

Gravitational Conundrums of General Relativity

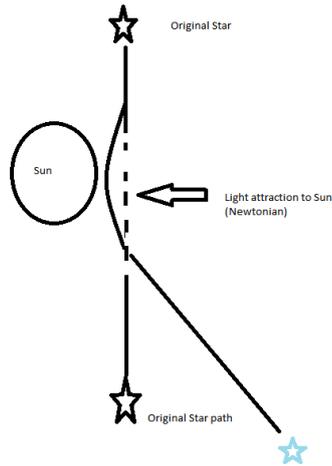
Newton's *force* and Einstein's falling

Introduction

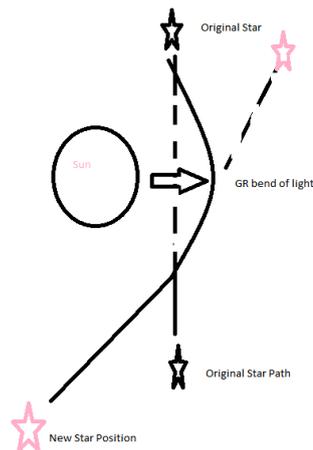
If we associate gravity with the General Theory of Relativity (GR) then gravity is the act of falling along a curvature of *space time*. There is no *force* attraction. No body of mass that emits a gravitational field. Curved *space time* is the causation for all falling. The object falling has been shifted from its straight line of momentum by the curvature of space time. The object is forced to follow this curvature. GR states that every object curves space time by relativistic amounts, including objects on the surface of planets and moons.

If we associate gravity with Newtonian *force*, then attraction becomes the means of pulling objects towards a larger Mass. Mass has a gravitational force. The larger the mass the stronger it's gravity. The origin of the force is not explainable in Newtonian physics.

When discussing gravity, both theories assume a quasi position of fact. Newton's *force* is used to explain the attraction of the Earth's oceans by the moon's gravitational force. Even Einstein, when explaining the curvature of light passing a star, used Newtonian physics by saying that, 'some of the effect of deviation would be caused by Newton's force'. [Einstein-1] From this we conclude, that, in general, rays of light are propagated curvilinearly in gravitational fields ... A curvature of rays of light can only take place when the velocity of propagation of light varies with position. Now we might think that as a consequence of this, the special theory of relativity and with it the whole theory of relativity would be laid in the dust... As a result of this theory, we should expect that a ray of light which is passing close to a heavenly body would be deviated towards the latter. For a ray of light which passes the sun at a distance of Δ sun-radii from its centre, the angle of deflection (α) should amount to 1.7 seconds of arc $\Delta \alpha =$. It may be added that, according to the theory, half of this deflection is produced by the Newtonian field of attraction of the sun, and the other half by the geometrical modification ("curvature") of space caused by the sun [Einstein-1].



The image above shows the light path from a star that is beyond the Sun. We see that star on Earth at the same position that it is relative to the Sun. According to Einstein, the light can be pulled, curvilinearly toward the Sun by Newton's gravitational force. That means we should see the star in a different position to its actual astronomical position.



This image shows the same original star as in the above image. However here we can see the light path is bent curvilinearly in the opposite direction to Newton's gravitational force. Relative to the Sun, the light is bent in a concave manner by the distortion of space time, whereas in the Newton example the light is bent in a convex manner. Again we would see the star in a different position in the sky to the actual astronomical position.

Here Einstein is having an 'each way' bet. A 50-50 percent chance of being right. Not a scientific methodology. Science is not equipped for fence sitters, science is a 100 percent belief in a logical, predictive description of some part of, or action of, the universe that can be challenged and tested. Either Einstein believed in his own hypothesis, or he was not fully convinced by it. By stating that Newton's *force* is partly responsible for his belief in light bending as it passes close to a star, suggest that Einstein was caught between two worlds. Even if he believed that his understanding of the curvilinear effect was slightly effected by Newton's force, then he is not convinced in his own dogma. For Einstein (and the greater body of physicists since) gravity appears to be in two different states at the same time. For example, cosmologist will state that some planets in our solar system cause some of the orbital

perturbations of others. Yet this clearly means the planets have a force emanating from them! That suggest falling is not the answer for gravity. How could a planet that is falling have any possible effect on another planet that is falling when the planets have no gravity force themselves. However, these same people will then go on to say how GR shows what gravity is: i.e., falling. It is little wonder that there is confusion in this area.

The existence of gravitational forces exerted from planet to planet and planets to smaller bodies cannot be in question. [Newton] By reason of the deviation of the Sun from the center of gravity, the centripetal force does not always tend to that immobile center, and hence the planets neither move exactly in ellipses nor revolve twice in the same orbit. Each time a planet revolves it traces a fresh orbit, as in the motion of the Moon, and each orbit depends on the combined motions of all the planets, not to mention the action of all these on each other [Newton 1684]¹. Clearly Newton understood the mechanics of planetary orbits. Yet over the last century science has been splashing about in a mixed medium of gravitational conundrums.

Since Einstein introduced his warped space time, falling has been the call for gravity. Space time therefore has to be determined in order to allow for a final call on this topic. Science cannot go on living within two worlds. The worlds of falling and force: one must prevail.

What exactly is *space-time (ST)*?

Firstly lets talk about time. Time is a non existent ruler of our lives. Time is a god, not a science. The clock has enabled a measurable existence that can be micromanaged by societal requirements. Time cannot be seen, felt or captured. Time can be used for socialization, predictions and planning, and as a way to understand the relationships between the past, the now and the possible future. However, this understanding is mythologicalised by past experiences and the progressions of societal beliefs passed on as cultural truths.

Yes the planets orbit the Sun with precision and predictability, and yes the Earth rotates with the same qualities, giving us a means of separation for daily events. However, the clock used for these separations, was formulated from the mechanical motions caused by the forces of gravity within our Solar System. Time as a conceivable quantity, **plays no part**.

We as the human animal equalize our lives by observing, not the stars, planets and moons, but the adherence to a formula founded on the principle of self and societal management. Our animal cousins do not see the world divided into hours minutes and seconds. As an example, I have made observations that show the common garden variety Hen (Chicken) has no firm reasoning as to time. When Hens are released from a chicken pen in the early morning of a new day, they happily wonder about doing what chickens do. If I call them back to their pen they will roost on their favorite perch. It doesn't matter what time of day I call them back, they still roost. It seems that time to a chicken is conditionally linked to past actions.

The Hens don't comprehend that I am calling them back to their pen at midday or at the end of the afternoon when darkness is approaching. Either time they roost. In nature they would roost towards the end of the day not at midday. Generally during the day light hours if a Hen has finished feeding

¹ More on this later with Free Space Gravity

and wondering, she will dig a depression to sit in². She will not flutter up to a perch. The perch is for night safety. A way of evading nocturnal predators. A conditioning passed on to new generations by copycat actions.

So each time I return them to their pen they believe that it is time to roost. That is not to say that they understand time but more so they equate actions with events. Only the human animal has disregarded actions with events and derived a system called time. However, time does not exist.

[Dowden] In 1905, the French physicist Henri Poincaré argued that time is not a feature of reality to be discovered, but rather is something we've invented for our convenience [Dowden]. Time drives our lives. Remove humanity from the mix and time ceases to exist. In its place there is only entropy.

Entropy does not need to be measured. Entropy is the decaying state of being for life, gases and metals. Overall it cannot be subjected to units of predictable measurement.³ Entropy happens at a non fixed rate with only one end prediction: a loss of all energy.

Mechanical clocks do not control the passage of time, as it appears Einstein was postulating. Mechanical Time is a measured graduation of events from the NOW to the NOW.⁴ The mechanics of time exists, however, the entity of **time is a metaphysical element of the human condition.**

Therefore, how can time be associate with space as an element of space? It cannot.

Secondly, space is considered to be a 3 dimensional zone in the existence of our universe. Space is everywhere. We not only live within space we are built from space. Most of our body structure is empty space. The space between the nucleolus of an atom and it's electrons is greater than the volume sum of both. Generally we see our 3 dimensions as forward-back, side to side and up and down. Three movements that have a positive and negative action. An action and a reaction. However, can we see space? Can we feel our 3 dimensional world?

Of course the answers are no and no. We cannot see space we can only see objects within space, such as ourselves, trees, the Moon, the Sun and the other stars. We can detect microscopic mass, but why can't we see space? The answer is simple. **The space between any two objects is always empty!** And empty is nothing. To see something, it has to have either mass such as a rock, a gaseous cloud or the light that hits our eyes from a distant star. Space does not have mass. Space is analogous (in a rather unique way) to the Buddhist condition of nothingness. Nothingness of the human mind (a mind without 'Self') reflects the nothingness of empty space (a space without tangibility). This being the case, how can science derive a structure built by two non existent elements, space and time? Not only a structure that isn't visible or discernably tangible, but supposedly has the power to stop a planet from moving in a straight line and direct that planet to orbit a star.

2 And this is what they did when I left them out of the pen beyond midday.

3 Disregarding such things as isotopes there is too much uncertainty in the decay of matter to place entropy on a predictable measurable graduating scale.

4 There can be no past or future, there is only the Now. See page.....

The Devils Advocate

Space time, construed to be a bonding of the third and fourth dimensions, has encapsulated physics for 100 years. [Gomez]...general relativity gives a mathematical definition but it lacks... a physical definition. The science philosophy via sophisticated substantivalism (sic)... reduces space-time to the material phenomena, i.e., space-time is matter, and via relationalism (sic) reduces space-time to nothing. Metaphysics from super substantivalism (sic) becomes all space-time and evaporates the material reality, i.e., matter becomes nothing. Therefore, is a scientific imperative that physics responds: What is space-time? This means that it must break with the current physical paradigm on gravity. The alternative is accepted that physics is an extension of metaphysics[Gomez 2013].

But what is space time meant to be? Is it a physical object, a metaphysical philosophy or a mathematical model? Cosmologist explain it as a physical warping of space itself. However, there is no actual physical or logical proof that such a thing exist. If planets do move across a warped curvature of *space time*, how is the planet kept in an orbital path when there is no physical guide for it to follow? Space time can't be seen or felt. There is no atmospheric friction resulting from the Earth rolling around this *space time* warpage. Yet contemporary cosmologist tell us that it exist. This leaves us with a conundrum. Is faith required in order to believe in space time and if so, is space time faith, a religious belief?

[Overduin]Einstein ... identified the property of spacetime (sic) which is responsible for gravity as its curvature. Space and time in Einstein's universe are no longer flat (as implicitly assumed by Newton) but can [be] pushed and pulled, stretched and warped by matter. Gravity feels strongest where spacetime (sic) is most curved, and it vanishes where spacetime (sic) is flat [Overduin 2007]. What Einstein is saying here is that the space between galaxies is flat (because there is no mass to warp it) and therefore has no gravity. However we know that the Andromeda galaxy and our own Milky Way galaxy are pulling each other across space to eventually meet ~4 billion years in the future. Even if two galaxies of the same mass warped space time, they could not fall into each other as there would be a ridge line between them: **the warpage horizons⁵** or ridge lines. And these ridge lines would press against each other forming a barrier. We know that galaxies are found in clusters and that our home galaxy, the Milky Way, is part of the Local Group cluster. This shows gravity is entangled across space between objects. That alone puts a serious dent in the GR armor. GR gained fame because of Arthur Stanley Eddington's assimilation of data from the 1919 total moon eclipse.

