most flawed.

STAGGERED CONTINUITY OF MOTION

The second alternate method of dealing with speeds that are slower than the one point per instant speed would involve what this paper will refer to as staggered continuity of movement or motion. This type of movement would involve moving one point per multiple instants of time. This type of motion would entail moving one point in a given direction only one out of the multiple instants, and being somehow stationary for the duration of the rest of the multiple instants. For example, an object could move at a rate of 1 point per 3 instants, which would translate to it moving once at a rate of one point per instant for one instant, and being stationary for the remaining two instants, then possibly repeating this pattern. If this is even a plausible method in some light, then there is the issue of the mechanisms of how that is dealt with which may or may not be resolvable to a satisfactory extent if the method is considered in isolation. While one interpretation of this method could preserve the notion of points as the smallest indivisible units and still adhere to the one point per instant speed as the only speed thing can happen at to an extent like the last method described, it would also, like the last method, require the assumption that all of the observable evidence we have of speeds slower than the speed of light or the speed of integer based standard continuity of movement is an illusion in a similar way, and that observable science has been duped by nature to an extent, which is not necessarily a sound argument in some lights.

How is the information about how that is happening in this method preserved and mechanistically put into action? A quantum mechanics type of explanation could be that it is making a quantum leap of one point every three instants, but that still leaves the classical physicists' perspectives unsatisfied to an extent. A classical physics related explanation for conservation of the information of energy could be that the point in question is laterally stationary but spinning, and that is somehow it translates that motion into lateral movement of one point every three instants, but the stop and go motion of the point in question still is not necessarily completely resolved in a more classical sense. Also, if you are going to ascribe to the notion of spinning points, then how exactly does that manifest without using fractions of a point as measurements in at least some sense? It could be explained to an extent with what this paper will refer to as self-referencing continuity of rotational motion, which will be discussed later in the paper. This alternative method of dealing with speeds slower than one point per instant by assigning a speed of one point per multiple instants does try to provide a methodology that explains such phenomena, but the explanation is lacking a completely coherent mechanistic approach in some lights for how that happens, supposes that the evidence we have collected is an illusion, and avoids dealing with fractions of a point. That means that this approach is also at least limited, probably not the whole story, and at most flawed.

CONTINUITY OF ROTATIONAL MOTION

Further investigation of the notion of spin in relation to points will reveal some insight. If a point has spin, then it is either spinning at a rate of one absolutely defined infinitesimal amount of a degree per instant to have a semblance of absolutely defined continuity of movement, some amount of relatively defined degrees greater than that but less than a full rotation per instant to have what this paper will refer to as relative continuity of movement or motion, or a full spin per instant and exhibit what this paper will refer to as self-referencing continuity.

Absolutely Defined Continuity of Rotational Motion

Absolutely defined continuity in this case is referring to the aspect of the motion of a spinning point, or anything spinning, for that matter, which is a reflection of the fact that it is rotating such that it consecutively cycles through the possible positions in a successive manner, based on an absolute type of definition of the smallest possible amount of rotation, or an absolute infinitesimal amount of a degree, or .000…1 degrees. For example, first it would rotate one infinitesimal amount of a degree, or .000…1 degrees, then it would continue to rotate in a similar fashion, though it should be noted that just like the point per instant speed, fractions of a unit could be necessary to fully cover the continuum nature of space in this description. The absolute type of definition of an infinitesimal amount of a degree would be a universally relevant and standardized measurement to an extent, based on dividing 360 degrees of infinite theoretical space into infinite parts. There may be ways of rotating an object that produce increments that are fractions of a point different from the absolute type of definition described, however.

Relative Continuity of Motion and A Thought Experiment Exhibiting Fractions of a Point Per Second

A fairly simple thought experiment can demonstrate both the term relative continuity and give an example of something traveling at a rate of fractions of a point per instant. If there is a vertical line that is 10 points long, and it is rotating such that the bottom point remains fixed like a pivot point that is the center of a circle, the top point is moving at a rate of one point per instant, and the line remains fairly straight throughout the process, then this example illustrates both of the aforementioned concepts. First of all, the points near the somewhat anchored bottom of the line will be moving at a rate of a fraction of a point per second, since some of the same type of logic that was involved in the first triangle mathematical proof is involved, but this time as a progression in time. If the top of the line moves at a rate of one point per instant, the bottom point is anchored in place, and the line remains somewhat straight, then the points toward the bottom of the line will travel a distance of less than one point in the same instant it takes the top of the line to move one point, which would be fractions of a point per instant. This is mathematical and logical proof of concept to an extent, and the basic premise should also hold true enough of larger objects to get the point across, even if the premise of a line-based thought experiment are limited, on shaky grounds, or flawed scientifically. With an adjustment, it will also demonstrate what is meant by relative continuity of motion.

If the length of the rotating line stretched upward to infinity, and moved one infinitesimal amount of a degree, then the point at the bottom of the line would rotate in the manner previously defined as having absolute continuity of rotational motion, rotating one absolutely defined type of infinitesimal amount of a degree per instant. For practical purposes, we don't have infinite lines to work with in everyday life that we know of other than as abstractions, and to some extent nature may not either, so a different methodology will be used to rotate smaller length lines the smallest possible practical distance. This will result in the amount of degrees of rotation being based on the idea of moving the top point of the line one point each time, and would result in differences of fractions of a point in the values produced, and could be a more practically applicable method in some ways of defining rotation than the use of absolutely defined infinitesimal amounts of a degree.

The top end of the shorter than infinite lines will be moved one point at a rate of one point per instant such that the line rotates around the bottom point just like before, since that may be in one light be a more common application of the concepts. The shorter we make the rotating line, the more the points toward the bottom of the line move at a greater rate of speed, still fractions of a point per instant, but all values greater than if we moved the theoretically infinite line as small an amount as possible. It can be noticed that if this methodology is used to rotate something, then the amount of rotation of the points below the top is relative to the length of the line. This is what was meant by relative continuity of rotational movement, and while it may not have the absoluteness of value that a standardized infinitesimal amount of a degree could have if you could rotate an infinite line by one point, it may still prove to be an important concept because of its practicality how common it could be.

Self-Referencing Continuity of Rotational Motion

The third type of continuity left to be defined was self-referencing continuity of rotational movement. This type of rotation could only be describing points referencing themselves one-dimensional and rotating to some extent. This is because the more absolute, or standardized regular continuity of rotational motion describes rotational motion in reference to infinite theoretical space, relative continuity of rotational motion describes continuity of the type smaller than infinitely-based, but bigger than a point in scope to some extent, and what is left is to define if a point rotates in reference to just itself. Since a point is theoretically so small that it is one-dimensional in one light, which is like saying it is completely small, which is also like saying that it is all edge, to rotate for something one-dimensional has the theoretical capability of meaning a full rotation in one instant. This is because it is only one dimensional, and while rotation may have to do with two or three dimensions normally, any amount of rotation of just one point in reference to just itself could be considered equivalent to a full rotation, since it is not bounded by two or three dimensional constraints, and just in relation to itself it can be considered to just have a one-dimensional area. How could the two-dimensional constraint of having to rotate a certain amount of two-dimensional degrees be translated into a one-dimensional self-referencing object? Since it is small enough to be a one-dimensional point, then any amount of strictly one-dimensional rotation would be an amount great enough to rotate it a full rotation is the logical premise, which is logically achieved by referencing itself as only one-dimensional, and disregarding a two or three-dimensional context to an extent. It would only be achievable in relation to just itself as a one-dimensional object to some extent, because if you factored in two or three dimensions as frames of reference with relationships with the one-dimensional point, it could be discredited to at least an extent.

This particular type of motion is certainly abstract and possibly an abstraction at best, and with space being a three-dimensional entity it may be mostly irrelevant or refutable, but it may play a role in singularities, in particularly if there is a singularity at the beginning of the big bang that had an infinite temperature, as has been speculated. If a singularity was infinitely divisible by fractions of a point in relationship with a three-dimensional context, but was rotating in the self-referencing way described because it was the only one-dimensional area of space defined by the speculated singularity, that could help to explain how seemingly competing values of infinite temperature and a single point could be more harmoniously co-existent. There could be infinite fractions of a point repercussions as soon as it expanded and was translated into a three dimensional context. If centripetal force applies to point sized scales in fractions of a point ways, then that could even help to explain why it expanded in the first place. Also, infinite divisibility of a point could be help to explain the speculated infinite density of the big bang theory's associated speculated singularity.

If self-referencing continuity of motion was used in the explanation of staggered continuity of motion, then there could be some amount of explanation for how a point mechanistically achieves staggered continuity of movement. If sometimes the point was exhibiting self-referencing continuity of motion, then that could possibly translate into lateral movement. Similarly, maybe it could translate the lateral motion into self-referencing rotational motion. Since a full rotation in an instant would mean that it is somewhat paradoxically also in the same position that it started in within the same instant, it is possible that it could be subject to the interpretation that it is not moving at all, too. If both possibilities are options for different ways that self-referencing continuity of rotational motion could manifest, then there could be some semblance of a mechanistic explanation for the staggered continuity of motion discussed previously.

