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Infinity and Pushing Gravity Lead to Revelations the Universe is Otherwise – Part 2c

By Paul Schroeder

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I. SUMMARIES

a) *Magnetism*

Magnetism is the other attraction action. It is also a pushing action. Free electrons serve as a cause. When the electrons are flowing they redirect gravity beams by up to 90 degrees so the direct flow of gravity is lessened the sideways redirected gravity flow simulates and becomes and a flowing magnetic field created perpendicular to the gravity flow. The example is the electromagnet. The field is outside while the flow is within. The increased push is at one end, the diminished push at the other end. Reading my magnetism is suggested.

b) *Creating Matter*

Creation is partly addressed in these papers. The details within the nuclear structure are involved. Matter is built by intersecting coils of the bent beams. The number of coils within the beams and the degree of bending influence the creation and the number of electrons. Matter remains in place while beams flow onward. Reading my creating matter paper is suggested.

c) *Rotation – local effects*

When beams penetrate a rotating sphere and exit, their direction is changed, bent. The maximum bending occurs at the equator. Further from the equator, at higher latitudes, the weaker the rotation control becomes. Planets around the sun and moons around planets would lose containment. The energy to drive orbitals decreases with the diminished bending. The decrease continues by latitude to the poles. A beam exiting in Antarctica will mostly wrap around itself and not cause any lateral drive. The polar exiting beams do not offset the incoming beams well and holes can be created. Does the net speed of radiation vary there? Is

space travel differently affected by gravity above or below the solar system?

d) *The Sun*

The sun is simply larger mass which diminishes penetrating gravity beams more than planets do. When penetrating gravity beams exit, the difference in force between exiting and incoming beams is so great that intense heat and light are the result along with the intense net downward pressure. The difference in force down vs up causes pressure by the dominant beams on the lesser beams which interaction becomes the definition of heat. Light is then the flow away spark from the heat creation. Scientists have been surprised upon recently finding that the maximum heat of the sun is in the corona at the surface rather than being internal. Original thought of nuclear internal reactions are disproved as is the concept that the center is a very dense source. At the center the gravity beams from all directions are in equality and thus there is no heat. Pushing gravity requires that it be that way.

e) *Continental Drift*

The creation of matter begins in the nuclear environment and increases over very long time. Earth and other bodies are growing such that the history of any ERA can be investigated if the surfaces that cover it can be removed. Rather than drift explanations, the surface changes are functions of expansion. Growth is gradual and all matter, by size, nuclear structures and types that are created increase in complexity. Oil and water began to accumulate at some size of earth and continue to form today.

f) *Gravity bumps during eclipses*

Solar gravity force upon earth is expected to diminish during an eclipse of the moon. Instead it diminishes just before and just after an eclipse of the moon. