the general science journal

Time dilation and Quantum Gravity inside a Black Hole

modelled with

True Relativity

Abstract

This paper represents a paradigm shift in the way of thinking about Time and Space and is based on the quantum theory of True Relativity to view Space-Time using simple geometry to measure both Space and Time dilation. The paper shows the extremes of True Relativity's quantum gravity and Time dilation inside Sagittarius A*, the black hole that is believed to reside at the centre of our galaxy, as viewed from different inertial frames.

www.theoryofspacetime.co.uk
t99stanton@aol.com

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1 Introduction

In General Relativity a black hole is so dense that nothing can escape from it, not even light. General Relativity breaks down under such extremes so it cannot describe what goes on inside a black hole.

It might help you understand True Relativity better if you read [1], [2] and [3] before continuing with this paper.

According to True Relativity[1] the black hole becomes an extreme sink for matter/mass and Space-Time fields, swallowing everything caught up in its quantum gravity field. It is an extreme low Space-Time pressure point in our Universe, but that's not all.

2 The quantum gravity of Sagittarius A*.

Below is a graph showing Newtonian gravity set against True Relativity's quantum gravity field for the black hole believed to be at the centre of our galaxy.

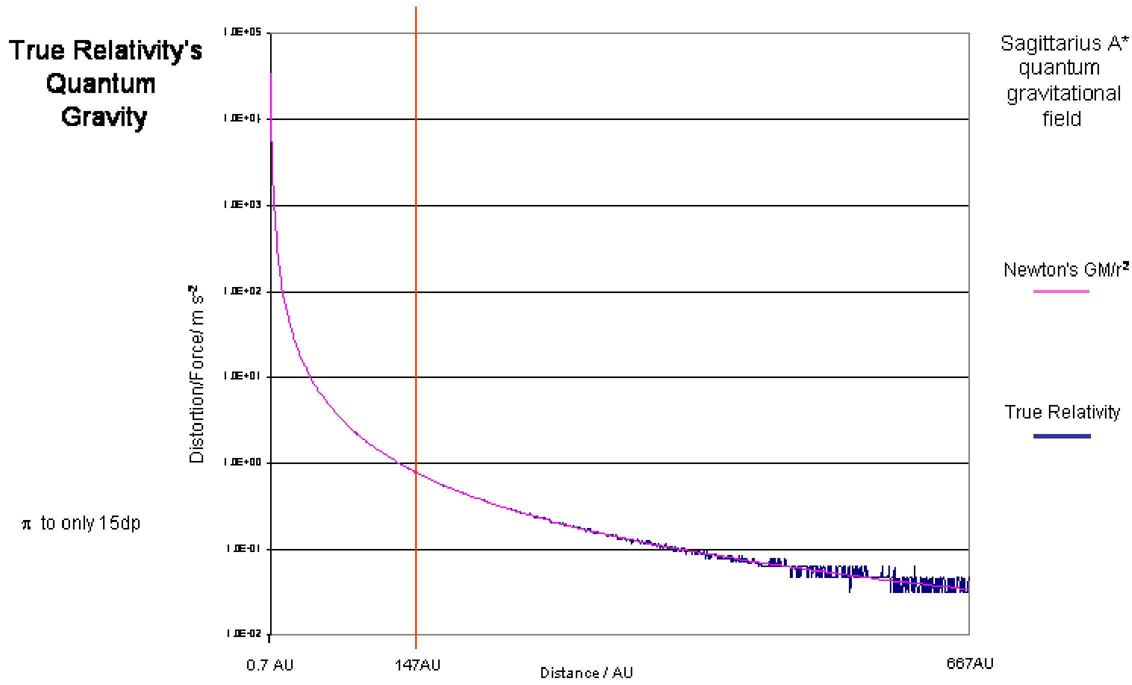

Figure 1
In the logarithmic graph above shows True Relativity is in line with Newtonian gravity for the majority of the black holes gravitational field however the quantum gravitational field begins to become distinct early because of my computers inability to run past 15 sf accurately. The red line marked 147AU shows the point where the programme reaches 15sf. This limitation is very frustrating and the quantum gravitational field of Sagittarius A* will remain incomplete until I have the facilities to run a proper model.

The reason for displaying this graph is to show you the quantum nature of True Relativity's gravity so you can visually see for yourself the quantum side of True Relativity.

The versatility of True Relativity and Universal clock© means that all measurements of Space and Time are interchangeable so when we measure any distortion of Space we are also measuring the distortion of Time.

Time dilation is covered in [2] but only in the comfortable range of gravity in and around the Earth but when you are dealing with the kind of quantum gravity generated by a black hole these forces become immense.

A copy of the math program used for the above graph and for this paper is available from the author and below is a snapshot from that programme.

$t = 3.7226756486312940^{10}$	Black hole	
Universal clock	$ST := \left(\frac{3 \cdot t \cdot \Phi}{4 \cdot \pi}\right)^{\frac{1}{3}}$	$ST = 1.0010115819429910^{12}$
Volume of Time distortion	$VdisBH := MassBH \cdot STC$	$VdisBH = 4.3360253910^{27}$
BH Time distortion	$TdisBH := \frac{1}{\Phi} \cdot VdisBH$	$TdisBH = 38.41856124$
Time flow for BH	$TBH := t - TdisBH$	$TBH = 3.72267564 10^{10}$
BH Radius of Space field	$RBH := \left(\frac{3 \cdot TBH \Phi}{4 \cdot \pi}\right)^{\frac{1}{3}}$	$RBH = 1.001011580^{12}$
Space distortion	$gBH := ST - RBH$	$gBH = 344.353$
Newton's distortion	$NgBH := \frac{G \cdot MassBH}{RBH^2}$	$NgBH = 344.353$

Example 1

The Time input is shown in the top left hand corner. The first equation 'ST' is the Universal clock© and gives us the radius of a quantum Space-Time field generated by a mass-less particle considered at rest. The second equation 'VdisBH' calculates the volume of the Space-Time distortion caused by the mass of the black hole using the Space-Time constant from [1] where STC = 8.3846×10^{-10} m^{-3} s^{-1} kg^{-2}. The third equation 'TdisBH' converts the volume of the distortion into quantum Time and is then subtracted from the Time input by 'TBH' which gives the Time flow for the Black Hole as viewed from the inertial frame of the Universal clock©. The radius of the quantum Space field for the black hole is given by 'RBH' and the amount of Space-Time distortion as measured by True Relativity is given by 'gBH' with the value for Newtonian gravity given by NgBH. You can see at this point that they remain in agreement.

3 The negative protrusion

From the Space-Time constant, which gives the volume of quantum Space-Time distortion, we can calculate the radius of the protrusion of the negative Space-Time field into our Universe. All objects made of matter/mass therefore energy have a protrusion of a negative Space-Time field at their centre of mass, from black holes, stars, planets and even you have a protrusion of a negative Space-Time field at your centre of mass. All the fundamental particles that make up this Universe have this protrusion and here is another big shock. It's not the elusive Higgs boson that carries mass.

True Relativity has taught me that it is the size of the negative protrusion into our quantum Space-Time that is responsible for mass, nothing else. This may be another hard one for any physicist to take on board but unfortunately the physics they have been taught is full of 'filler'. By this I mean the way physics is done means that when an unexpected result is turned up by an experiment, physicists have to come up with a 'filler' theory to explain the results but if the foundation of their physics is wrong then the majority of their 'filler' is also wrong, including the elusive Higgs boson.

I believe that all experimental evidence relating to the atomic structure should be reviewed using True Relativity but this can only be done by myself using the right facilities because of reluctance of physicists to let go of General Relativity and quantum mechanics. Until I get those facilities I will carry on studying the consequences of True Relativity with the tools I have available.

True Relativity works on the quantum scale as well as the cosmic scale. It encompasses both the macro and micro worlds. Although I cannot see the micro quantum Space-Time world very well with this computer it does allow me fleeting glimpses of what may be going on at the atomic level, but back to looking at the black hole at the centre of our galaxy. I am able to see right inside Sagittarius A* using True Relativity which is where General Relativity fails.

The volume of the protrusion of negative Space-Time for Sagittarius A* is

$$\text{VdisBH} = \text{MassBH} \times \text{STC} = 4.336 \times 10^{27}\ \text{m}^3\ \text{s}^{-1}$$

So the radius of the protrusion is

$$\text{RproBH} = 4/3\pi\ \text{VdisBH}^3 = 1.0116 \times 10^9\ \text{m}$$

4 The inside of Sagittarius A*

The best way to describe and model what happens to Space and Time when you enter a black hole is to send a probe inside. The probe uses a positive Space-Time distortion to propel itself against a negative Space-Time distortion (acceleration) of Sagittarius A*, as will be explained in a later paper. We can also track the length dilation of the probe which is 2 m long.

The mission is to monitor the force of the quantum gravity field of Sagittarius A* and to plot the Time dilation between a clock situated in a 30m Space station at the edge of the black holes quantum gravity field and the identical clock situated inside the probe.

First I am going to display the inside of Sagittarius A* so you can follow the probes journey into the black hole. There is a lot of information about the black hole contained in this illustration so take some Time to study it carefully and you should be able to follow the probes journey through the black hole and out into negative space.

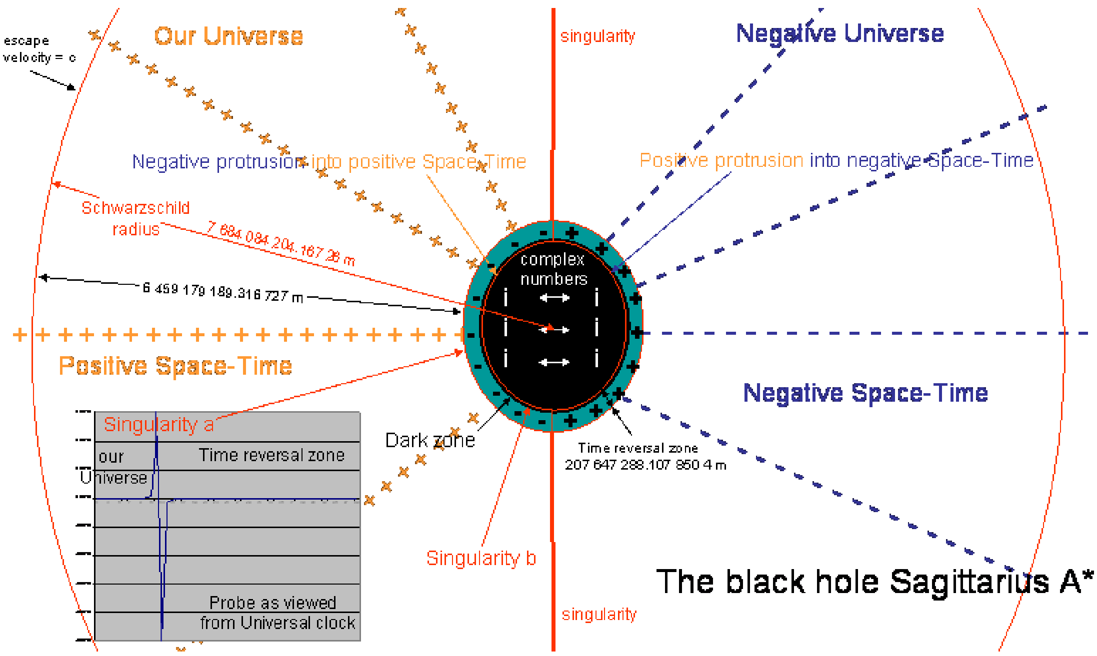

Figure 2

Now for yet another shock, the drawing above represents the inside of a black hole but it could also represent the inside of a proton, the model would be the same but the size is different. Physics has no real knowledge about the make up of fundamental particles but True Relativity's model works for a black hole as well as a fundamental particle. The size of the protrusion for Sagittarius A* is about 1.0119×10^9 m and the protrusion inside an electron is about $7.637\,8 \times 10^{-40}$ m, both measured from our inertial frame, but the physics used to describe both remain the same. There should not be one type of physics to describe the macro world, General Relativity, and another type of physics to describe the micro world as in Quantum Mechanics. Any true theory of this Universe should encompass both and that is exactly what True Relativity does and it only uses geometry to measure all the properties of Space and Time.

Figure 2 above is built from the mathematics of True Relativity. The curved red line surrounding the illustration is the Schwartzschild radius and is the point where the escape velocity is equal to the speed of light in a vacuum. It is also the point where General Relativity breaks down so no physicist has yet seen inside a black hole, until now. On the left side of the illustration is our Universe and on the right is our counterpart negative universe. The physics community has long wondered what happened to all the anti-particles at the point of the big bang [4], well read on and you may find out.

The green section is the Time reversal zone and if you look closely you will see it is surrounded by a singularity shown in red, the first of a possible two, yes that's right, True Relativity shows me there may be two singularities at the centre of a black hole. This model works for all although no singularity exists at the centre of mass of small objects but in general it's only the size and charge that is different.

The distance from the Schwartzschild radius, as measured from free Space, with the Universal clock©, to the first singularity is about 6 459 179 189.316 727 m. This is as accurate as my computer can make it, so the first singularity, using True Relativity and a simple personal computer, can be measured to about 1×10^{-6} m with the Universal clock©. The second singularity which I believe is just inside the dark zone, is a little difficult to model but I'm still able to see what Time and Space may be doing at this point.

The Time reversal zone in Figure 2 is where Time, for any object passing through the black hole, will run backwards. This zone has a diameter of about 207 647 288.107 850 m measured with the Universal clock© in free Space. Across the other side of the Time reversal zone we meet the edge of the dark zone, where, after what I believe is the second singularity, the programme begins to generate complex numbers and this is where I'm not quite sure what is going on but the math shows a hint of a second singularity and it may be the point at which an object passing through the black hole, if it survives the extreme forces, emerges into the negative universe.

We can now take a look at the quantum gravitational field in and around the black hole within the limitations of my computer.