RELATIVE RELATIONSHIPS AND CONTINUITY OF MOTION

Another way that speeds slower than the speed of light or integer based, standard continuity of motion could be achieved involves the relative warping of space of the type that is comparable to use in the Theory of Relativity. If it is possible to warp space-time similar to the way that it is predicted by Relativity types of theory, then it is to an extent possible for those types of distortions to play a role in observing speeds slower than the speed of integer based, standard continuity. If it is possible to calculate space and time relatively to some extent, which it is in some light, then point and instant values can be calculated relatively, and while they could be conserved conceptually to an extent, the solutions would differ somewhat from the absolutely defined values of both.

Absolutely Defined Space and Time

If the size of a point and the duration of an instant are considered to be absolutely defined values only, then in that light, it is impossible for them to be warped, and the warping of space and time would have to be an illusion in some light that can be described by the type of math that would accomplish warping space and time. Absolutely defined values could be arrived at by dividing infinity by infinity, representing infinite possible space and time and infinite possible parts respectively, and would be somehow standardized units, since that calculation would, in some way provide mathematically constant, consistent results. The standardized units would be infinitesimals, which points and instants are, but would be uniform and homogenous because the same math would be used to calculate the size of every part. The results of those types of calculations could also be related to as integer-based amounts of points and instants to an extent, too. This may sound like a strictly classical physics type of approach, but there could very well be something to it, if nothing more than the definition of absolutely defined points, infinitesimals, or the smallest possible units.

Relatively Defined Space and Time

If the size of a point and an instant is at all relative, however, then there is a way to explain the perceived warping of space-time. If you divide a cubic meter into infinite infinitesimal parts, and 10 cubic meters into infinite infinitesimal parts, couldn't the size of the 10 cubic meter parts be relatively bigger than the size of the one cubic meter parts in one mathematical sense? This would be because you would be dividing a measurably bigger object by the same, constant amount of infinity in one sense. As an example, if we divided each by the same number, say 100, the 100 parts of the 10 cubic meters would be bigger than the

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100 parts of the single cubic meter. Any division problem or fraction with a constant number as the denominator will produce smaller parts the smaller you make the numerator. If the size of infinitesimal areas of space is relative in this way, then it is possible to explain space as seeming to warp by being defined as relatively different sized infinitesimals. Maybe the differences in the sizes of the infinitesimals are fractions of a point, which could result in both being divisible by infinity, but both producing different results. If the notion of a point is relatively related to, instead of absolutely related to, then dividing by infinity to calculate point size would produce different values depending on the size of the measurement of the size that it is relative to. This would mean that a larger areas' points, when considered relative to the area defined, would be larger, and any point based calculations that factored in this type of math would produce different results than smaller areas' point based calculations in some light. Since points can be described in one light as infinitesimal, and space's has a continuum type of nature to an extent, defining points as relative infinitesimal sizes could be a useful way of relating to how they can theoretically be applied. The same type of relative calculations could be used to calculate the duration of an instant of time, with larger amounts of time producing relatively larger infinitesimal parts when divided by a constant infinity.

The effects of these types of calculations could be analogous to the mathematical, philosophical, and possibly physical effect, appearance, or illusion of space or space-time warping, depending on how you interpret it. If you were speaking strictly relatively about space but still trying to adhere to the point per instant speed, or the speed of light as a constant the way that relativity does, then it is possible to say that the same constant concept of a point would be a smaller amount of space to traverse and therefore take a smaller amount of time to traverse on smaller relative scales where the points are relatively smaller than it would on larger scales. So time could seem to happen faster relative to the constant point per instant speed at smaller relative scales. It would also, for the same number of points travelled result in smaller amounts of space being travelled. This could produce a phenomenon in which space seemed smaller on relatively smaller scales. This would be logically coherent to an extent because the method of arriving at what it means to be a point is calculated relatively, while still adhering to the notion of points to an extent, which means that points and instants are relatively preserved conceptually as constants, but relatively adjusted to the conditions. It would also at least somewhat preserve the logic behind why the speed of integer-based, standard continuity of motion is the way that it is and functions the way that it does, which it would have good philosophical reasons to do. The fact that points and instants are approachable as absolutely definable amounts could be the reason that the notion is somewhat preserved, but the fact that that is not the only way to define them could result in some reasoning behind why other ways of calculating their values could be observed in nature. That could help shed some light on why the theory of relativity treats the speed of light as a constant, too.

