xxviii
Gravitational Waves & General Relativity

Version I of Chapter 28 – www.Flight-Light-and-Spin.com
22 May 2016 – Port Elizabeth – South Africa – Jonathan Ainsley Bain

This article is a computational analysis of the theory of *gravitational waves*; as expressed within Einstein's Theory of General Relativity and the wider realm of Astrophysics. Essentially a critique, this study has been written for the purpose of explaining the *unobvious* challenges faced in building graphically dynamic evolutionary computer models. These models compute the theoretical functionality of gravitational waves in the celestial paradigms of solar system formation and galaxy formation.

This script is intended to be interpreted by computer programmers, philosophers, physicists, mathematicians, psychologists and the curious public. It is thus expressed in ordinary language devoid of jargon as much as is possible. Those not interested in the detailed math should feel free to skip over that particular section and pick up the discussion that follows afterwards.

It is May of 2016 as I write this. Over the last few years there have been several public broadcasts by a variety of esteemed people and institutions that have claimed to verify the existence of gravitational waves in empirical experiments. A simplified explanation of gravitational waves can be described thus:

> ***If a massive object four light-years away shifts position, it will be four years before its gravitational force shifts that same affect upon us. So the force of gravity is said to propagate at the velocity of light. Gravity is then also defined as the emission of moving particles called gravitons, which move away from their source object at the velocity of light. The source object obtains the energy for the emission of these gravitons from its movement through space; and thus the object must slow down as its kinetic energy decreases after emitting gravitational waves. Only after the gravitational wave reaches the destination object, is the familiar pull of gravity then applied.***

In 'A Brief History of Time', Hawking (p. 95-96) gives a more detailed explanation:

Hawking, p. 95-96

General relativity predicts that heavy objects that are moving will cause the emission of gravitational waves, ripples in the curvature of space that travel at the speed of light. These are similar to light waves, which are ripples of the electromagnetic field, but they are much harder to detect. Like light, they carry energy away from the objects that emit them. One would therefore expect a system of massive objects to settle down eventually to a stationary state, because the energy in any movement would be carried away by the emission of gravitational waves. (It is rather like dropping a cork into water: at first it bobs up and down a great deal, but as the ripples carry away its energy, it eventually settles down to a stationary state.) For example, the movement of the earth in its orbit round the sun produces gravitational waves. The effect of the energy loss will be to change the orbit of the earth so that gradually it gets nearer and nearer to the sun, eventually collides with it, and settles down to a stationary state. The rate of energy loss in the case of the earth and the sun is very low—about enough to run a small electric heater. This means it will take about a thousand million million million million years for the earth to run into the sun, so there's no immediate cause for worry! The change in the orbit of the earth is too slow to be observed, but this same effect

If the existence of gravitational waves could be proved, it would unlikely be an amazing discovery. *However, it is the non-existence of gravitational waves that would be a truly amazing discovery.* If gravitational waves do *not* exist, and the affects of gravity could be applied *instantly*, then there would be a way to transmit a signal at a velocity faster than light. Thus the mood in the media seems peculiar. It should be: 'Oh darn, we have unfortunately proven gravitational waves exist, too bad.'

However the assumption that everything moves at the maximum velocity of light has *apparently* already been proven incorrect in the Einstein-Podolsky-Rosen experiments. These experiments Einstein himself took part in, but then refuted for no discernable reason. So it is widely assumed that the *logical* connections in Einstein's theories are sacrosanct, when actually they are not universally accepted.

The Einstein-Podolsky-Rosen experiments are just as subtle and esoteric as the gravitational wave experiments. There are thus no clear and *obvious* experiments which can be easily verified either way. So what do we do when confronted with such paradoxical claims that are simply outside of our ordinary capacity to observe? We use a philosophical device called a thought experiment. Or we use a computer algorithm – which is much the same, but enormously more precise.

The following *computational-thought-experiments* shall explain the theoretical logic within the connections between the various principles in the Theories of Relativity; and thereby demonstrate how some theoretical structures are computationally mutually exclusive with one another – unless other structures are implemented to resolve such paradoxes. So using *pure reason* (that which Kant called the *analytic a priori*) we can philosophically resolve many of the esoteric claims in physics. The essential tool is simply this: A true theory must *at the least* be internally logical according to its own principles. A worthwhile theory cannot contradict itself computationally.

After successfully constructing software for describing solar system and galaxy formation in a Newtonian paradigm, the next obvious step was to include the Relativistic formulae in these models. In doing so, I have encountered what appear to be numerous logical contradictions. However, if you observe the following scenarios, then you will see how these apparent contradictions are resolved in such a way as to give a clearer understanding of Astrophysical structures in the Cosmos.

Often I will label something a contradiction – *but only temporarily* – as our universe is indeed a logical place without contradictions. If you are patient then you will encounter a deeper understanding of what it takes to compute such ideas. When these paradoxes are finally resolved you will thereby improve your capacity for thinking about these ideas in the broadest possible sense – even if you disagree with the conclusions. At no point do I intend to dispute any direct empirical data.

But to be more specific about the core ideas within *this* chapter:

1) Gravitational Waves, General Relativity and Black-holes are contradictory when computed in the same logical structure.

2) Many of the core principles regarding gravity in Einstein's Theory of General Relativity are computationally contradictory.

3) Changes in the rate of time in General Relativity appear ontologically impossible.

4) Computation as a minimal logical methodology.

5) Implications of these ideas.

Thus much of General Relativity is at least incomplete as it was initially expressed. It is also widely accepted that Relativity and Quantum theory have never been unified. But of course it is far easier to show that a theoretical construct is computationally paradoxical than to supply the bridging logic to solve the problem.

In *Scenario 1*, I shall demonstrate to the reader that it appears as though ***Gravitational Waves***, ***General Relativity*** and ***Black-holes*** logically contradict one another. When I include them with another interesting observation, ***Gravitational-lensing***, then the picture starts to become much clearer.

Gravitational-lensing may also appear somewhat beyond the bounds of normal investigation, but the astronomical photographs showing how light is bent by gravity are easy to find and download and see for yourself. So *gravitational-lensing* will be the first premise that I shall adopt as being beyond reasonable doubt. Of course, observing photographs of gravitational-lensing *is not at all the same as explaining how and why it occurs as a matter of physics principles.* Consider the following:

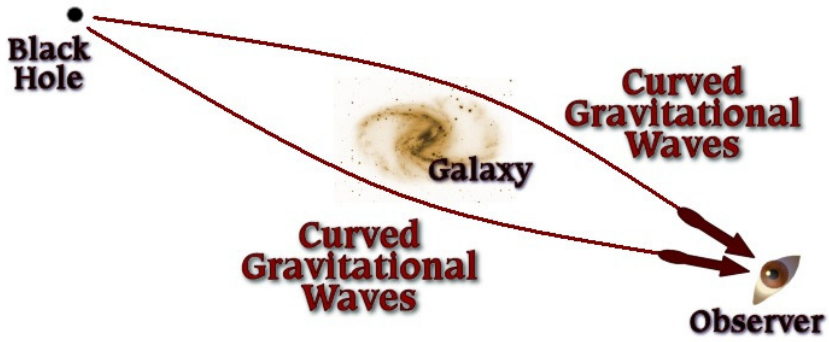
1

SCENARIO 1:

Gravitational Waves, General Relativity, Black-holes and Gravitational-lensing

Assume a black-hole gives off gravitational waves. These gravitational waves pass through a galaxy that is half way to an observer. What we have to consider computationally, is whether the gravity of the galaxy will bend the gravitational waves that originated from the black-hole, distorting them before they reach the observer. So the abbreviated question is:

Will gravitational-lensing curve gravitational waves like it curves light?



More simply: Does the force of gravity affect the force of gravity?

Now many readers will answer 'no' instinctively to these questions. But there are very clear computational reasons for asking them. As this diagram demonstrates, the gravitational affect of the black-hole could be slightly increased for the observer on the other side of the galaxy *if* gravitational waves are curved in the same manner that light is curved by gravitational-lensing.

General Relativity is part of the structural models in the following scenarios. And yet, regardless of *whether or not* the gravitational waves that originate from the black-hole are distorted by the gravity of the galaxy, the structure of this model results in computational contradictions. Let me explain why:

Scenario 1A:

Lensing Gravitational Waves

In *Scenario 1A* the gravity of the galaxy *does* distort the gravitational waves from the black-hole, as depicted. This is because according to General Relativity, the gravity from the galaxy is synonymous with the space around that galaxy being curved. So the gravitational waves which pass through that curved space *must of course curve and distort with the curvature of that space!* So we have to conclude that gravitational waves actually affect each other in this model.

Can you see the problem with this scenario yet?

You see; a black-hole is gravitationally so strong, that light (which obviously moves at the velocity of light) cannot escape its enormous gravitational affect. So gravitational waves, which are likewise traveling at that same velocity (of light), would also not be able to escape the curved space around the black-hole that they themselves have generated!

In this scenario, space is actually curved by gravity according to General Relativity. Computationally, a black-hole would thus in affect give off zero gravity, which is clearly a contradiction, so *Scenario 1A fails computationally*!

It fails because the curved space around the black-hole is too extreme for anything traveling at the velocity of light to escape from. The gravitational waves traveling at the velocity of light through that curved space cannot escape the pit which they themselves cause! But do not be too alarmed, it all eventually adds up.

Scenario 1B:
Pure Gravitational Waves

The obvious way to try get around the contradiction in *Scenario 1A* is to conclude that gravitational waves are *pure*. By that I mean that they must not actually have any direct affect on one other. The problem here is that General Relativity has equated gravity with curved space, and the gravitational waves are said to be moving at the velocity of light which is measured in spatial terms.

So how can the gravitational waves move through space that is not curved when General Relativity has already prescribed the space as being curved? If the gravitational waves are moving through un-curved space then General Relativity is wrong by claiming that the space *is* curved!

Of course it may be claimed that space is both curved *and* un-curved. We would thus need more than one type of space: We would need one type of space for light to travel through which is curved, and another type of space for gravitational waves which is un-curved.

Scenario 1B tries to prove that space is both curved and un-curved. Of course in Relativity, such paradoxes are quite common, so the Relativists might claim that space is simply *not* curved *relative* to the gravitational waves, but that it *is* curved *relative* to light.