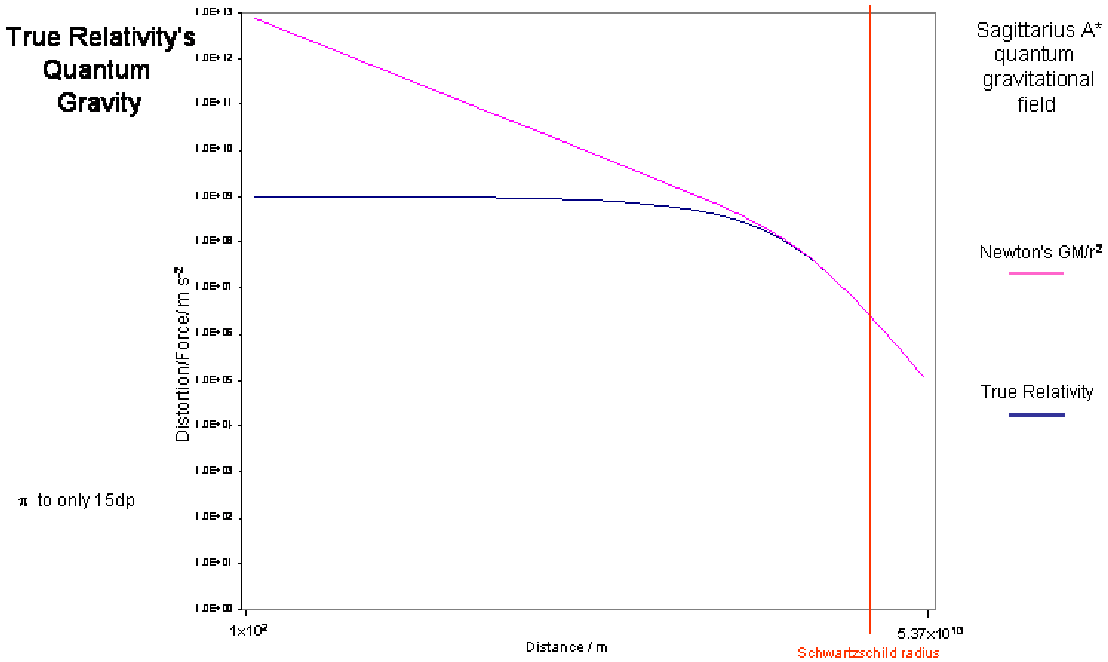

Figure 3

In this logarithmic graph, the left hand side represents the edge of the dark zone (the area my computer cannot see) and as we move to the right we are moving away from the centre of the black hole. In the graph we can see Newtonian gravity set against True Relativity's quantum gravity. Notice how Newtonian gravity splits from quantum gravity inside the black hole and eventually becomes infinite but quantum gravity never gets stronger than the protrusion of negative Space-Time.

Due to the limitations of my computer I cannot show the surrounding point at which Sagittarius A* is generating negative Space-Time but the graph is still interesting. The bottom scale is logarithmic and takes us out past the Schwartzschild radius. A Universal clock© in free Space has to beat for just over 38.4 seconds before the black hole begins to generate a positive quantum Space-Time field. Before this it generates a negative Space-Time field and we are dealing with complex numbers. The graph starts just 100m from the dark zone. You can see the Space-Time distortion is stable for a long period until just before it starts to agree with Newtonian gravity. The distortion eventually declines enough for light to be able to escape the quantum gravitational field of the black hole at the Schwartzchild radius. From there on the rate of True Relativity's quantum Space distortion matches that of Newtonian gravity until quantum gravity eventually becomes distinct.

It is the dark zone and the part where quantum gravity become distinct that is of real interest but without the right facilities I'm unable to peer close enough with my computer.

5 Time and Space distortions inside Sagittarius A*

Now I will send a probe into the black hole and monitor the Time and length dilation between its clock and the identical clock aboard the Space station. The probe maintains a constant velocity at all times using a positive Space-Time distortion against the quantum gravity field of the black hole. I will ignore the area where the quantum gravity field becomes distinct because it's really out of my computers range, but the probe will experience a bumpy ride when it flies through this part of the black holes quantum gravity field.

We will take our first reading at 147 AU (Astronomical Unit i.e. the distance from the Earth to the Sun), from the centre of Sagittarius A* where the Space-Time distortion, gravity or acceleration if you like, is gBH = 0.7109 m s^{-2}. At this point the clock aboard the probe only beats once every TdP = 1.000 000 007 114 297 s according to the universal clock aboard the Space station, and the Space station clock will appear to beat once every TdSS = 1/TdP = 0.999 999 992 885 703 s according to its clock aboard the probe. The Time dilation between the Space Station and the probe continues at a relatively slow pace as it approaches the black hole.