MULTIPLE APPROACHES TO THE SAME PHENOMENON

The fact that there are absolutely definable and relatively definable ways of relating to points that would both produce different results could help to explain why there are different classical physics types of explanations, which tend to treat space and time as absolute, and Theory of Relativity types of explanations, which tend to treat space and time as relative. A similar type of multiple approaches logic could help to explain the differing potential applications of the theory of integer-based, standard continuity of motion. If nature itself has multiple ways to treat phenomena, then it is logical that we would find multiple scientific ways to treat phenomena, too. Therefore it is logical to infer that, having found multiple scientific and philosophical ways to treat phenomena, one reason we could find different ways to approach phenomena is because nature itself has multiple ways to deal with phenomena.

The Uncertainty Principle of Quantum Mechanics

If nature genuinely has multiple ways of defining itself, then this could be good reasoning behind why we would expect to see Heisenberg's uncertainty principle in nature. If nature has multiple ways of processing the same information that would each produce different results, then why and how would it possibly manifest just one consistently? It is possible that nature is faced with the same issue of competing theories that we are, and as a result of the nature of there being multiple solutions to the same problem, multiple solutions to the natural phenomena are factored in somehow. It is also possible that each possible solution is better at certain ways of dealing with phenomena, and that the theory that is the best at dealing with a certain type of phenomenon is the one that is employed to an extent. It is also possible, however, that there are phenomena that are not necessarily better described by one theory or another, and the appropriate manifestation of the phenomena would not be clear. It could very well be that nature itself sometimes, if not potentially even always to some extent, doesn't have a good enough reason to manifest points in either a relative way or an absolute way, and therefore there would be no reason good enough to expect complete predictability from such a system to an extent.

If there is no reason that hands down outweighs the significance of another reason for a phenomenon to manifest in a certain way, and predictability is therefore not expectable from a system to an extent, unpredictability to an extent could actually be what to predict from such a system. This unpredictability to an extent is exactly what we find in Heisenberg's uncertainty principle's relationship with quantum mechanics, which it would be expected to exhibit. The fact that it is just to an extent, and that the more probable an event is to happen, the more it does happen could be a byproduct of the fact that there are certain things in common between the competing theories, which could produce trends in a not completely predictable environment that did have certain things in common between different possible manifestations.

If nature had different possible manifestations of a phenomenon depending on whether it calculated point size absolutely or relatively, the possible solutions would still have points and instants in common to an extent, but still be not be completely predictable to manifest as either the absolute form or the relative, so some semi-predictable, semi-unpredictable trends could be expected from the semi-predictable, semi-unpredictable nature of that phenomenon. There are a theoretically infinite number of ways of defining a point relatively because of the theoretically infinite amount of sub-divisions of the space continuum that could be used to calculate a point's relative size as discussed earlier, and they would all produce a different result. Just one of them, the one that calculated a point or instant's size relative to all of infinite theoretical space or time, would produce the same type of point as the absolutely defined point. That would be something that they had in common. Even if you tried to calculate a point relatively in relation to infinite possible space, you would still get the same result that you got by calculating the absolute definition of a point, because the math involved would be the same infinity divided by infinity type. Just having one solution in common might not seem like much, and in one light it isn't much considering that there are an infinity minus one amount of differences, but it does show that the two theories do relate somehow, and is an example of using two methodologies to arrive at the same result. While each individual point's different definition could be relatively different by fractions of a point in an absolute sense, that means that nature could be presented with the option, in a sense, of defining a point in one absolute way, or defining it in an infinite number of relative ways. That entails that even if absolute points are a more intuitive idea in a sense, the one absolutely defined point possible manifestation is outnumbered infinity minus one to one by the number of possible relative definitions of a point as possible ways a point could manifest just relatively. Whether absolutely defined points and instants are a more intuitive idea or not, there are still an infinite amount of possible ways that nature could manifest the phenomena of points, infinitesimals, or the smallest units of space, and therefore an infinite amount of unpredictability that could be expected to manifest naturally and philosophically alongside the constant notion of points which could provide some degree of predictability. This could help to explain why we can best describe a quantum event's probability of occurring, which is like saying that they are semi-predictable, semi-unpredictable in one light.

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DEFINING A POINT

If the decision between defining points relatively or absolutely did not seem like purely a good enough reason to expect uncertainty from nature to some extent, then the definition of how a point is defined and how that translates to two-dimensional and three-dimensional manifestations of the phenomena should provide enough philosophical, logical, and mathematical reason in some light. In defining a point, it should be noted that there are multiple angles to consider, and that each one could produce different results, so once again it would appear that nature may very realistically have some metaphorical options as to how it manifests itself.