Computationally however, the term 'Relativity' has become synonymous with *contradiction*. This is because we need a universal way to describe space so that the interaction between photons and gravitons can be solved mathematically. Most specifically ***Gravitational lensing*** requires a single geometry for space that both light and gravity can interact with each other in.

If we cannot do this then we have simply not mathematically explained the observed ordinary phenomenon of gravitational lensing. We need to explain how gravity affects light from distant stars in a single computationally viable paradigm.

Scenario 1C:
Computing Pure Gravitational Waves

We may try to avoid these problems by trying to hypothesize that gravitational waves cannot be affected by gravity as a force. So logically we can only compute this if we abandon the premise of General Relativity which equates gravity with curved space.

Scenario 1D:
Banish the Black-holes!

Of course we can also simply try to abandon the very concept of black-holes in order to try and get the model to work with gravity as a curved-space structure. The implications for Relativity *generally* are not good in this scenario. We have avoided the problem of a black-hole sucking in its own force of gravity, but we still have a questionable mathematical problem to solve: How do we calculate the affect of gravity on gravity itself?

By maintaining gravity as curved space, the gravitational wave is still going to be affected by the force of gravity. This may seem a nasty predicament, but it becomes somewhat clearer in *Scenario 2*.

Scenario 1E:
Source Energy of the Graviton-Photon Interaction

How do we compute the energy loss required to emit the gravitational waves; when directly applied to the gravitational lensing of photons? Remember that the energy required to emit gravitons is obtained by slowing down the source object.

If there is a loss in velocity of either the massive gravitational body that curves the photon – or the photon itself – then we have violated the velocity of light of the photon! In order to preserve the velocity of light, neither the photon nor the heavy body that is emitting the gravitational waves can lose the velocity required – to source the energy – to emit the graviton – to curve the light!!

So where could the energy come from for the gravitons which cause gravitational lensing? If the source object loses velocity then the photon no longer moves at the velocity of light in relation to it. I'll answer this shortly. But first we need to clear up a few ideas around some principles in General Relativity.

2
SCENARIO 2
General Relativity and Gravity

The variations within *Scenario 2* look at the structure of General Relativity and gravity. Once more I depict a variety of contradictions which ultimately are resolved. But if you stay focused, you will notice something quite subtle.

Scenario 2A:
Time, Gravity and the Event Horizon

The most obvious problem is the *event horizon* of the black-hole. General Relativity claims that time itself slows down with increased gravity. Stephen Hawking and most other Astrophysicists claim that the surface gravity of the black-hole is so strong that anything trapped in this *event horizon* supposedly experiences *infinite time*.

A photon or any other object traveling at any velocity within the bounds of the event horizon at the edge of the black-hole cannot escape. This is because here time has slowed to an absolute standstill.

So how are gravitational waves expected to escape the event horizon?

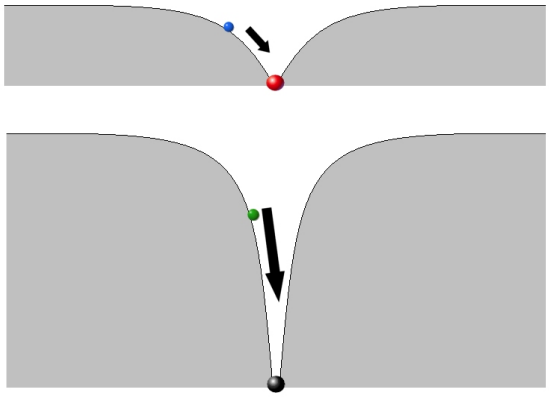
The graviton moves at the velocity of light, which being a velocity, requires time to move. But time has stopped. The black-hole would then be unable to emit *anything*, including gravity which is emitted at a velocity – *which thus requires time to not be infinitely slow*.

One obvious ad hoc attempt at a solution could be that time *relative* to gravitational waves is not affected by the gravity of the black-hole. This may seem an easy solution. However this would entail a concept of time (for the gravitational waves) which is somehow not relative to gravity. Instead this time would have to be *absolute time* or else the graviton would not move. And absolute time is heresy in traditional Relativity!

Another option is that gravity could be instantaneous – then it could escape the event horizon and its infinite time barrier. But then we must abandon gravitational waves!

Scenario 2B:
Curved Space Gravity

Let us just take a closer look at the black-hole and its 'curved space'. The red body in the next diagram has 'curved space' around it instead of the traditional Newtonian force of gravity. The closer the blue body is to the red body the stronger the pull of gravity.



In the lower part of the diagram, the dark body is a black-hole, and thus the green body is pulled so strongly that even if it were a photon trying to move away, it will be pulled back in. But according to Albert, if that photon were trying to move away at the velocity of light, its velocity will not be able to be altered! So the photon will not be able to slow down, stop and turn around again!

Moreover! How steep must the side of the curve be, that something traveling at a constant velocity will not be able to escape?

Even if it takes a very ***very*** long time, (very ***very*** steep curve) the green dot moving at a constant velocity will eventually escape the black-hole. It seems that the only way for a black-hole to exist, would be to violate that very fundamental tenet of Einstein's theory which claims that the velocity of light is invariant.

Now of course the photon is not supposed to be emitted because time has halted. But I have already shown that this would entail gravitational waves not being emitted either. So the black-hole would give off zero gravity, unless time was not totally halted, just slowed down a lot.

Some theorists perhaps may assert that the photon loses energy until it instantly turns around. But it has no reason to turn around if gravity is equated with curved space. This is because the curve itself is supposed to alter the direction of the photon. *Do not make the mistake* of adding *gravity as a force* to the curve as well.

Do not apply the same equation twice because there are two different ways of explaining it. *That* type of *fundamental* mistake is what led many Relativists into most of the problems in Special Relativity which I unraveled in chapter 27 previously. (I will continue with this same line of thought in *Scenario 2K*)

It seems that the term 'light-cone' could be a sophisticated apparatus which may be used to try and avoid this sort of problem. When deconstructed mathematically however, light-cones amount to nothing more than classical curved space-time. A new word will solve none of the problems computationally like it appears to do scholastically.

So the existence of absolute black-holes seems to remain illogical if we accept the premises of General Relativity that gravity is equated with curved space, and that the velocity of light is invariant. But given that I have already proven that gravitational waves are not logically consistent with the curved space of General Relativity in *Scenario 1*, I would rather suggest that it is Albert's concept of gravity as curved space that requires some altering.

Scenario 2C:
Persistent Black-holes

So we could try to abandon the notion of absolute black-holes. If we do this, then there is no obvious contradiction with gravitational waves being unable to depart the curved space they have themselves created. If we abandon the concept of black-holes, we can try to compute

gravity as curved space. Gravitational waves would therefore still have an affect on each other. Any strong source of gravity would still pull back on the gravitons departing from the source via curved space.

So the velocity of gravity *could* be less than the velocity of light. The gravitons would then impact their destination less frequently because they are slowed when they try to depart. *The force of gravity would be less than the force of gravity because the force of gravity is weakening the force of gravity.* This scenario feels quite hopeless as it seems like it would be like trying to pull yourself up with your own bootstraps.

But what if more mass joins with the non-absolute super-massive objects – making them absolute black-holes?

Scenario 2D:
Frequency-Shifting Gravitational Waves

One aspect of General Relativity claims that light *leaving* a gravity source is red-shifted. This one principle does make perfect sense as the light must lose energy due to the force of gravity (regardless of how we define gravity). Light that is bent via gravitational lensing is then slightly blue-shifted as it *approaches* a gravity source.

This is in agreement with my software models for gravitational lensing (free to use on www.flight-light-and-spin.com). Any act of force on a photon tries to change its velocity. If that attempt to change its velocity is an increase, but then this increase is constrained by the limit on the velocity of light, then clearly energy which should increase the velocity can only be accounted for by the photon having an increase in its internal energy or frequency.*

But then how do we compute this same type of change in energy for gravitational waves?

How does the gravity of the galaxy in *Scenario 1* alter the energy value of the gravitational wave that is emitted from the black-hole? How are gravitational waves *shifted* by gravity?

We have to conserve the amount of energy in the calculation. So it seems that gravity from the galaxy might increase or decrease (shift) the force of gravity from the black-hole. The actual energy value of the graviton might change if the velocity of the gravitational wave emitted from the black-hole is to stay constant at the velocity of light. (I'm starting to tug on my bootstraps again here).

Scenario 2E:
Zero Velocity Particles & Gravitational Waves

There is another fundamental theoretical paradox with gravitational waves. If we place two bodies so that there is no motion between them, then there would be no energy to tap into and thus neither can give off the energy of gravitons. These stationary objects would then have no gravitational force between them.

All motion for a body in Relativity has to be considered relative to another body. There is no absolute motion, so energy loss from the movement of the body can only be in relation to the body that we have decided in this model to make stationary.

If we launched a rocket into space and cut the engine, it would slow down via the Earth's gravity pulling back on it, until the moment it reached its highest point. It would then stop. With no motion between the rocket and the Earth to generate gravitational waves from, the rocket should just stay there floating. Clearly this is not going to happen.

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* In *Sum Theory* I have concluded that such an increase in the energy of the photon must be an increase in either the spin of the photon, or preferably an increase to spin within the constituent part(s) of the photon. *(I realize that this is not the same type of spin as classical photon spin. But I can only address one issue at a time. I will get back to this in chapter 30.)*

Of course absolute zero motion is highly unlikely. Each point in space is uniquely different in its relationships to other bodies via gravity and the electromagnetic force. So any small drift of velocity can cause a smidgen of gravitational waves to be emitted.

But we now have a nasty calculation to attempt: Gravity moving the body which then emits gravitons with which to inflict more gravitational force. The force of gravity is then not the sum total of all gravitational affects. So gravity would then have to be a lot less regular at positions near zero velocity due to gravitons not being emitted when the object momentarily has no relative movement.

Scenario 2F:
Detecting Relative Movement between Objects

This is a tricky but vital scenario to comprehend, *so pay close attention*. There are so many subtly implied concepts in the word 'movement' computationally. In Relativity, velocity is always relative, so even if the two objects are moving relative to each other, *how does the one object attain the information that there is such movement relative to the other object?*

If an object only gave off gravitons while it was moving relative to another object, then it would somehow have to detect that movement rate of the other object to be able to do this. If such detection of relative movement is *instantaneous* then we violate the principle that nothing can move faster than the velocity of light.