The math used for the Time dilation from Universal Time i.e. 1Us (Universal second©) is shown below in Example 2 below and is used in conjunction with Example 1.

At 10 AU from the centre of the black hole, according to the Universal clock© aboard the Space station, the probes clock will beat once every TdP = 1.000 001 534 617 915 s. From the inertial frame of the probe, the Space station clock will beat once every TdSS = 1/TdP = 0.999 998 465 384 44 s but this journey is even weirder than you think.

It's not only Time that's dilating. If the probe could be observed in a way that allows for measurements of its size, then for every one metre of the probes length the actual length measured will be 1.000 001 534 617 915 m. In other words the size of the probe will appear to increase. Remember, it is not only Time that's dilating, Space is also dilating because they are the same entity. When the probe measures the Space station it would appear to shrink in size so the Space station will appear to have shrunken to SSsize = 30xTdSS = 29.999 953 961 533 19 m.

In True Relativity Time and Space are completely interchangeable providing you know how to use the Universal clock©.

6 The Schwartzchild radius

At a distance of 1 AU from the centre of Sagittarius A* the quantum gravity field has a distortion of 1.533 6×10^{4} m s^{-2} and the probe would have grown in size where for every 1 m of the probes length, that 1 m becomes 1.000 153 477 410 105 m so at this stage the probe appears to be 2.000 306 954 820 21 m in length but the Space station as viewed from the probe would have shrunk to SSsize = 30xTdP = 29.995 396 384 247 88 m.

The next measurement of the Space-Time dilation is taken at the Schwartzschild radius where General Relativity ends. From here on the probes size cannot be directly observed once we pass into the black hole because the escape velocity exceeds 'c', but if we were able to see the probe at the Schwartzschild radius, one beat of the probes clock will take 1.060 976 855 271 36 s and its length would have increased to 2.121 953 710 542 721 m.

After studying what happens to Time and Space inside the black hole I think it's just as well that all we can see is a black hole, because the distortion of Space inside would look very weird.

When the probe looks back at the Space station as it reaches the Schwartzchild radius, it will observe the Space stations clock beating once every TdSS = 1/TdP = 0.942 527 629 167 024 s and it would appear to be only 28.275 828 875 010 72 m in length.

Space station in free Space as viewed by Probe

Force of Space distortion experienced by probe	$gBH = 2.3892 \cdot 10^{8}$	
Space stations Universal clock's Radius of quantum Space field	$SSUClock := c - gBH$	$SSUClock = 6.0871661314 \cdot 10^{7}$
Universal clock's Volume of quantum Time field	$VUClock := \frac{4}{3} \cdot \pi \cdot SSUClock^{3}$	$VUClock = 9.4478735801 \cdot 10^{23}$
Universal clock's Time as observed from Probe's inertial frame of reference	$SSClock := \frac{1}{\Phi} \cdot VUClock$	$SSClock = 8.3711 \cdot 10^{-3}$
Length of Space Station as viewed from probe	$SSLength := 30 \cdot SSClock$	$SSLength = 0.2511$

Probe as viewed from Space Station

Universal clock's Time as observed from Probe's inertial frame of reference	$ProbeClock := \frac{1}{SSClock}$	$ProbeClock = 119.4584$
Length of Space Station as viewed from probe	$ProbeLength := 2 \cdot ProbeClock$	$ProbeLength = 238.9168$

Example 2
In this example the force of acceleration reaches 2.389 2 x 10^8 m s^{-2} as shown in the first equation ‘gBH’. The next equation SSUClock gives the radius of the quantum Space field generated by a the clock in the gravity field of the Black Hole. The volume of the clocks field is calculated by ‘VUClock’ and converted to Time using the Time quant 1/Φ. The length of the Space station as viewed from the inertial frame of the probe is given by ‘SSLength’. The value for the probes Time and length dilation as viewed from the inertial frame of the probe in given in the last two equations.

Once inside the black hole things get really interesting. As the probe moves on inside the black hole it travels towards the first singularity. This void from the Schwartzchild radius to the first singularity is a distance of about d ≈ 6.46 x 10^9 m as measured by a Universal clock© in our inertial frame. I am not worried how long the journey takes, it's only the force and Time dilation from 1 Us (Universal second©) at each point is of interest. The singularity is the point where the quantum gravity reaches a distortion of ‘c’.

7 The first singularity

A measurement is taken when the probe is 1x10^8 m from the singularity and now things are really moving. The Space station will see the probes clock beat only once every 119.458 386 531 377 2 s and its length has increased from 2 m to 238.916 773 062 754 4 m. The probe from its inertial frame will see the Space station clock beat once every 0.008 371 115 909 365 9 s and the Space station will appear to be only 0.251 133 477 280 979 m or just over 25 cm in length.