A point, by definition, is referring to a part of space that is one-dimensional, or a reference to just one dimension of three-dimensional space. This is a very useful definition, and there is something to be said for the soundness of the logic used in this definition. It is saying that if you refer to a point, your perspective of space is so small that it you are really referring to one dimension of a three dimensional object. If you were to divide space infinitely, it makes sense that the answer you got would, to some extent, not be bound to be expressed in three-dimensions, since infinity is a boundlessly large amount, by definition. This means that there is some concurrent logic in describing points as infinitesimal amounts of space. Both would also be expected to be infinitesimal values. A definition of a point which may provide us with some more information as to how it translates to a three dimensional setting could be that a point is the smallest possible unit of space, in some light.

The definition of a point as strictly one-dimensional is it's most absolute, concrete, and precisely defined definition, but it is also an abstraction to an extent of the naturally three-dimensional space continuum, so its utility is limited to describing useful applications in relation to three-dimensional space. The definition of a point as an infinitesimal could shed more light on possible three-dimensional applications, and while that may prove to be a more concrete way of defining a point in relation to a three-dimensional continuum, it is a more abstracted way of defining a one-dimensional object. The definition of a point as an infinitesimal can be related to as somewhat of a compromise between the notion of a point as strictly one-dimensional and the definition of a point as the smallest possible quantifiable area. The definition of a point as the smallest possible unit of space, which can be related to ideas like area and volume, may be the most concrete way to speak of how points are defined in and translate to a three-dimensional continuum setting, but is the most abstractly distanced way of referring to any concreteness that is involved in the logic of strictly one-dimensional points. Since it has been established that one-dimensional points are to some extent an abstraction, and that space is in some light concretely a three-dimensional continuum as a phenomenon, methods which are a bit more abstractly distanced from the one-dimensional definition of a point and closer to three-dimensional continuum definitions of a point could prove to be more concrete ways of dealing with the notion of points to some extent.

How a point relates to a three-dimensional setting is critical because the concreteness of the definition of space as a three-dimensional continuum should be considered when dealing with the somewhat abstracted notion of a point. Since it is not that there is nothing at all concrete about the logic of one-dimensional points, that logic should still play a role in determining how points most concretely translate into a three-dimensional setting. If points are defined as absolutely as possible, by dividing infinite potential space, which would correlate to infinite points, by infinity, the solution is a concrete, but potentially enigmatic 1, or one point. The number 1, in an absolute definition of points would translate to a measurement of points as one-dimensional, and could also be used as a measurement of area and volume. To do that in a way that is in accordance with points' definition as one-dimensional, you could interpret the value of one point as being a unit of one point one-dimensionally, a one-dimensional one-point unit of area, and a one-dimensional unit of one-point could be used as a unit to describe a point's volume, in an absolute sense.

These absolutely defined points would be expected to be uniform and standardized, since the math works out exactly the same every time, and there is in an absolutely defined sense, only one possible definition for the dimensions of a point, which is limited to being one-dimensional. This also could serve as mathematical evidence of some concreteness of the notion of strictly one-dimensional, absolutely defined points. If it only has one dimension, and all of the parts have the same one-dimensional description, and the math works out the same for every one of those absolutely defined points, then they are standardized and uniformly exactly one-dimensional points. This may seem like the most appropriate way to define points in one light, but while this definition is an absolute type, it brings us no closer to describing how points relate to three-dimensional space because they are still being described in terms of a solely one-dimensional abstraction, and this is a biased abstraction of a somewhat concretely three-dimensional space continuum which limits is relevance and usefulness. Therefore, while there may be some absoluteness, some usefulness, and some truth to that type of definition of a point, there is good reason to seek other explanations, methods, or compensations for this method's inherent abstraction biases.

If points are defined relatively, by dividing non-infinite areas of space by infinity, then points would have the notion of themselves as points in common to an extent, but there would be slight variations in their relative translation to two and three-dimensional settings. Because this definition would involve dividing smaller than infinity numerators by the constant of infinity, we could mathematically expect the results to be smaller as the numerator gets smaller, and for all possible results calculated relatively to be smaller in some sense than the absolute value that is calculated with infinity as the numerator. While this type of definition does not have the type of absoluteness of the last definition, this type of definition may be more appropriate in some senses, because objects in nature do not necessarily all come in infinite size, and therefore smaller than infinite size based calculations could actually be a more common phenomenon than the absolute definition, in some light. To an extent, a relative definition of points also evokes and requires more continuum based logic to represent the points defined, and involves defining each subsequent point in relation to a two or three-dimensional setting even in defining their smallest dimension/s, which can be avoided by the absolute definition if you were to say that a point is simply one dimensional and that's the end of the story.