Ha-ha!

To preserve the notion that such information cannot travel faster than light, each body might need to send out something like *'detectatrons'* at the velocity of light in all directions. (*Its an appalling idea, yes, I know*). Some of which would bounce back with the relevant data (much like radar) that gives the original object the information that there is another distant object in a state of movement so that now a graviton can be dispatched.

Each source object requires this device (detectatron) in order to be somehow connected to its destination object – ***from the standpoint of the information of relative motion*** – in order to emit the graviton.

What would happen if that destination object changed direction?
Would the relevant graviton follow after it?
How would the graviton know where it had moved to?
Where would the energy for *detectatrons* come from?

Because the movement of one object is relative to another object, the graviton can only be emitted when one body has an existing relationship with another body. So the required amount of energy can only be calculated in reference to another body. Computationally I must either deduce that this relationship exists *instantly*, or via another particle: the *detectatron.* If I do not do this then the light-cone principle is violated. It seems that no such information about other objects can be transmitted faster than the velocity of light without a *detectatron.*

If we want to abandon the idea of the detectatron *(I am pretty certain it's a deplorable notion)* then a gravitational wave would have to flow in all directions evenly regardless of other objects. This spherical 'wave-form' expands outwards in all directions. We would then have to consider the motion of the body in absolute terms in order to calculate a velocity source for the energy of this spherical gravitational wave. This would then violate the principle of all motion being relative!

Scenario 2G:
Inconsistent Gravity

The atoms in the Earth are not moving relative to each other so they should not be able to have any gravitational affect on one another. This may be resolved by claiming that gravity only applies if something tries to pull those objects apart. But no; do not confuse the energy of the force of gravity with the energy used to transmit the gravitational wave.

Gravitons must be moving at the velocity of light from one atom to the other, *before* the force of gravity itself can be applied. This requires a constant energy loss from the source atom's motion *before* the actual force of the pull of the gravity can be applied. If neither of the atoms has movement relative to the other, then neither atom can give off the necessary gravitons to begin with.

Scenario 2H:
Graviton Exchange

If gravitons radiated from a source (object i), they would need to be of equal amounts in all directions (See *Scenario 2F*). The gravitons would not be able to be absorbed by the destination (object ii) because gravity permeates all things. They would have to pass through and beyond the destination (object ii).

So it seems that there could be no *"exchange of gravitons between the particles"* as Hawking tells us (p.75). If gravitons were *exchanged* as he describes, then there could exist a *gravity-shadow* of zero gravity for a further object (iii) behind the object (ii) that has absorbed the graviton emitted from the original object (i).

Gravitons must flow infinitely and therefore cannot be *simply* exchanged. Nevertheless, in order for gravity to pass through an object (ii) and affect another object (iii), the graviton would require some type of ***destination-signature*** to determine which object it was intended to affect.

The subtle idea of this *destination-signature* I shall return to later. Instead I would like to approach the idea of what would happen if the objects (ii & iii) simply moved out of the way of the gravitons they were intended to collide with?

Scenario 2I:
Collapsing the Gravitational Wave into a Graviton

A gravitational wave must be a spherical 'wave' moving away from the source in all directions because that wave cannot predict where it is going to impact without violating the velocity of light. When it does impact, then this sphere-shaped 'wave' could perhaps collapse into a graviton at the single point of impact.

Each wave would somehow have to have the information of what their destined object for impact actually is (*destination-signature*) or else they would collapse after reaching any object, and we would in affect have a gravity-shadow again. If it were possible to somehow change the *destination-signature*, then we could generate a gravity-shadow which would be the source of some pretty interesting technology.

But would this collapse of the gravitational wave be instant? Not in Relativity.

So the process of the collapsing wave after the initial impact would have to branch out from that impact at the velocity of light. But the rest of the un-collapsed wave is still moving away from the impact at the velocity of light! So the affect of collapsing the wave could not ever catch up with the actual wave it is trying to collapse! So the spherical expanding gravitational wave would have to go off instantly forever, except at the point where it impacts its intended destination. There could be no collapse of the wave without violating the velocity of light.

Now! If each Gravitational Wave had a unique destination signature, then gravitons would not be identical to each other. Each graviton would have to be in a state of predetermined fate with its destination, or else once more, a gravity-shadow would occur. This clearly does not happen.

Moreover how would this uniqueness be determined? Computationally I could catalog each Graviton on a database index, keeping count of each instant of gravity. Using a counter variable I could label each graviton accordingly. In order to do this, I would have to make such a counting process instantaneously – this would then violate the velocity of light. If not, then I need some other *abominable particles* flying around the universe trying to determine which graviton is destined where (Oh, the horror!)

These may seem like quite tangential arguments. But I am just trying to ensure that there is no actual violation of the velocity of light. I thus cannot see a way to calculate the gravitational wave without violating the velocity of light for quite a number of different reasons.

Scenario 2J:

Summing Graviton Source Energy

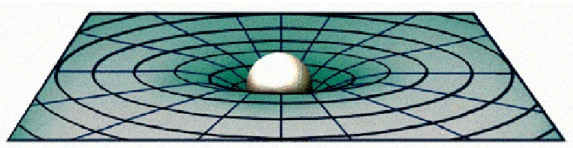
Moreover if the energy loss from the gravitons between Earth and Sun is equal to a small heater, we must take into account that all particles with mass in the universe are tied to each other gravitationally with all other particles. The force of gravity that the Earth-Sun system gives off must be transferred to every corner of the universe for the entire age of the universe. Now this has to add up to significantly more than one electric heater because the Earth-Sun relationship on its own requires the same amount of energy as one electric-heater. (I will return to this in the next couple of chapters in more detail).

Scenario 2K:

Some Sum Summary

Earlier in *Scenario 2B*, I depicted a side-view of gravity as curved space. The earlier model was simplified so that it represented one dimension of space along the horizontal axis, with the vertical axis represented by gravity.

More commonly, we are presented with a diagram which shows two dimensions of space and a vertical dimension which represents gravity. We are thus led to view gravity as if it were a dimension in its own right.



Any object which rolls along the surface above clearly moves faster as it gets closer to the object indenting the material at the center. This model is highly problematic, because it suggests a 'downward' pull by the Earth itself which is not overtly depicted, but subtly implied in the diagram.

The reason that the curve causes an indent and appropriate acceleration is because of a constant pull by actual local Earth gravity downwards. If we tried this demonstration in deep space and leave out local gravity then there is no reason for the indent. Even if we tried to force the indent without normal gravity and stretch the space near the center, then movements near the center appear to *slow down* as they approached the body instead of speed up. This would be because space near the center is stretched and thus will take more time to move across; not less time.

Although this diagram does provide a vague demonstration as to how gravity gets stronger the nearer it is to a body – it is very inaccurate for computing purposes and precise calculations. We may be tempted to conclude that the whole notion of gravity as curved space seems nothing more than a crude demonstration of Einstein from the 1800's.

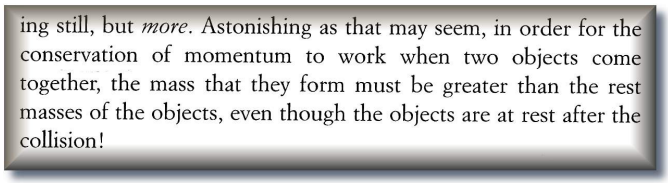
But Einstein had very good reasons for thinking that curved space was more than an explanatory metaphor. He considered that curved space was a literal ontology of the universe because he had theorized in *Special Relativity* that nothing can exceed the velocity of light…

As an object accelerates and approaches the velocity of light – an excess of energy accumulates that should ordinarily cause an increase in velocity such that the object *could* go beyond the velocity of light. But instead of going beyond the velocity of light, this excess of energy *is supposed to change into mass* instead of velocity (according to Special Relativity). So if it were possible for an object to reach the velocity of light its mass would then become infinite.

Because gravitational lensing shows that light is altered by gravity, and light is obviously traveling at the velocity of light, Einstein had no option but to contemplate why it is that a photon does not have infinite mass. His conclusion was that the photon had no mass to begin with, so its mass would therefore never be able to increase and become infinite. However for Isaac Newton, the gravitational affects on an object were so inherently connected to mass that Einstein had to come up with a new way of describing gravity that allowed an object with no mass (the photon) to be affected by gravity.

This is why Einstein concluded that gravity was curved space. If gravity was curved space then even an object without mass (the photon) moving through this space would have its path distorted – even though it was not directly part of any of Newton's calculations.

In the previous chapter I offer numerous reasons for disagreeing with Einstein's notion that a change in mass results from an increase in velocity. The most notable reason for this being that Feynman had concluded that *such a **change in mass would have to be permanent** even after the object came to a standstill* in order for conservation of energy to be preserved.


ing still, but *more*. Astonishing as that may seem, in order for the conservation of momentum to work when two objects come together, the mass that they form must be greater than the rest masses of the objects, even though the objects are at rest after the collision!

Feynman (p. 88):

The problem here is that we then violate the laws of chemistry. We should observe different amounts of mass for atoms of the same element (and isotope) that have undergone different velocity changes in their history.

Instead I have shown that the lost velocity as the object approaches the velocity of light is converted into rotational velocity, and not into mass. This preserves conservation of energy without violating the laws of chemistry – or violating the velocity of light – *and it also accounts for why everything in the universe is **spinning***.

Thus even if two particles collided and their resultant combined mass was greater than their starting mass, Sum theory would still work. That extra energy which became spin during the movement phase has now become included in the mass after the collision.

The added mass, however, only occurs through nuclear fusion at the point of collision. There is no added mass from velocity until the collision traps that energy into the new particle which is atomically constructed by the collision. Feynman's point still holds true at its conclusion, but not in how it gets there; because there can be no added mass from mere velocity as Einstein suggested.

So we have come full circle.

Scenarios 1A and *Scenario 2A* prove that it is impossible for gravitational waves to escape a black-hole – if gravity operates as curved space; and if time slows down with gravity. If light cannot escape the curved space of the black-hole then gravitational waves cannot either, as the gravitons have the exact same relationship to space and time (velocity) that photons are supposed to.