I was going to display only the last hundred metres before we reach the singularity but that kind of jump in the Time and Space dilation will be hard to imagine so here are some readings for the intermediate parts of the journey, displayed in the Table 1 below.

The distance is taken from the singularity surrounding the Time reversal zone, not the Schwartzchild radius and is shown in the first column. The second and third column give the Time and length dilation for the probe as viewed from the inertial frame of the Space station. The forth and fifth column show the Time and length dilation of the Space station as viewed from the inertial frame of the probe. In the last column is the gravitational force experienced by the probe.

D	TD Probe (s)	L Probe (m)	TD Space S (s)	L Space S (m)	gBH m s^{-2}
$1x10^8$m	119.4584	238.9168	$8.3711x10^{-3}$	0.2511	$2.3892x10^8$
$1x10^7$m	$6.6553x10^4$	$1.3311x10^5$	$1.5026x10^{-5}$	$4.5077x10^{-4}$	$2.9239x10^8$
$1x10^6$m	$6.223x10^7$	$1.2446x10^8$	$1.607x10^{-8}$	$4.8209x10^{-7}$	$2.9904x10^8$
$1x10^5$m	$6.1806x10^{10}$	$1.2361x10^{11}$	$1.618x10^{-11}$	$4.8539x10^{-10}$	$2.9972x10^8$
$1x10^4$m	$6.1764x10^{13}$	$1.2353x10^{14}$	$1.6191x10^{-14}$	$4.4572x10^{-13}$	$2.9978x10^8$
$1x10^3$m	$6.176x10^{16}$	$1.2352x10^{17}$	$1.6192x10^{-17}$	$4.8575x10^{-16}$	c – 758.436
$1x10^2$m	$6.1759x10^{19}$	$1.2352x10^{20}$	$1.6192x10^{-20}$	$4.8576x10^{-19}$	c – 75.8438

Table1

Let me make some comparisons to Table 1 to show the extent of the Time and Space dilations that the probe is experiencing.

At a distance of $1x10^8$ m from the singularity the Space station will have to wait nearly 2 minutes for the clock aboard the probe to beat and the probe has grown in size from 2 m to nearly the length of $2^1/_2$ Olympic swimming pools. By $1x10^7$ m from the singularity the Space station will have to wait nearly 18.5 hours before it sees another beat of the probes clock and the 2 m probe would appear to be over 100,000 m in length. The probe on the other hand would see the clock of the Space station beat once every $1.5x10^{-5}$ s and the size of the Space station would appear to be that of the circuitry on a silicon chip.

When the probe is $1x10^5$ m from the singularity the Space station would have to wait nearly 2,000 years for a beat of the probes clock and the probes size has increased from 2 m to that of almost the distance between the Earth and the Sun.

You may begin to ask yourself, how can something expand to a size greater then the object that contains it?

The answer is; it is an extreme effect of the consistency of the speed of light in a vacuum, no more than that. Einstein realised this when he tackled the complicated subject of relativity. What you observe in one inertial frame will not be the same if it is observed from a different inertial frame because for any inertial frame that is under the influence of gravity, Time and Space will distort. The consistency of the speed of light in a vacuum never changes so all other properties of Space and Time must change if any force acts upon it.

It might help to try a little mind experiment. Try to imagine a cone that has a diameter of 1m and a length of 10m. You are standing by the side of the cone looking into it and you can see the point of the cone in the middle of the image in front of you some distance away. You also have a tube that is 5m long and $^1/_2$ m diameter situated just above the cone lengthways on, so that you view the 5m length of the tube against the 1 m opening of the cone. The diameter of the cone only takes up 1 m of the image in front of you but you can still fit the 5m long tube into the cone by changing its orientation and pushing it into the cone. This is a two dimensional view of what I mean but it might help you understand how appearances can be deceiving. All we observe is a black hole in Space but inside this black hole is infinity, stretching away just like peering into a massive cone who's length is infinite but its diameter is finite. Even so True Relativity can still measure the distortions either side of this infinity.

We now jump forward in the probes journey towards the first singularity, in fact from the observer's inertial frame it is infinity, but from the probes inertial frame it's a singularity. What you see and observe will depend on what inertial frame you are viewing it from. The Universal clock© makes it possible to view all Time and Space distortions from any inertial frame providing it knows the Space-Time distortion within that inertial frame.

Rather than commentating on the probes journey from the Schwartzschild radius to the first singularity I will display a table with the programme readings for the last 100m. Look carefully at the table and try to fix in your mind what Time and Space are actually doing. By this part of the probes journey the distortions are immense and difficult to imagine. It's just as well we are protected from seeing inside a black hole by the consistency of the speed of light in a vacuum and the Schwartzschild radius.