THE SMALLEST POSSIBLE SCALES, INFINITESIMAL-BASED, STANDARD CONTINUITY OF MOTION AND THE SPEED OF LIGHT SQUARED

If one was to try to define the smallest possible scale, while trying to factor in points and instants as somewhat integer-based values, but also factor in that both time and space can be described as continuum-based, and therefore infinitely divisible as well, then there is some related math involved that could be important. If we represent the speed of one point per instant proportionally as $1/\infty$ amounts of space per amounts of time, since a point per instant is infinitesimal in value and it can be represented mathematically by the proportion one divided by infinity as a speed, then we can divide that number by infinity to factor in that even the infinitesimal values are divisible by infinity. Doing so would be philosophically and mathematically factoring in that they are infinitesimal values that are part of an infinitely divisible continuum, instead of just assuming that the infinitesimal units of points as strictly integer-based are the smallest possible measurements in every light. Ascribing a value of $1/\infty$ amounts of space per amounts of time would also factor in the integer-based aspects of points and instants mathematically with use of the number one in the numerator, which implies that they can come in integer-based amounts to some extent. Dividing $(1/\infty)$ units of space per $(1/\infty)$ amount of time by infinity should be enough to infinitely mathematically and philosophically compensate for the idea of each space and time value as an integer-based value in an infinitely divisible, continuum-based interpretation. Dividing by an infinite amount of space per amount of time would factor in that even points' and instants' integer-based interpretations are parts of an infinitely divisible continuum.

$(1/\infty)/\infty$ is also equal to $(1/\infty)\times(1/\infty)$, which is also equal to $(1/\infty)^2$, which would be equivalent to multiplying the point per instant speed by one point per instant, or squaring the point per instant speed. Squaring the infinitesimal equivalent of the point per instant speed would be philosophically, logically, and mathematically equivalent to squaring the constant point per instant speed in some light, since squaring the philosophical equivalent produces the desired interpretation's value and the two are philosophically, logically, and mathematically equivalent in some way.

Since the concept of both space and time as continuum-based and integer-based are both constants and this type of math factors in both, the point per instant squared value, or the speed of light squared would be expected to be a mathematical constant, too. It would also help to represent the smallest possible amount of motion per smallest possible amount of time possible, and therefore be a constant describing continuity of motion or movement in an infinitesimal-based way, as opposed to a strictly integer-based way. This is because the way standard continuity of motion can happen with fractions of a point involved that describe time and space in terms of somewhat absolutely one-dimensional aspects of an infinitely divisible continuum would be in the smallest possible increments as they progress through each successive smallest possible continuum-based one-dimensional aspects, which would be described by the point per instant squared math and logic.

∞Because of how constant the notion of a strictly one-dimensional instant is and the fact that there is something logical about one-dimensional point logic, the point per instant squared value would be expected to be a mathematical and logical constant. It could be describing the motion of infinitesimal-based, standard continuity of motion, as opposed to integer-based, standard continuity of motion. It would be expected to be a philosophical constant because what it would mean to exhibit infinitesimal-based, standard continuity of motion would be logically based around the constants of movement with standard continuity that are based this time on infinitely divisible increments of points and instants that are standardized by the constant, absolute definitions of one-dimensional points and instants. Since the type of infinitesimal-based, standard continuity of motion or movement described by the point per instant squared logic could be expected to be a constant because of the philosophical conditions of what it means to exhibit continuity of motion or movement to some extent, the mathematical representation of a point per instant squared would also, being associated with the smallest possible scale philosophical constants, be to an extent a constant, which we do find scientifically, mathematically, and philosophically in nature.

Since we find in nature things moving at speeds that would correlate to integer-based, standard continuity of motion like the speed of light, speeds slower than that, and the speed of light squared as a constant describing matter's relationship with energy, which involves motion, and all three are describing different types of continuity of motion, it makes sense to deduce that different types of continuity of motion are possible in nature. Since some are integer-based, some are relatively-based on fractions of a point, and some are based on points as infinitely divisible, it is logical to infer that nature can relate to points in all three ways to some extent, just like we can philosophically. That means that points are, in one light, a useful measurement in and of themselves, that they are divisible and partially relevant in some lights, and that they are infinitely divisible and therefore an abstraction in one light, and the same could be said of an infinite now in relation to the concept of instants. It is quite possible, then, that nature is presented with the same seemingly paradoxical attributes, and that each type of description is somewhat unique, but can still be related to in terms of the other explanations. That means that it is possible that points and instants are not necessarily just describable theoretically as integers, fractions, and infinitely divisible, but even definable as integers, fractions, and infinitely divisible constituents of a continuum which can be defined in terms of each other.