So if we accept the existence of black-holes, then we have no choice but to abandon Einstein's idea that gravity is curved space. But then we also have to make a return to at least some of the pre-Relativistic paradigm, ***and photons must have mass!*** *(Go back and read from the start of Scenario **2K** again if you are not sure why I conclude this.)*

This further proves that *Special Relativity* is false in concluding that an object increases its mass as it approaches the velocity of light. If it did so then the photon must have infinite

mass – which is clearly false. Once more *Sum Theory* is verified. ***An object preserves conservation of energy by increasing its spin (not its mass) as it approaches the velocity of light!*** Any increase in mass can only occur at a point of collision due to atomic fusion.

Scenario 2L:
A Nearby Black-hole

But the whole idea that *if we give the photon zero mass then we can save Relativity from failing* – is incorrect for a much simpler reason: If a photon departs *my nose* at the velocity of light, *and all velocity is relative*, then my nose is moving away from the photon at the velocity of light (Special Relativity). This means that my nose has infinite mass relative to the photon (think about it).

This makes my nose a black-hole relative to the photon. So the photon could not depart the black-hole of my nose. It would be sucked right in. All objects should be black-holes from the relative velocity of photons – *and this is also true for gravitons!* The concepts of relative motion (and also Relativity as a whole) break down completely for objects at the velocity of light.

If an object at the relative velocity of light emitted a graviton then that object would have infinite mass relative to the graviton. This would curve space to such a severe degree that the graviton would not be able to escape the object.

When trying to calculate most of the principles of Relativity with computational precision, these and other endless problems arise. Each time I reread this, I think of more contradictions all of which are solved with *Sum Theory*.

I have documented about 20 separate contradictions in this chapter, about 20 in the last chapter, and I have roughly jotted down about a dozen more, and ignored another dozen or so for the sake of brevity. I'm sure that you could easily find a few more such contradictions if you put your mind to it.

But can you resolve the contradictions?

3

SCENARIO 3:
Relativity and Time

I encountered some disagreement online with the previous chapter of this thesis which disproved *Special Relativity* and replaced it with ***Sum Theory***. There was something of a consensus of assumption that because GPS systems *could* be using some of the mathematics within Relativity – that therefore all of Relativity must be flawless.

The GPS satellite clocks apparently require adjustment because time is said to run faster where there is less gravity according to General Relativity. *But we do not need to know* ***why*** *any clock runs a bit faster for us to be on time.* All we need to know is: How much faster is the clock? – then adjust it accordingly. This point cannot be emphasized too much.

But how can we *know* whether it is time itself that changes, or just the clock? I will demonstrate this answer using two thought experiments: *Scenario 3A* is non-Relativistic, *Scenario 3B* depicts Relativity.

Scenario 3A:
Ordinary Time

There is no alteration to time itself in *Scenario 3A*. Here, the differences in the rate of the on-board clock are not due to time ticking over at different rates, but simply to changes in the rate of the actual device. Gravity will cause friction to slow the mechanism of an analogue clock. (More air could also slow the mechanism.)

Any *threshold force* required to move an electromagnetic clock will also be slowed by gravity on Earth. As the force on the clock's hand builds up, the amount of force required to

nudge it over the threshold and into the next slot will be more because gravity is impeding the process (as is the air possibly as well.) Atomic clocks should be no different, because the force of gravity and the resistance of air also affect atoms and electrons.

But! If we use a clock *on the Earth*, and then transmit timed pulses from this Earth-clock via an electromagnetic signal to satellite 3A, then such pulses will arrive at the satellite at the rate at which they departed. There will thus be a noticeable discrepancy between the earth-clock-pulses received by the satellite, and an on-board satellite-clock. The satellite clock runs faster due to its mechanisms working differently because of a lack of gravity with everything operating according to normal non-Relativistic processes.

We can of course, ascribe this increase in the rate of the clock to any reason at all. We can assume the change in the clock is due to General Relativity or to a malicious invisible atheist gnome, or even to God himself, if we so choose.

However the clock will still run faster in less gravity regardless of the reason we decide upon. This is because the measurement of the change on the clock is not the same as the reason for that change.

So if the timing for satellite 3A is out by any margin each time it passes overhead, then all that is required is for an adjustment to its timing mechanism to be made accordingly.

Scenario 3B:
Gravity & Relative Time

Time itself speeds up due to lower gravity in *Scenario 3B* as the Relativists suggest. Now if time itself speeds up then time must go faster in *all respects* on the satellite. Every aspect of temporal measurement on the satellite will increase its rate – not only the rate of an on-board mechanism we have labeled 'clock'.

Absolutely everything on this satellite (3B) must go faster *without exception*. If a clock starts ticking on Earth and then is transported to satellite 3B, its rate of movement will steadily increase as it approaches, regardless of its origin. This is because the rate of time is dictated by gravity absolutely.

But! *(Pay close attention now)* – Satellite 3B does not use an on-board clock at all! Instead, Satellite 3B receives electromagnetic pulses from a clock on Earth to do ***all*** of it's time keeping. However, as they enter the lower gravity field, *the rate of these pulses speeds up because time itself has speeded up*. This is because in this scenario everything in the lower gravity must speed up regardless of origin. The rate of time in the *pulsing signal* sent from Earth is dictated by gravity *absolutely*.

Such a satellite stays in space for a *very* long time and absorbs many pulses from the earth-clock and records them on a computer. Many years later satellite 3B parachutes its way down to Earth, all the while receiving pulses from the Earth. After landing, the recorded pulses satellite 3B received from the Earth clock will show a time in advance of the original clock which never left the Earth.

As it returns to Earth, the rate of pulses slows down again, yes, but at no point will the rate be slower than it is on Earth. So the Earth-clock will not be realigned with the computer recordings after landing. The satellite will always show an advanced time – even though after landing the rates are now moving at the same pace. The time on satellite 3B's computer recording will be, lets say hypothetically, 10 seconds ahead of the Earth-clock.

Now let us suppose that instead of mere pulses of time sent from the Earth, it was simple digital data which was broadcast to the satellite using ordinary computer binary code. Now consider that the digital data is an image of a roulette wheel. So when the satellite is returned to the Earth, it will have with it an image of a roulette wheel showing either Red or Black, 10 seconds in the future…

So a gambler could know with certainty which bet to make. But then what if the image consisted of a photo of the gambler making a wrong bet? When he received the photo, he could change his bet – which is, of course, a contradiction.

So if time itself is altered by gravity then it is possible to see into the future.

If you accept that it is impossible to see into the future because that would result in a logical contradiction, then you have no choice but to abandon the premise of General Relativity that allows for differing rates of time in different amounts of gravity. *Thus Scenario 3A must be correct.*

Scenario 3C:
Exact Satellite GPS Time Changes

However, another consideration must still be explored. How is it possible that Einstein managed to get his equations accurate when his reasoning has been seen to be flawed? If it is not time changing, but just the clock, then why are his formulae apparently being used?

One answer applicable to some scenarios could be that he simply measured how clocks on Earth moved at different rates depending on their height above sea level – and from there figured out his formulae. Another answer *in other scenarios* is that the calculations or even the formulae are not accurate at all.

There are many online claims that the GPS satellite adjustment would require a 38 microsecond difference per day for Relativity. This daily amount is said to be comprised of +45 microseconds for General Relativity and -7 microseconds for Special Relativity. Supposedly this would result in an adjustment for the Relativities of about 11km per day. This is currently the top-ranked search-engine source for this claim:
www.astronomy.ohio-state.edu/~pogge/Ast162/Unit5/gps.html (search "GPS relativity")

However, consider this: If a satellite is moving at 4000 m/s and its clock is fast by 0.001 seconds *in a day*, then it will be accurate to within 4 meters *in a day*. But if the difference is 0.000038 seconds as Ohio State suggests then:

0.000038s x 4000m/s = 0.152m … (Calculation i)

About 15cm per day seems to be the correction that *should* be required for both Relativities for the moving satellite. My first point of corroboration for 15cm as the apparent correction for the satellite's daily difference of 38 microseconds is here: alternativephysics.org

I'll get back to how Ohio State (and most of the rest of the online sources) made that 11km error adjustment in a bit. But first let me clarify that a position on the Earth is determined by the GPS from the comparative proportional delay between the signals sent to the receiver on Earth from numerous satellites.

Only the proportions between the delays in the signals matter for this, and these proportions would all be affected by the same Relativistic proportion. *(Careful, there are two types of proportion here).* So the proportions of the signals to each other would be the same regardless of Relativity. The Relativity proportions would cancel each other out!

How the GPS works is a process called *'trilateration'*, and is similar to *triangulation*. Here is a good online account of trilateration: www.mio.com/technology-trilateration.htm

A *simple* way to think about this is to consider your self as a target within an equilateral triangle with satellites at each corner of the triangle. If a signal is sent from each satellite to the target, and the times each signal took are the same amount, then it follows that the target must be at the center of the triangle.

If we double or halve the time it takes for all of the signals, then nothing changes. We can also change the size of the triangle without getting a different result. The same proportional process works for any other position of the target in relation to any other triangle.

It also makes no difference what the clocks at each point on the triangle register. So long as the clocks all have the same wrong starting time, nothing changes. This is because the GPS compares the delays from all the signals to the target in order to figure the proportions. The clock on the target device itself has nothing to do with it.

Even if the velocity of the electromagnetic signal itself needed to be altered for Relativity, the result is unchanged. It's a much simpler process than one at first thinks. In affect the calculation is merely one of geometric proportions. Of course it is not a 2-d triangular process, but a 3-d process instead. But I am just explaining it in its simplest terms. We have to just infer the extra dimension or read this link for a more precise definition: www.mio.com/technology-trilateration.htm

There are a vast number of websites that claim all sorts of things, best you take plenty of time looking around at all the varieties of theories to be certain. It would be a good *logical positivist* idea to actually double-check the arithmetic too. You can read the mio.com description here: www.mio.com/technology-gps-accuracy.htm. There is no mention of Relativity at all in the accuracy of GPS.