The table below, Table 2, shows the Time and length dilation as viewed from both inertial frames for the last 100m as the probe approaches the first singularity.

In this case the first column is the distance from the singularity and in the last column I have displayed how close the gravity or distortion is to ‘c’.

D	TD Probe (s)	L Probe (m)	TD Space S (s)	L of Space S (m)	gBH m s^{-2}
100m	6.1759×10^{19}	1.2352×10^{20}	1.6192×10^{-20}	4.8576×10^{-19}	c – 75.8438
90m	8.4718×10^{19}	1.6944×10^{20}	1.1804×10^{-20}	3.5412×10^{-19}	c – 68.2594
80m	1.2062×10^{20}	2.4125×10^{20}	8.2903×10^{-21}	2.4871×10^{-19}	c – 60.675
70m	1.8006×10^{20}	3.6011×10^{20}	5.5538×10^{-21}	1.6661×10^{-19}	c – 53.0906
60m	2.8592×10^{20}	5.7185×10^{20}	3.4975×10^{-21}	1.0492×10^{-19}	c – 45.5063
50m	4.9405×10^{20}	9.8815×10^{20}	2.024×10^{-21}	6.072×10^{-20}	c – 37.9219
40m	9.6499×10^{20}	1.93×10^{21}	1.0363×10^{-21}	3.1088×10^{-20}	c – 30.3375
30m	2.2874×10^{21}	4.5748×10^{21}	4.3718×10^{-22}	1.3115×10^{-20}	c - 22.7531
20m	7.7199×10^{21}	1.544×10^{22}	1.2954×10^{-22}	3.8861×10^{-21}	c – 15.1688
10m	6.1759×10^{22}	1.2352×10^{23}	1.6192×10^{-23}	4.8576×10^{-22}	c – 7.5844
1m	6.175×10^{25}	1.2352×10^{26}	1.6191×10^{-25}	4.8576×10^{-25}	c – 0.7584
0.9m	8.4718×10^{25}	1.6944×10^{26}	1.1804×10^{-26}	3.5412×10^{-25}	c – 0.6826
0.8m	1.2062×10^{26}	2.4125×10^{26}	8.2902×10^{-27}	2.4871×10^{-25}	c – 0.6068
0.7m	1.8006×10^{26}	3.6011×10^{26}	5.5538×10^{-27}	1.6661×10^{-25}	c – 0.5309
0.6m	2.8592×10^{26}	5.7185×10^{26}	3.4974×10^{-27}	1.0492×10^{-25}	c – 0.4551
0.5m	4.9408×10^{26}	9.8815×10^{26}	2.024×10^{-27}	6.0719×10^{-26}	c – 0.3792
0.4m	9.6499×10^{26}	1.93×10^{27}	1.0363×10^{-27}	3.1088×10^{-26}	c – 0.3034
0.3m	2.2874×10^{27}	4.5748×10^{27}	4.3718×10^{-28}	1.3115×10^{-26}	c – 0.2275
0.2m	7.72×10^{27}	1.544×10^{28}	1.2953×10^{-28}	3.886×10^{-27}	c – 0.1517
0.1m	6.176×10^{28}	1.235×10^{29}	1.6192×10^{-29}	4.8574×10^{-28}	c – 0.0758
1×10^{-6}m	1.5905×10^{46}	3.181×10^{46}	6.2874×10^{-47}	1.8862×10^{-45}	c – 1.9×10^{-7}
0	∞	∞	Singularity	Singularity	c

Table 2

Once we reach the singularity if we look at the probe from the inertial frame of the Space station it would seem to be infinite in length and its clock would appear to have stopped. If we look at the Space station from the inertial frame of the probe, the Space station and its clock would have completely disappeared into a singularity.

You might think that True Relativity ends there but you would be wrong.

Just 1×10^{-6} m the other side of the singularity we can see the probe immerging from a negative infinity and it will be generating a negative Space-Time field where Time runs backwards. In other words instead of the energy inside matter generating a quantum Space-Time field as it does in our Universe, the field runs in reverse and moves towards and is swallowed by the probes centre of mass.

In my opinion the symmetry of True Relativity is breathtaking.

The next table below displays what happens to the clock as the probe moves away from the first singularity to the second one some 207 607 288.107 850 m away.