Defining Points as Three Dimensional Limits

∞If points are described this time as points that are three-dimensional limits, then the absoluteness of their definition can be compromised to an extent, which while it may cost losing some of the concreteness of an absolute definition, should bring us closer to relating it to the concreteness of space as a three-dimensional continuum. To fit the purpose of the type of philosophies involved, this paper will use a three-dimensional setting to try to help define points on an individual basis. Some basic logic can help us to realize how points can relate to a three-dimensional setting. First of all, if we use a more calculus type of methodology than invoking infinitesimals, or describing points as simply having only one-dimensional relevance that doesn't translate into three-dimensions at all, and we approach the idea of a point as a calculus type of limit, then there is some mathematical logic available to shed some light on the subject. If a point is viewed like a limit in three-dimensional space, then we should be able to do some calculations about how that limit is describable. Sounds simple, but has some complex repercussions.

First we'll start with some logic to define the parameters of what is to be expected of how points relate to a three-dimensional environment. If we have a straight vertical line, and take away one point in the middle of it, we can deduce that we now are left with two lines. This means that one valid interpretation or aspect of a point's nature is that a point has a height of one point in value. If we also have a line that runs horizontally, and one that runs front to back, and we line them up such that they all intersect perpendicularly at the same point's location on the vertical line that was just discussed, we now have what looks like the x, y, and z axes of a standard graph. If we take away the point in the middle where they intersect, this time we can deduce that we now have 6 lines instead of 3 because we subtracted the point of intersection. This means that we can logically infer that a point can relate to a three-dimensional context as being describable as having a height of one point, a width of one point, and a depth of one point, because if that was not true, then we would not be left with 6 lines instead of 3. So if we are looking at a point as a description of a limit in three-dimensional space, logic would insist that somehow it at least relates to three-dimensions as having a width, depth, and height of one point.

What to do about this information could be more puzzling than a first glance could seem, however. If one was to calculate all of the possible shapes that could possibly manifest with a width, height, and depth of 1 point, several complications are encountered. First of all, none of the shapes that you can use to describe a point as a three-dimensional limit avoid invoking the use of fractions of a point in their description. If you were to relate to pieces of the three-dimensional shapes of any possible three-dimensional representation of a point could that had a width, height, and depth of one point, you could definitely always find at least one way of dividing it that would require a mathematical description that utilized fractions of a point. This is because the additional geometric complexity inherent in a three-dimensional representation of a point provides an infinitely divisible sub-point context with which to measure. This could be more evidence that fractions of a point are a necessary tool in some light for point-based systems to compensate for the continuum aspects of space, and doesn't necessarily have to mean that all of the options are completely flawed because of that.

Secondly, none of the possible shapes that could describe a point as a three-dimensional limit have a width, height, depth, area, and volume that all equal 1 point in some light, unless you refer to the more absolute way of defining a point as strictly one-dimensional and avoid trying to figure out how that relates to three-dimensions altogether. Even if you try to say that a more valid two-dimensional relationship between a point as an area would be equal to a point squared as a unit of measurement, and likewise that a more valid in some sense unit of measurement of a point's volume would be a point cubed, none of the possible shapes that could represent a point as a three dimensional limit simultaneously have a width, height, and depth of one point, an area of one point squared, and a volume of one point cubed. It is simply a mathematical and logical impossibility. If it has an area of one point squared, then its volume will be smaller than one point cubed, and if it has a volume of one point cubed, it will have an area that is bigger than one point squared. This at least calls into question the nature of one-dimensionally defined points in a three-dimensional context as absolute in a sense of the word. Even if the nature of points as strictly one-dimensionally, absolutely defined entities is somewhat concrete and constant, which it is to an extent, three-dimensional relationships with a one-dimensional point require some form of adaptation conceptually, since three-dimensional space is concretely approachable as a continuum, which means that attempts to define its smallest parts is dependent on more than just one-dimensional relationships to some extent.