How am I so sure that www.mio.com and alternativephysics.org are correct? After all, the internet is *so full of* so many claims about this. And the famous websites all say that GPS does use Relativity. Think on it ***logically*** for yourself:

If the clocks on the satellites were all somehow twice as slow as the clocks on the Earth, it would not result in any adjustment to how the position on the Earth is calculated because the ***geometric proportions*** between the delays of the signals from the satellites would be unchanged.

www.phys.lsu.edu/mog/mog9/node9.html has this to say:

> **…at present cannot easily perform tests of relativity with the system…**
>
> **Several relativistic effects are too small to affect the system at current accuracy levels, but may become important as the system is improved; these include gravitational time delays, frequency shifts of clocks in satellites due to earth's quadrupole potential, and space curvature**

But of course it may become feasible to actually measure the alleged affects of Relativity on satellites at some point in the future. A few sources suggest that such experiments are underway currently. So every piece of this analysis is still immanent. But if you do *not* believe that it is possible to see into the future, then such experiments can only show how a 'clock' changes due to the affects of gravity on the mechanism.

Scenario 3D:
The Eleven Kilometer Error

So from whence comes the 11km error adjustment which so many people on the internet are copy-pasting? Clifford M. Will (physicscentral.com/explore/writers/will.cfm) offers us such an explanation:

> **To achieve a navigation accuracy of 15 meters, time throughout the GPS system must be known to an accuracy of 50 nanoseconds, which simply corresponds to the time required for light to travel 15 meters.**
>
> **But at 38 microseconds per day, the relativistic offset in the rates of the satellite clocks is so large that, if left uncompensated, it would cause navigational errors that accumulate faster than 10 km per day!**

Essentially this is the calculation that Clifford M. Will is using:

0.000038s x 300 000 000m/s = 11 400m … (ii)

This amount **(Calculation ii)** is wrong for a number of different reasons. The satellite is moving at 4000m/s; whilst the signal from satellite to Earth is traveling at the velocity of light. Those are two different entities moving at different velocities. So the adjustment cannot be the same. This is the formula for adjusting time according to velocity for Special Relativity:

$$\Delta t' = \frac{1}{\sqrt{1 - V^2}} \Delta t$$

(iii)

This formula uses velocity by converting the 4000m/s of the satellite into a proportion of the velocity of light, so we need to determine '**V**' for the formula above:

V = 4000m/s ÷ 300000000m/s = 0.000013 of C (Light)… (iv)

When we insert this amount of 0.000013 into Special Relativity **(formula iii)**, then we get the answer of 0.000000000084 which is a proportional adjustment per second of time. So because we want to know the adjustment for one entire day we multiply this by 86400 seconds and get:

0.000000000084 x 86400s = 0.000007s … (v)

The adjustment is 7 microseconds per day for the satellite moving at 4000 m/s. (This one small part many people fortunately agree on, arithmetically speaking)

But the 7 microseconds has absolutely nothing to do with any object moving at the velocity of light – it is just the adjustment for time for the satellite's velocity as applied to Special Relativity. The 7 microseconds is a portion of the 38 microseconds (45 – 7 = 38). It is part of a daily adjustment. So it is wrong to multiply the 38 microseconds by the velocity of light, **(Calculation ii)** because the amount of 0.000007s only concerns the 4000 m/s of the satellite per day. Also Clifford Will's calculation which everyone is copy-pasting is clearly incorrect because the velocity of light of the signal only exists for 0.1 seconds not 86400 seconds. It only takes about 0.1 seconds for the signal to traverse from the satellite to the Earth.

Scenario 3E:

Double-check and Triple-check Everything

But wait a second. We have seen so many misconceptions thus far. It pains me to think that the initial calculations for Relativity may in fact not be correct. Where did I get those notions that the GPS satellite clock gains 0.000045 seconds per day because of General Relativity and loses 0.000007 seconds per day because of Special Relativity?

Well, many websites all make these claims. So I'll just tag it to the website with the best Google ranking: www.astronomy.ohio-state.edu/~pogge/Ast162/Unit5/gps.html

The Ohio State Website combines the two adjustments for Relativity so that 45-7 microseconds equals 38 microseconds. We have corroborated earlier that the 7 microseconds seems to fit the formula for Special Relativity for the movement of the satellite. So let us plug the numbers into this formula for General Relativity:

$$\sqrt{1 + \frac{2aH}{c^2}}$$

This is like the GR equivalent of the Lorentz Transform (LT) for SR. It shows how much faster time should run according to acceleration and height.

(vi)

The formula above **(vi)** uses '**a**' for the acceleration of gravity, '**H**' for the height, and '**c**' is of course the velocity of light.[β] So if we work those numbers into the General Relativity formula for time adjustment, then we get a proportion of about:

1.0000000022 … (vii)

This is the answer I get for an altitude 20 000km at 9.8 meters per second squared. This is a proportional adjustment for time because of General Relativity. The proportion is determined for a distance directly above a gravitational source for one second of time, so it must be multiplied by 86400 seconds for one full day. The result is 188 microseconds per day adjusted.

Do we include the radius of the Earth and make it about 27 000 km? I don't think so at all because gravity is at its highest on the surface of the Earth. And if we considered two other points, one below the surface and one above the surface, then reflect on all three results we do not get the slowest time at the Earth's surface. We should get the slowest time at the Earth's surface because gravity at the surface is strongest.

This point seems quite clear because there can be no actual force of gravity at the center of the Earth. (You may need to think about that one a bit). No gravity at the center of the Earth equals the fastest time, not the slowest.

I see so many differing answers online, so I try the simplest formula:

For small values of acceleration this closely approximates to

$$1 + \frac{a\,H}{c^2}$$

(viii)

Formulae vi and **viii** give the same proportion of **1.0000000022** which yields 188 microseconds per day. Hmm… Well 188 microseconds is ***not*** 45 microseconds!

Scenario 3F:
Correct the Corrections for the Satellite

So now that we have somewhat corrected the proportion for General Relativity, we must amend the results because **Calculation i** still yields the incorrect answer from the online copy-paste of 45 microseconds.

0.000188s x 4000m/s = 0.75m … (ix)

An adjustment of 75cm per day would be for General Relativity for the satellite moving at 4000m/s, whereas for Special Relativity the daily adjustment for the satellite in the other direction is:

-0.000007s x 4000m/s = -0.028m … (x)

So many discrepancies! You'll have to do ***that entire math yourself*** to be certain!

Scenario 3G:
Time and the Velocity of Light

But how is time *supposed* to be adjusted for the *signal* between the satellite and the Earth for both the Relativities? (The previous scenario was just the satellite)

β These formulae are from alternativephysics.org, and Bernard Burchell's account represents the deepest analysis so far on the topic I have found after searching many dozens of websites with many claims. It is interesting that Bernard Burchell's website is one of very few that delves into how the results for GPS and Relativity are actually calculated in direct and clear mathematical terms.

Let us look at General Relativity first. If time is faster for a satellite 30 000km away where gravity is less, then the duration for the signal sent to Earth could be differently measured. Ordinarily this signal should take 0.1 seconds to reach us.

(The height is 20 000 km when the satellite is directly above us, so this fraction can vary. I use 30 000km for convenience as the signal often has to traverse this distance when not directly above the target, but its height is 20 000km above the surface gravity).

We need to use the proportion of **1.0000000022** (**vii** from formula **vi** or **viii**) which is multiplied by the 0.1 seconds. This 0.1s is how long it takes the signal to travel the convenient distance of 30 000km. We do not use the 188 microseconds* here because that is the amount for an entire day.

So if we adjust the signal for General Relativity we get:

1.0000000022 x 300 000 000m/s x 0.1s = 30000000.066m … (xi)

So the adjustment for the signal is 33mm. We halve it from 66mm because gravity increases for the signal as that signal approaches the Earth. *So the effect of General Relativity is on average half for the signal as it is for the satellite.* The satellite has a constant amount of General Relativity acting on it because its height is constant. The height of the signal changes as it approaches the Earth.

Scenario 3H:
Special Relativity for the signal

Everything is still only an adjustment so far of less than a meter for the satellite, and the signals themselves. But I have saved the best calculation for last. What about adjusting the time for the signal from satellite to Earth for Special Relativity? ***This is where it gets really interesting.*** If you have studied the previous chapter then you will know the answer.
(See Chapter 27, Part 4, The Contraction of Space and Time Catastrophes)

If an object is moving at the velocity of light, then according to Special Relativity – *time has stopped*. I know this is ridiculous. But that is what Special Relativity tells us. Nothing that is traveling at the velocity of light is actually supposed to be moving at all according to Special Relativity. Consider this formula:

$$\Delta t' = \frac{1}{\sqrt{1 - V^2}} \Delta t$$ **(xii)**

Formula xii is the same as **Formula iii** which gave us the 7 microsecond adjustment for Special Relativity for the satellite per day in **Calculation v**. In the formula if the velocity 'V' is equal to 1 (which is the velocity of light) then there is a division by zero and time is infinitely slowed.

t = ∞ … (xiii)

It is not my theory, don't blame me! I'm just trying to fix it. (You will need to go back to *Chapter 27: Light and Spin*, if you want to understand these references further).

We may have been tempted by all the previous calculations to consider that Relativity is still viable. But if we take those calculations at face value, then we should take the Special Relativity calculation for the signal at face value as well, and we get the *contradiction* that the signal does not actually move at all!

* The 45 microseconds is also not applicable here if you prefer to copy-paste instead of calculate!

But let us leave that catastrophe from *Special Relativity* and just deal with the logic of *General Relativity* on its own terms (*its internal logical consistency*).

Scenario 3I:
Internal Logical Consistency of General Relativity

Consider one observer on Earth, another in the satellite. Now if these two observers have different rates of time due to gravity differences – and they then observe light moving in each others' space – then it seems clear to me that they should both observe light traveling at differing velocities!?

So if our two observers are observing different rates of time, then their observations of the signal moving from satellite to Earth would be violating the principle of a constant velocity of light as a matter of their individual frames of reference. The easiest way to appreciate this is quite simple.

Consider an object moving 10 units of distance in 1 unit of time, and then double the *amount of time*. This becomes 10 spaces over 2 units of time. That is the same as moving 5 units of space in 1 unit if time. *So any change in time is arithmetically the same as a change in velocity.*

The distance between the satellite and the Earth is constant for General Relativity, but time is not. So each must observe that distance traversed in a different amount of time!