[Collins & Pinch] ...Eddington's observations, like many measurements in science...were...very inexact and some of them conflicted with others. When he chose ... which [data] to keep and which to discard, Eddington had Einstein's prediction very much in mind. Therefore Eddington could only claim to have confirmed Einstein because he used Einstein's derivation in deciding what his observations really were, while Einstein's derivations only became accepted because Eddington's observations seemed to confirm them. Observation and prediction are linked in a circle [of] mutual confirmation rather than being independent of each other... The proper description, then, is that there was 'agreement to agree' rather than that there was a theory, then a test, then a confirmation [or not] [Collins & Pinch].

⁵ When two round holes meet there are two circular boundaries that touch, like two craters side by side. If ST can hold a planet in place it can also stop two galaxies from colliding. Yet the universe is full of colliding galaxy evidence.

Light may appear to be bent by gravity when in actual fact it is being refracted through a star's atmosphere. If light followed the *curvature of space time*, then isn't it conceivable that the light would not be seen from Earth as it would be following the outer boundary of the warped *space time*⁶. The speed of light is far beyond the escape velocity of any known star, showing that light could not be bent when it is traveling at such a great speed. Einstein pictured the warpage of a star as being very close to that star, when in actual fact the warpage, as seen in the case of our own star (the Sun), would be billions of kilometers in diameter. That would suggest that starlight would have to follow the curvature horizon for billions of kilometers. Then what happens? If the warpage was able to bend the path of light, then it may be able to trap that light within that star's warp field. This brings up a conundrum of how did the light reach our Sun when it should have been trapped by the warped *space time* of the parent star?

It is the false understanding of gravity that creates these conundrums. If light were able to be caught by *space time* warpage, then the universe outside our own system would be black. Why? Because the light of every star would be made to orbit that star and not be able to escape the warped *space time*. So, we would not see any stars and yet, they would be there. Of course this is not the case. Light passing a star may be refracted and continue the journey in a different direction. But not bent!

General Relativity does not explain how gravity works on the surface of a planet or moon. Here on Earth, if we jump from a chair we will fall to the floor. There cannot be a curvature of *space time* on the surface of the Earth. So how do we fall? Utilizing the curvature of the Earth to explain falling is wrong. With the *space time* already warped/sagged, how can it be associated with general falling of an object from the Earth's atmosphere onto the Earth's surface?⁷ It simply cannot. The Earth's atmosphere would be inside any *space-time* sagging and therefore not governed by GR physics. Moreover, the Moon would not be able to orbit the Earth because *space time* has already been warped by the Sun. How could it be warped twice in the same spot?

However, when discussing planetary orbits, GR suggests that it is the curvature of *space time* that gives the path a planet takes in orbiting its star. Therefore, the planet must be located at the horizon of the *space time* curvature. Why? Because between the star and the planet, *ST* has been pushed under the equatorial plane of the system. The star sits in the center of the system and the planet orbits at distance *X*. If we call the outer surface of the star *Y* then the space between *X* and *Y* can only support one planet. Given that the planet must follow the curvature of *ST*, logic tells us that there can only be one curvature path to follow. Between *X* and *Y* there are no other curvature paths. *Space time* has been pushed under the equatorial plane of the star. Therefore, if another planet roamed into the area between *X* and *Y*, it would travel in a straight line until it was met by the *space time* curvature horizon. It would either be trapped in the system or move through depending on its speed.

It is conceivable that there could be many planets orbiting the star all sharing the same boundary orbit. However there can never be multi orbits on the equatorial plane within such a system, because, if as explained above, planets entered the space between *X* and *Y*, they would all move in a straight line until they hit the outer horizon boundary. Therefore, it is not unreasonable to call this space between *X* and *Y*, 'The non-orbital Zone'. Non-orbital because no planet or other object can orbit between the Star and the *ST* horizon (see fig 1).

⁶ More on this later.

⁷ More on this later

It is well known that that is not how our solar system works. In our system there are many orbital paths each separate from the other. Every planet has its own path. Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus and Neptune. Also there are at least two major orbital belts: the asteroid belt and the Kuiper belt. That gives ten different orbital paths⁸ within the one solar system: along the equatorial plane. This could not be so in a warped space time system. Space time could have an hierarchical orbital system. Hierarchical, in that, multiple planets are able to orbit the star, however they must reside in orbits above or below each other on the warped Space time horizon⁹.