D	TD Probe (s)	L Probe (m)	TD Space S (s)	L Space S (m)	gBH m s^{-2}
1×10^{-6}m	-1.195×10^{43}	-2.3899×10^{43}	-8.3685×10^{-44}	-2.5105×10^{-42}	c + 1.3×10^{-6}
1m	-6.1759×10^{25}	-1.2352×10^{26}	-1.6192×10^{-26}	-4.8576×10^{-25}	c + 0.7584
10m	-6.1759×10^{22}	-1.2352×10^{23}	-1.6192×10^{-23}	4.8576×10^{-22}	c + 7.5844
100m	-6.1759×10^{19}	-1.2352×10^{20}	-1.6192×10^{-20}	-4.8576×10^{-19}	c + 75.844
1×10^{4}m	-6.1759×10^{13}	-1.2352×10^{14}	-1.6193×10^{-14}	-4.8576×10^{-13}	c + 7.6×10^{3}
1×10^{6}m	-6.1291×10^{7}	-1.2258×10^{8}	-1.6316×10^{-7}	-4.8947×10^{-7}	c + 7.6×10^{5}
1×10^{8}m	-24.2631	-48.5265	-0.0412	-1.2364	c + 1×10^{8}

Table 3

Remember, in the Time reversal zone the three dimensions of Space are not emanating from the energy in the form of matter that makes up the probe as it would be on our side of the singularity. Here all the dimensions that were ever emitted by the probe flow in reverse so Time itself runs in reverse.

The probe will see the Space station emerge from a negative singularity and the clock aboard the Space Station will also be running in reverse until it takes an infinite amount of negative Time for the clock to beat.

8 The second singularity

At what may well be the second singularity we unfortunately meet the dark zone or the area my computer cannot see, so I have to extrapolate as to what may be happening at this point.

What I believe may happen when we reach a second singularity that separates the Time reversal zone from the negative Universe, is the Space station will see the probe disappear into a singularity and the probe will see the Space station Time and length become infinite. Again we can jump the singularity but the programme generates only complex numbers but I will not sure until I run the model on the right computer.

D	TD Probe (s)	L Probe (m)	TD Space S (s)	L Space S (m)	gBH m s^{-2}
100m	-0.0797	-0.1538	-13.0073	-390.2179	$1.0048x10^9$
50m	-0.0764	-0.1529	-13.0844	-392.5331	$1.0062x10^9$
10m	-0.0757	-0.1514	-13.2083	-396.2505	$1.0084x10^9$
5m	-0.0755	-0.151	-13.2445	-397.335	$1.0091x\ 10^9$
1m	-0.0752	-0.1503	-13.3024	-399.0716	$1.01x10^9$
$1x10^{-5}$m	-0.0747	-0.1494	-13.3825	-401.4743	$1.012x10^9$
0m	Singularity	Singularity	∞	∞	Protrusion
$-1x10^2$	i	i	i	i	i

Table 4

What do we actually see happening to the probe as it passes from our Universe into our counterpart universe?

At first from the inertial frame of the Space station, Time for the probe begins to slow and Space begins to expand so much that eventually both become infinite but the probe returns via a negative infinity. Here Time begins to unwind until it reaches what I think is the second singularity. What this means is all the volume of Time field generated by the energy that makes up the probe is returned and the Universe remains in equilibrium.

What happens when the probe passes the second singularity is open to conjecture at least until the negative universe is studied with the right facilities.

9 Conclusion

For any object to travel through a black hole all the dimensions of Space emitted, since the big bang, by the energy that makes up the object must be returned before it can enter our counterpart universe both universes must remain in balance.

True Relativity recognises that Time and Space are the same entity so the measurements of Space and Time are completely interchangeable using the Universal clock©.

The Space-Time constant used in True Relativity allows us to calculate the gravity field of each object by its mass but it also tells us the size of the 'distortion hole' between positive and negative space as measured from our inertial frame.

Inside the dark zone is where the real investigation of what happens to Time and Space needs to be carried out but looking at the forces involved and what appears to happen to Space and Time, it may well be possible to pass through a black hole and appear in negative Space on the other side, providing the vehicle is capable of withstanding the distortions of Space inside the black hole. If True Relativity is right then a material that can counteract the force of gravity by generating a positive quantum Space-Time field is not beyond the bounds of possibility. Any vehicle must also be shielded from anti-particles that would be present in negative Space on the other side.

It may seem, from the inertial frame of the probe that when you pass through a black hole it might appear to happen instantaneously, unfortunately without probing the dark zone it's not possible to say what lurks in the centre.

If a black hole is really a blown up version of a proton then it should be possible, with the right computer and programme, to model the fundamental particles that make up this Universe.

The symmetry between positive and negative Space-Time is the most striking point about black holes and must arouse curiosity, even in the most sceptical physicist.

This paper sets out to show that the math of True Relativity does not break down, even inside a black hole but this scenario should be modelled on a super computer to truly find out what happens to Time and Space when an object passes completely through a black hole and into the negative Space-Time on the other side.

The fact that Space and Time can be modelled inside a black hole gives a very strong indication that True Relativity has merit and must eventually be taken seriously by the physics community.

10 References

[1] T. Stanton *True Relativity, Quantum gravity and the Universal clock.*. (available at http://www.wbabin.net)

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