But in reality, any change in the rate of actual time (in different spaces) will result in the potential to send a signal into that space-time, reflect it back, and thus see into the future. So to claim that the velocity of light is the same in all reference frames by changing the rate of time – is just unacceptable – unless you believe that it is possible to see into the future.

However changing the rate of time also violates the principle of Relativity that claims that the velocity of light is the same in all reference frames. This is because *any change in time is arithmetically the same as a change in velocity.* Thus General Relativity fails according to its own internal logic, as well.

Remember in the previous chapter how the critical fault in Special Relativity was located by realizing that a change in the rate of time is mathematically the same as a change in velocity?

I realize that none of this is what the Relativists intended. What I am pointing out however, is that if one accepts the various premises within Relativity, then one actually ends up with blatant computational contradictions, which therefore can only disprove those premises of Relativity.

For those die-hard Relativists whose foundational premise is that Relativity *must* be correct, I can only point out that the only way for it to be correct would be for the universe to be an illogical place. No theory would be possible then.

Scenario 3J:
Parallel Photons

An easier way to see that the velocity of light can not be the same in all reference frames, is to simply consider two photons moving parallel to one other. What is the relative velocity between these two photons in parallel?

Scenario 3K:
A Conspiracy?

Is it that many of those making money off GPS would likely not want competition? Is that why these rumors of Relativity being part of GPS are so widely distributed? Or is there another reason for it?

I will get back to the consequences of this study in part 5: Implications

4

COMPUTATION AS THE MINIMAL LOGICAL METHODOLOGY

For decades I intuitively felt that Relativity was contradictory, but was unable to pinpoint precisely why. It was only after programming the Newtonian computer algorithms that I was forced by the rigors of computer logic to arrive at these conclusions. This is why computer programming should be a basic skill acquired at school level, without which a person should essentially be considered as *potentially logically illiterate*.

Over the years attempts have been made to ensure that pencil-and-paper math played this role of trying to teach people to become logically minded. The net result was that the contradictory ideas within Relativity were memorized by rote, and those who disagreed, were failed.

I fear that there is no guarantee to make people think logically. Perhaps only a narrative like this can serve as a warning to society; and to encourage those who dare to think for themselves. Still, others will memorize this, but not apply its core philosophy. Some will accept it whilst reading it, and later will simply forget, and return to prostrating themselves before the idol of Relativity. Others will shun it dogmatically from the outset without even reading it *because they already know that Relativity is true*. (Sound familiar?)

Making computer programming an essential school-leavers qualification may just result in people copy-pasting computer code. But if such computer projects are required to be individually unique, rather than conforming to exam-like unthinking mass production, then it will more likely occur that the students themselves will realize just how easy it is to reach illogical conclusions. This painful lesson, together with perseverance beyond it, can help the mind become logically mature. Grades are less important than self-realization.

Beyond the broader teaching and methodological issues, I have been motivated to make this analysis from foundational logic derived in computer software which depicts evolutionary modeling of Newtonian-Planck gravity. These models use Newtonian gravity in conjunction with quantum time, thereby solving the many-body-problem for Newtonian gravity. I know of nobody else that has done this.

My first gravity simulators were published online in 2008. In these models, gravity propagates to any distance in one quanta of time for any number of bodies without contradiction. This algorithm rests on the notion that quantum gravity is defined intrinsically by quantum time; so gravity is not propagated in zero time, but in the smallest possible unit of time. As far as I can tell Newtonian-Planck gravity yields the only mathematical *explanation* for the gravity assist (slingshot or whiplash affect). Of course the gravity assist has been measured, but that is not the same as the reason for it.

Nowhere have I yet encountered any viable attempt to calculate or compute a system for placing three or more bodies in a Relativistic paradigm. All such attempts yield the blatant contradictions that should by now be self-evident to the reader. Thus, I find it methodologically untenable that logical proofs for the Theories of Relativity can be claimed unless one has first solved the many-body-problem for Newtonian gravity within the rigid mathematical structure of an evolutionary computer programming language. After all, 3-body-Newtonian-Planck gravity yields a logical algorithm; whereas attempts at 3-body-Relativity, from an evolutionary computational perspective, simply do not. They *can* not.

Such computational software necessarily evolves graphics that are demonstratively superior to mere numerical or formulaic answers. These processes go beyond static graphs as well, as they are graphically dynamic. Moreover they are very easy to demonstrate to any observer. There are a number of these gravity-simulator software applications freely available to download on my website.

These applications show the evolutionary structures for numerous bodies in solar systems and galaxies. This includes proof that our solar system was once a binary star system, and

that the planets are the debris of the Sun's companion which went nova at least 10 billion years ago. The inner planets at one point were moons of Jupiter. Jupiter is the core that remains of the Sun's binary companion star, which split up with excessive spin. This explains the existence of the ecliptic plane, and why orbital rotation in the solar system is uniform in direction as well as mostly uniform for planetary axes. It also explains the rings of Saturn and the equatorial wall on Saturn's moon, Iapetus. I had computed that the Earth's Moon would be departing from the Earth at a miniscule rate due to the gravity of the Sun, before I had heard that this measurement had actually been observed.

A solar system that formed without spin as a fundamental structure would more easily yield planets orbiting in opposing directions, and most easily yield orbits perpendicular to each other. This is because such non-uniform orbits would interfere with one another less than uniform orbits would – and this would make the non-uniform orbits vastly more likely to persist. A solar system with an ecliptic plane and all the planets orbiting in the same uniform direction would be the least likely structure to form *without* spin as a force. This answer was forthcoming from the models before I even tried to compute Relativity…

In addition, spiral galaxies must be binary systems or *white holes.* Each of the pair in this binary system *emits* stars from its equator due to excessive spin. This spiral binary structure explains why spiral galaxies typically have two arms. This also solves the problem of *rotational curves of spiral galaxies* (which are essentially empty at the center). Celestial bodies (stars and galaxies) can only form as binaries in such abundance because a single body spun apart to form the binary. The odds of a binary pair forming due to gravity and random starting positions are so unlikely that there would only be a few of such binary pairs in each galaxy.

Dark Matter is the remains of stars that spun outwards from the binary white holes at the center of each spiral galaxy. These outer stars are dark because they no longer emit light due to old age. These systems of dark matter stars (Dead Stars) are simply solar systems where the central body is some un-shining body like Jupiter. Typically such bodies are termed 'brown dwarfs'.

Some of dark matter may be something similar to the black-holes described by Relativity, but the theoretical foundation for black-holes is at this point a total mess of contradictions. I will thus only get back to correcting the theory on black-holes in Chapter 30. I shall have to avoid the term 'black-hole' as the connotations to Relativity are too severe. But it is still thoroughly vital to understand what happens to a body of mass when it exceeds the Chandrasekhar limit. A better term for a body that is massive enough to collapse under its own gravity would be a Chandrasekhar-star, or C-star. The word 'Black-hole' only has relevance historically as belonging to a theoretical paradigm which has been disproved.

Dark Energy is spin and can only be a fundamental force which was prevalent from the start of the universe. The reason why the universe is uniform – is that spin as a force separated the singularity at the very beginning. There was no 'big bang', instead a very smooth 'big unwind'. ***Spin as the fifth fundamental force*** would have had to have overpowered gravity at the beginning. But it seems that spin could have subsequently tapered off as the universe has expanded.

The entire universe still spins, and this I have called the 'Cosmic Coriolus' which is the source of why it is that an object starts to spin as it approaches the velocity of light. This is similar to how Earthly weather systems like hurricanes start to spin with increased rotational velocity as their linear velocity increases. But instead of a 3-d planet; the entire universe is a 4-d rotating sphere. Cosmic Coriolus would fit into the same ontological place that Einstein figured his Cosmological Constant should be (in opposition to gravity). Even if his answers were mostly wrong, his questions were utterly exquisite.

Thus space is curved extra-dimensionally, but not due to mass and gravity. The curvature of space is the curve of a 4-d rotating expanding sphere. By 4-d, I mean four dimensions of space. Time is not the fourth dimension. It is something else entirely.

All of this (and much more) leads me to make this computational analysis of gravitational waves and General Relativity from the foundational basis of a functional multi-body Newtonian-Planck paradigm with absolute clarity of purpose.

I am hoping that the reader has made a close study of the ***Time Dilation Conundrum*** whereby it was clearly shown that time dilation in the Special Theory of Relativity is utterly impossible in a logical universe. That same computational method has been applied here. Non-computer programming theorists such as Einstein were able to believe that Relativity was a logical paradigm because their various formulae all stood alone. Only when we place them into a single algorithm, do we see that the pieces of the puzzle just do not fit together. Let me try and explain what it takes to construct these models using normal language.

If we have 10 principles which must work in the same computational model, we have to be utterly certain of the precise logical structure of all 100 interactions between these principles. Every principle must interact with every principle in all instances without violating the integrity of any other principle. Each principle must also have an exactly defined relationship with itself.

Likewise, if I have 10 physical bodies interacting in the algorithm, this requires 100 relationships between the bodies *for each principle*. Not only must each principle not contradict itself, but they must not contradict each other within the same body – and – as regards all the other bodies and *all their* potential interactions.

When functioning, this software will then compute 10 000 separate functional relationships, each of which often require quite a number of arithmetical and trigonometrical formulae as well. ***I cannot at any point make any assumptions or take for granted any mathematical relationships between any of the 10 000 relevant processes.*** *Every relationship must be spelt out in computer code to the tiniest detail, or the computer program will crash.* But before the computer crashes, it becomes fairly obvious that it will crash if one has spent a significant amount of time simply thinking about how all the details must fit together.

In this article I have just expressed the logical consequences of how that computer code functions in ordinary language for the benefit of theoretical physics and philosophy of science. Luckily the only part I do not have to worry about is the arithmetic; which the computer executes perfectly to the 14^{th} decimal point; which constitutes an error margin of 1mm per light year. That is quite a luxury which Einstein did not have over a century ago.

In creating such a computer model, the programming language will simply not allow me to make an algorithm which is self-contradictory or it will generate a critical error; whereas pencil-and-paper math can happily be riddled with logical contradictions; and nobody be the wiser. This process was applied to Newtonian gravity in my earlier models and it lead to the conclusion that time *must* exist in quantum jumps as Planck had concluded (and indeed Zeno as well).