However, the planets that orbit our Sun are on the Sun's equatorial plane¹⁰. This reality alone dismisses the concept of *space time*. *Space time*, as we have seen, requires a hierarchical stepped orbital system or a system that contains only one planet orbiting at the edge of the warped *space-time* horizon. Our solar system has no non-orbital zone.

So what is the logical evidence that disproves space time?

1. Space between any two objects is always empty. Space is empty. Therefore, space time does not exist as a physical element. Why? Because there is no matter to warp and therefore no obstacle for a planet moving in a straight line.
2. If space time did exist then only two types of planetary systems could be possible: as explained above.
3. There is no physical geometry in space. Geometry is a mathematical tool not a physical reality.
4. Einstein talked of Gravity Waves, yet he postulated that gravity was falling into the curve of space time. How can there be waves of attraction or repulsion when gravity is just falling? This alone shows the inconsistencies of Einstein's thoughts. He couldn't see in his mind's eye what he was hypothesizing.

Consider for a moment what a warped section of space time would look like. A star, such as our Sun, would sit in the middle of a sag. Our Solar System is ~ 9.8 billion miles (15.6 billion kilometers) in diameter¹¹. That seems like a very large sag to attribute to one star with a mass of 1.989×10^{30} kilograms, or 330,000 times the mass of Earth [Williams]. The Sun is 1.392 million kilometers in diameter but the Solar System is 15.6 billion kilometers in diameter. That is a whopping 10,775 times greater than the diameter of the Sun. So how does this come about? What causes the warpage to be so much larger than the object in it?

Furthermore, if this space time is warped to a sag that has a diameter 10,775 times greater than the diameter of the Sun, why, in our system, are there multiple planets each within the non-orbital zone? And, many of these planets are supposedly warping space time also to allow for their moons to fall inwards towards them: saved from collision only by the speed at which they travel. How can this be? How can the planets warp space time when it has already been warped by the Sun.

⁸ I am calling all the objects of the Asteroid belt and the Kuiper belt as combined into two orbits only.

⁹ See fig 2

¹⁰ Although some, such as Pluto, have a displaced orbit in comparison to the equatorial plane.

¹¹ Leaving out the Oort cloud at this stage to simplify the problem.

The answer is manifestly clear. There is no warped space time. There is just space, and within that space, there are objects orbiting other objects having been captured or held by the forces of gravity. Einstein's gravity doesn't pass the reality check or the logic check¹². Falling is **not** gravity. Falling is a result of gravity.

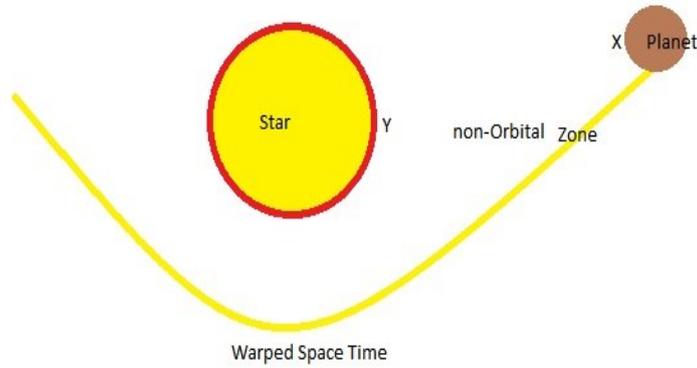


Fig 1 Shows the uninhabitable zone of ST planetary system. The planet here is shown at the warped space time or sagged horizon.