Third of all, if you were to utilize fractions of a point out of necessity, since all possible three-dimensional applications would require or at least be subject to their potential use as a description, then there are an infinite number of possible ways to describe a limit that has a height, width, and depth of one point. This is because if space is a continuum in one light, then attempts to define its points that utilize infinitely divisible continuum logic provide infinite possible ways to define it. While none of the three dimensional representations of a point work out idealistically in every way, three-dimensional representations of a point as a limit can be an infinitely diverse number of possible non-idealistic representations of a point. Different shapes could be used to describe different types of points as limits, and it may be that while the idea of a point is still in one light an absolute reference, there is room for infinite diversity within the context of how it relates to a three-dimensional continuum as a not absolute unit of nature. Since the philosophical definition of a point as strictly one-dimensional is logically absolutely defined and somewhat concrete on its own, and how that relates to three dimensions is logically somewhat definable, but how that relates to a three-dimensional continuum is possibly defined by infinite different possible manifestations logically, it is not illogical to expect nature to have to deal with the same paradox. In one light this logically could entail that on the most fundamental level of how to define a point of space, or at least how they relate to three-dimensions, there are literally infinite ways to do it for nature itself. There would be some somewhat constant aspects, like the concretely precise, absolute style, strictly one-dimensional definition of a point, and some room for diversity involving how that concrete idea is related to and translates into concretely continuum type of logic involved in two and three-dimensional contexts.

If the nature of points in an absolute, strictly one-dimensional sense is something that nature itself has to deal with, then there is still some room for some degree of consistency in its applications thereof. It is not untenable to think that to some extent nature would have to deal with one-dimensional points, or that it is still somewhat concrete to refer to just one dimension of something in nature. This is because even if absolutely defined, one-dimensional points are to an extent an abstraction, the abstraction is concrete enough that we know exactly, with an infinite amount of precision even, what we are talking about when we refer to a strictly one-dimensional point. Since it is not to say that points are in every light only abstract and that it is theoretically impossible to expect some amount of correlation between the abstraction of one-dimensional points and three-dimensional reality, it is reasonable to expect some amount of correlation between the abstraction of one-dimensional points and concrete reality.

The fact that there are multiple ways of relating a one-dimensional point to a three-dimensional context could just be part of the nature of space, and it is not unreasonable to expect, even, there to be multiple approaches to the same problem, even when it comes to the basics, like how to define units of space itself. This issue in particular could be interpreted as a sound enough theoretical reason to expect the unexpected to an extent as we observe in the science of quantum mechanics. If nature has to deal with the notion of points somehow, and there are infinite different ways to manifest the nature of the relationship with three-dimensional space of every point involved that still have certain notions like points in common, then we could expect to see the type of probability-based interpretations involved in the uncertainty principle. There would be enough consistency philosophically provided by the somewhat constant notions of points and instants to still expect to see trends in the probabilities, but not enough rigidity of the constants involved to expect to see complete predictability.

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EXTRA DIMENSIONS AND A UNIFIED THEORY

On the topic of a unified theory, the parallels between fractions of a point and the concept of extra dimensions could be important. It is easy to see how the notion of fractions of a point can seem like extra dimensions in a sense. In one light, a point is supposed to be, by definition, as small as possible, and is as concrete as we can be about the smallest possible units of space. In another light, however, the continuum nature of space philosophically requires some compensation from point-based theory. The result is something that could be called extra dimensions of space, which everything could have in common. It is analogous to extra dimensions because of the theoretical divisibility of a theoretical smallest unit could be seen in one light as extra-dimensional. In another light, however, they are not even extra dimensions, just logical compensation for the limitations of point-based logic in a continuum context. Since every type of continuum-based three-dimensional relationship with the concept of a point could be described with the use of fractions of a point somehow, it would be expectable to find the notion of extra dimensions as fundamental to any attempts at a unified scientific theory that utilized points and continuum logic. These types of "extra" dimensions would be a fairly concrete interpretation of the possible meanings of the phrase extra dimensions, and could be expected to be a useful tool for any attempts to describe everything. One possible reconciliation of point based logic and continuum reality of space time could be Fractal space-time and a fractal matrix of fractal points. Because everything is entangled, every specific would effect the whole, and the whole would effect every specific. Fractal mathematics and quantum mechanical models could be combined as a structural mechanism for a unified theory, and could possibly be implemented holographically in a self similar, infinitely scalable system. A truly comprehensive unified theory should also probably factor in the unified field and universal background radiation, as well as consciousness, subjectivity, individuality, specificity, infinitesimals, cosmometry, and diversity. The mathematical equation Infinity multiplied by an infinitesimal equals 1 is an intriguing glimpse into philosophical reasoning for an infinitely dense, infinitely small, infinitely hot singularity like the Big Bang, and could be implemented in a universal String Theory Brane matrix of fractal quantum possibilities which serves as a mathematical ether with fractions of a point representing fractally encoded extra dimensional strings that could function as an intelligently designed, adaptive, and evolving framework for nature with infinite possible manifestations and universal repercussions, possibly functioning as a fifth universal dimension of sorts within which the other four dimensional space time exists.