Those models operate perfectly without any contradictions. The principle is flawless, the only drawbacks being that no computer can ever get remotely close to operating at quantum time itself (5 x 10^-44s or 0.00000000000000000000000000000000000000000000005 seconds per iteration). And, the more bodies in the model, the slower its evolution.

So because the computer does have a margin of error due to being exponentially slower than quantum time, it could be considered that there is an exponentially high margin of error. But interestingly, I can make the margin of error worse – and when I do so, there is no fundamental change to the results. Even if I increase the margin of error by many thousands of times I get the same results. So there is no strong inductive reason to suspect that the results will improve by improving the margin of error! Of course no model can ever be *entirely* accurate. But at least it can be non-contradictory. Internal logical consistency may not seem to be a very high aim, but it is a far more difficult goal to achieve than one at first thinks, given a century of Relativists.

And then one day I decided to take an *afternoon* and simply tack the Relativity formulae onto the Newtonian-Planck models. At that point I had no idea that three and a half years later I would be obsessively and thoroughly disclaiming the most popular idea the modern world has known.

But it *should* all have been obvious without the algorithms. It *should* be easy to see that the alleged fluctuations in Relativistic time are totally inconsistent with the concept of time as an indivisible quantum unit. Zeno would never have accepted relativity. So why did Planck not disavow Relativity? That will be answered in the next section.

5
IMPLICATIONS

Many people may wonder what the point of this is. Most directly it is one of ethics. Having appreciated just how many fundamental faults there are in Relativity I could have walked away and continued writing financial software. I could have laughed up my sleeve at Astrophysics for the rest of my life. But it is the Soul of science itself which is at stake. And science is close to the spirit of this society.

But why has the error of Relativity persisted? There are potentially many good reasons. Around the time of the foundation of Relativity, mankind's understanding of the Universe was striding forward like never before; and likely it shall never advance at that rate again either. Bombs were getting incrementally more massive, and even though it was not clearly understood how to build atomic weapons, it was becoming pretty obvious where that process was headed. It thus made sense to confound the state of academic physics to dissuade as many people as possible from learning such ideas.

Relativity seems to have become something like a *protective seal* over the potential of science releasing weapons of war on a scale only vaguely imagined midst the horrors of The Great War. It was perhaps the brainchild of people driven to paranoia by the notion that if widely understood, science could potentially make anyone into a powerful tyrant capable of destroying entire cities with a small device. Much of that paranoia still exists, even if passed down from generation to generation unthinkingly – without even perhaps realizing why it is being done.

It is certainly not so easy to produce atomic weapons as those ancient custodians of knowledge imagined. So I believe that this fear is no longer necessary at all. I do not believe it ever was necessary. But they could not have known that. And the real danger nowadays is that academia and the minds of people have been confused to the point where knowledge systems themselves are breaking down. The psychological dissonance caused by popular faulty logic has severely hampered knowledge growth in most disciplines. Once it is possible to persuade people that illogical ideas are supposedly true in the department of *high and mighty* Astrophysics; then such psychological destruction easily permeates through all pursuits of understanding. How this happens in detail deserves entire theses worth of study.

Most of the claims to the validity of Relativity amount to nothing more than faulty *arguments from authority*[Φ] with a decidedly unhealthy dose of peer-pressure and *group-think*.[Ψ] The mathematics can also look intimidating. But if its core philosophy is expressed properly then no idea should ever be difficult to comprehend; especially after reducing it to essential logical principles. (However some ideas may take considerable time and effort.) I could easily paste many pages of computer code all over the place if I wanted to intimidate the physicists and the mathematicians. *That* method would baffle almost everybody. But I am trying to make the issue broadly understood. I am not trying to confuse anybody.

This is why, the method of logical positivism is so vital. For logical positivism insists that the reader prove or disprove any theory for themselves. Science suggests that there is an

[Φ] A phrase from Philosophy worth researching

[Ψ] A concept in Psychology worth researching

expert in a white lab-coat who is going to look at you reproachfully and sternly and then emotively coerce you into pretending that you understand something that on thorough inspection – is illogical. There is no short-cut to thinking for your self.

Since the discovery of planets beyond Saturn using Newton's laws, Astrophysics has been hailed as the benchmark of the scientific method. Science was elevated as the primary source of knowledge because Philosophy had for the most part become *sophistry*. The very word *metaphysics* had its original meaning turned around from one of highest understanding into a euphemism for nonsense. What the scientists largely don't appreciate is that this word *metaphysics* entails a broader set than science. Because when you are deciding: what is and what is not science – then you are doing metaphysics; whether you like it or not – by definition.

Relativity itself is mostly sophistry with numbers. How widely has the institution of science been diluted by such sophistry? If the very cornerstone of what society regards as genius is so lacking in logic, then how contaminated is the rest of academia? There is an old African saying: A fish rots from the head downwards.

There is an implication for this analysis which has profound consequences for Psychology. *On a personal level, this is the most vital.* If a part of your mind is in a state of sub-conscious dissonance, then that part of your thinking capacity will be blocked off from your awareness. Because Relativity is illogical, and so many people do not realize this, they in affect have allowed some of their consciousness to be cut-off into a state of closed dissonance.

At the moment where they gave up on comprehending Relativity, a piece of their psychological being became deformed. In the professions directly associated with these theories, if a person was taught to bow down and accept Relativity through sheer belligerence, then that person has become belligerent. If this process was through meekness, then that type of thinking permeates their being. Outside of vocations directly associated with Relativity, people have absorbed a sense of logical inferiority because subconsciously they know that they could never understand it. Every time an image of Einstein presents itself to them in the media, this subconscious process is reinforced.

This is just how the mind works: Your sub-conscious mind cannot be untrue or illogical. If your conscious mind rejects truth and logic, then the subconscious takes a piece of your awareness away from you. In affect you begin the process of disorganized thinking which can multiply from mere neuroses into schizotypal traits, and in extreme cases into morbid psychopathic behavior. I am not suggesting that if you accept Relativity then you are totally insane. What I am saying is that insanity is a refusal to accept truth and logic. And that if you accept Relativity as being true, that you are at least *partly* neurotic.

What needs to be done is to require the stubborn Relativists to go back and revisit that point in time when they first claimed to 'understand Relativity'. They need to re-examine that state of mind which lead them into such pretense. Was it fear of others thinking them stupid? Was it some type of embarrassment that so many of my detractors have tried to cajole me with into accepting the illogical as if it were logical? These situations will certainly vary a lot. I have read many accounts of emotionally intense reactions to those who have tried to disagree with an idea whose purpose seems to be nothing more than a device to protect people from themselves. Or is it that humanity is just illogical, generally speaking?

I sometimes wonder if there is anybody else out there with extensive experience in computer programming, philosophy of science and the psychology of war – as well as having an all-consuming passion for Astrophysics and Cosmology…

"Psychology?" I hear the scoffers mutter. "Yes, Psychology", I answer: *The first and most important tool of anyone who tries to* ***think*** *about anything.*

So if you have read this far then well done, for this is a thoroughly mind-bending topic. The logic within the theory is perhaps easier to comprehend than the consequences for our confidence in society at large. It has been far simpler for me to deconstruct Relativity as a false paradigm, than it is to present these findings to a skeptical public. Subconscious dissonance is a very stubborn barrier to break through. I am not asking you to have faith in what I say. I am pointing out that you must have faith in logic. Physics is not a popularity contest.

The most difficult part of any intellectual endeavor is to be honest with yourself about what you truly comprehend. This is a very subtle art. But if you are angry then your subconscious mind is giving you a hint that you need to take a step back because you have missed something. The easiest way to assess this is to be honest with others.

Perhaps you are in doubt about my analysis of Relativity and are feeling a bit annoyed with this article? If so then perhaps just consider these core scenarios in isolation:

1A: Gravitons would not move beyond the event horizon if gravity is curved space.

1E: Source energy for graviton-photon lensing would violate the velocity of light.

2A: If time stops at the event horizon, then gravitons would also stop here.

2L: My nose is not a black-hole.

3B: It would be possible to see into the future if the rate of time itself could be changed.

These I consider irrefutable. ***2F*** and most of the other scenarios are also irrefutable but may prove a bit more difficult to appreciate by non-computer programmers.

But I really enjoyed ***2F*** the most because it shows how Relativity tries to place a limit on the velocity of all events in the universe, but it simply assumes that an object will emit gravitational waves with the instant foreknowledge of where they will end up. They are said to move in relation to a body that they must be formally connected to *instantly* in some way – and they thereby violate the limit on the velocity of light as regards that particular information. This is typical of how easy it is to not see the subtle logic required in any system until the rigors of the computer program force such logic out into the open. All computer programmers should appreciate this particular point.

Scenario ***2A*** on its own should bring the reader to realize that General Relativity is incompatible with Black-holes to the point of total contradiction. After all, if time has stopped at the event horizon then how can gravitons moving through time get past this obstacle? Much of the theorizing goes on longer than it may seem to need to do. But this is in order to try and salvage as much of Relativity and astrophysics as is possible – despite the clear computational contradictions.

My central aim is to have a working theory, not to disprove even the smallest subset of any theory unless I have no other logical option. At no point have I yet been forced to disclaim any empirical data – only the theoretical assumptions as to what the data actually means have been engaged. Indeed the biggest error most people make in such assessments is to confuse the empirical data with the theoretical evaluation of that data. *Section **3*** of this chapter (Relativity and Time) is a prime example of that.

But it should by now be clear that both General Relativity and Special Relativity have more contradictions than answers within them. In ethics, the concept of relativity is taken as a contradiction; in physics, it should be too. Einstein's Relativity theories are simply not objective. Newton would dismiss them with contempt, I am certain.

But it would be a mistake to abandon everything Einstein claimed. Likewise it would be a mistake to abandon the marvelous engineering that gave us the empirical claims to gravitational waves because those who claimed to discover them believed Einstein's false

ideas. *After all, an observation of a phenomenon is not the same as the reason for that phenomenon.*

Of course, neither can we take it *on faith* that those experiments are entirely valid either. After all, the scientists working with those intrepid engineers have failed to grasp the illogical implications of General Relativity. Engineering and science are often worlds apart from one another. Although few engineers will admit this openly because it is not seen as good publicity to acknowledge that trial-and-error is a far more useful method than using a textbook is. All such theories only came from relentless trial-and-error anyways.