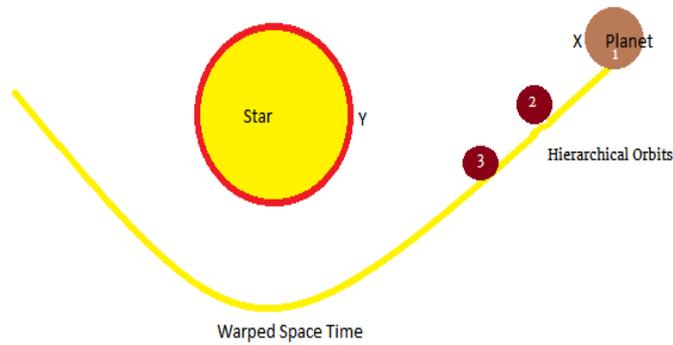
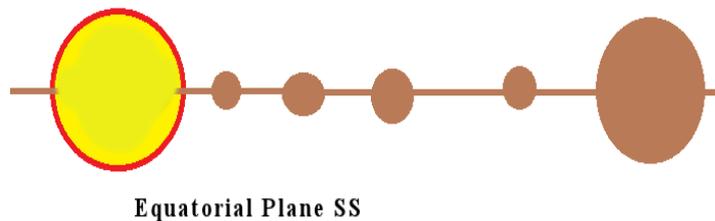


Fig 2 Shows the hierarchical orbit of ST system.



¹² The moon Io is stretched by the gravitational tugs of Jupiter. That is why it is volcanic. It is too small in mass to have a viscous magma that may feed volcanoes. Also it has no tectonic plate movements, therefore no process of subduction to form volcanoes. If it were merely rolling around Jupiter's warped ST then volcanism would not exist and Io would be a dead moon.

Fig 3 Shows a non space time orbital system based on our own solar system. If this were a space time system the four smaller planets could not have their own unique orbits. They would have to be orbiting along the same path as the large planet.

So what is falling?

When we think of gravity we naturally think of falling. Not falling along a warpage of space time, but rather falling from a height above the ground to the ground: the surface of our planet.

If I was to dive out of an aircraft, I would be falling to the ground? Yes you say! But why? Do you as a observer see me as 'falling' because we equate moving from any non surfaced height to the ground as falling? This is a conditioned way of seeing the world: just like the chickens roosting. However, in actual fact I would not be falling, rather, I would be moving horizontally. I would have *Horizontal Motion*.

Every action caused by gravity is a horizontal movement. Think of yourself standing on the ground and looking up to the sky. It doesn't matter what part of the Earth you are standing on, or what hemisphere you are in, the fact remains that you and I are standing horizontally. Not in relation to all around us, but in relation to reality.

In space there is no up or down. There is only horizontal movement. Picture yourself orbiting far from the Earth, looking across to many giants standing on the surface of the Earth. They all appear to be horizontally positioned because as you move around the Earth you will see these giants are sticking out from the surface rather than standing on it. If you were in a close orbit directly over head of the Earth, then the giants under you would appear to be standing upright. However when you look at different parts of the planet you will see giants sticking out from the surface. The giant and all animals around him, see him as standing upright. Yet you know he is not actually upright. He is horizontal in relation to reality. Seeing the giants standing upright from the surface of the Earth is not reality, it is a conditioning. A false assumption. A trick of the mind. Time to roost.

Is the humble house fly walking upright while moving up a wall, or does it see itself walking on a flat horizontal surface? Indeed as it moves across the ceiling it very well may consider, that it is walking upright on a flat surface and that the space beyond its body is above its body¹³ and not below it.

So to return to my jumping out of an aircraft, tumbling towards the ground. Picture that in your mind and slowly turn the image to the right until I am horizontal in relation to your view of the world. That is what is actually taking place. I am being forced towards the planets surface by gravity, horizontally. Not the gravity of Einstein, for he postulated gravity as falling along a curvature of space time¹⁴, and not the gravity of Newton, as he believed in up and down, but rather, the gravity of True Reality.

¹³ Unfortunately we will never know.

¹⁴ Even though he could not see that to fall into, or along a curve, there had to be a gravitational source to pull an object inwards. Otherwise the object would either remain stationary, or, move beyond the star or planet it was passing. It is the mass that has gravity not the depression in a trampoline.

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