But certainly, any experimental attempt to unravel the exact function of the force of gravity can only be encouraged, regardless of the theoretical background. It is a very difficult thing to even open up this line of enquiry, psychologically speaking. I would be horrified if any of this analysis is ever used to try and thwart such wonderful attempts at understanding gravity like the LIGO experiments for example.

When I set out to write this chapter a year ago, my central aim was to try and prove whether gravity fluctuations occurred at the velocity of light or instantaneously – purely from the basis of just computational logic. I have not as yet succeeded in doing so entirely.

Just because I have surely proven General Relativity's conception of gravitational waves to be almost totally wrong, does not mean that I cannot still conceptualize and compute gravity as a *good-old-fashioned-force* whose fluctuations ripple at the velocity of light. This seems entirely computable so long as I disregard most of Relativity, specifically the graviton.

The notion of gravity propagating at the velocity of light without the other Relativistic principles I shall blithely term ***'elastic chewing gum gravity'***. Consider gravity as a piece of elasticized gum. Two objects when held closely together by the gum are held strongly. As we pull them apart, the gum stretches and the intensity of the pull weakens. If one object moves its position then the consequences of this affect only reach the other object some time after that initial movement, because the fluctuations in the gum must move at velocity.

I have claimed that Sum Theory still upholds the notion from Relativity that the velocity of light cannot be exceeded. Yet I also strongly suspect that gravity might propagate instantly. This paradox will be resolved in Chapter 30 (Sum General Theory). For now, if we consider that gravity could propagate beyond the velocity of light, and that some aspects of waveforms might also do this (from the Einstein-Podolsky-Rosen experiments), we are likely to concede that the velocity of light can in some cases be exceeded. The exact conditions of how this occurs must still be defined. But before that is accomplished we must clearly determine what the velocity of gravity actually is.

Of course *elastic-chewing-gum-gravity* is a bit weird because its strands somehow never get entangled with each other – so the description of it being 'gum' is rather metaphorical. The point being that the gravity between two objects is itself an ontological object that stretches. But the total energy-value of the gravitational ontology is the same regardless of the distance between the objects it unites. The gravitational ontology is not the same as the force between the objects – instead it is the actual energy value of the structure that propagates that force. To appreciate this, consider a tug-of-war. The rope is not the same as the force pulling on the rope.

But I still have no reason to accept this idea is true. I can equally as easily compute Newtonian-Planck gravity (instant gravity with quantum time). So it appears I am no closer to knowing the velocity at which changes in gravity take affect. But! I do believe that I have laid solid foundations both ontological and epistemological from which to do this by decimating General Relativity almost completely.

But before taking the next step, I wish to return to the possibility of instantaneous gravity because of the astounding applications for it. A device could be constructed which altered the movements of large bodies like asteroids, using them as enormous instantaneous signaling devices. The sheer scale of such a device seems ridiculous by 21st century

standards. Imagine altering the orbits of the moons of Jupiter purely to send an encoded message to another star-system via instantaneous gravity!?

Consider just how subtle the receiving equipment would need to be to detect such movement? The gravity of a moon of Jupiter would surely have a tiny affect on an object several light-years away. Then consider how many such fluctuations would be required to send a message in something like Morse code! How much energy would this device consume? But a few centuries ago much of what goes on in the world today would have seemed just as unlikely. If instantaneous gravity is correct then the problem reduces to one on the scale of the engineering.

At this point it is hardly prudent to do such scary calculations such as what size object would be the smallest with which to send a signal, and how sensitive the measuring device could be. *Elastic-chewing-gum-gravity* still must be proven incorrect for this to be a meaningful effort. But it is not the construction of such a device centuries from now which motivates me.

Instead what compels me is the possibility that *such devices may already have been constructed* by aliens just a few millennia in advance of us. The receiving or detecting part of the apparatus seems at face value to be enormously easier to engineer than inter-planetary billiards.

SETI (Search for extra-terrestrial intelligence) has constructed large numbers of radio telescopes to try and detect radio signals from other worlds. The difficulty with this is that how do we know which frequency to search for them on? And how would we know the difference between an artificial signal and a natural one? Interferences are surely the worst problem. What if the rates of the bits of information within the signals are just too finely compacted for our detection devices? What if they are too far spread out?

The IGC (Instantaneous Gravity Communicator) has a much narrower and thus more observable scope of range, and would be far more useful to advanced extraterrestrial intelligence than electromagnetic communication. This could be why *they* are not using primitive electromagnetic communication methods at all: It is far too slow to be useful over celestial distances. It may be more worthwhile to simply send a spaceship than a signal. It may be more discrete as well.

A more down-to-Earth implication is that there is a large error in calculating how asteroids can come close to obliterating life on Earth. These errors compound with time and the eccentricity of the orbits. Satellite collision predictions are often out by margins as large as 10km on a daily scale. Getting gravity perfect has never been more important.

However, the holy grail of understanding how gravity works will always be the possibility of an anti-gravity propulsion system – or even a gravity-shield of zero gravity. And neither will ever be achieved without countless failed attempts. Although it must be said that ***intuitively*** speaking, instantaneous gravity would seem far harder to block or invert than *elastic-chewing-gum-gravity.*

But even if gravity does propagate at the velocity of light, I am still certain that most of the principles within the Theories of Relativity need to be done away with. But let us not be rid of them completely. There are still at least three principles within Einstein's Relativities that are worth keeping. I may never prove instantaneous gravity exists, have the ***IGC*** constructed, and find E.T. after all. Anti-gravity may be impossible on a useful scale. Yet, I may still find something better.

For I feel that this thesis at least should function as a litmus test for reason and academic understanding. Not only for the benefit of that most noble of epistemologies – that which is higher than science – that method which us philosophers call ***'logical positivism'***; but also as a warning to the horrendous methodological pitfalls which have sucked so many people into the intellectual black-hole of Relativity.

But I am getting ahead of myself. I still have to disprove *elastic chewing gum gravity* for these ideas to be viable. I have to confront the empirical claims that suggest gravitational waves do exist. So at this point I need to do something which is always a last resort in theoretical physics. I must further examine the actual empirical data. Specifically the LIGO experiment called ***GW150914***.

Contrary to popular belief there is often a vast gap between science and engineering. So I still believe that there is vital data in the LIGO experiments of Earth-moving significance – despite their acceptance of what is clearly an illogical paradigm. A computational analysis of experiment ***GW150914*** will form the core of the next chapter with the foundational theoretical framework being here established. After that I will put the pieces of Einstein's puzzle back together again and outline the principles of ***Sum General Theory*** – specifically the inner structure of how it is that white holes give off energy and mass. I suspect that at their core might be a process that I can only call *'unfusion'* whereby Helium is ripped apart into Hydrogen.

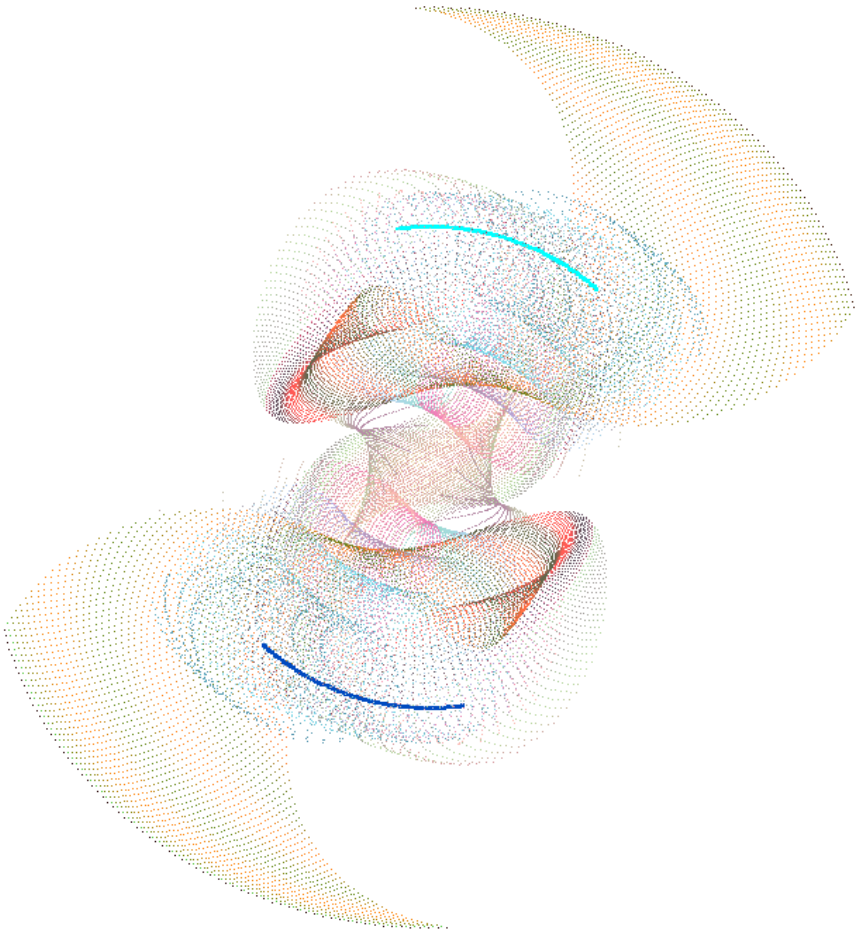
It is never enough to prove a theory wrong. We need a theory that is correct! But the most amazing thing about Cosmology and Astrophysics is that no theory is ever entirely correct. There shall always be missing pieces of information. There will never be a 'theory of everything'. This is what is so inspiring: That anybody will always be able to make a fundamental contribution to the topic.

Why did nobody ever realize that if time stops at the event horizon, then gravitational waves would not be able to depart the black-hole?

That question is surely not hard to ask? Even someone from junior school could have seen that. The problem is that most people don't realize that the most complex logic is just a series of many very simple steps. All it takes is perseverance… and faith in logic. The methodological perspective of logical positivism is an entirely different psychological state to that which merely memorizes sentences and numbers, regurgitates them, and then considers such to be 'understanding'.

When Einstein was confronted with theoretical quantum mechanics, he notoriously claimed that 'God does not play dice with the Universe'. While that is certainly debatable from many vantage points; if I could have the chance to say just one thing to Albert it would be this:

God is not schizophrenic.



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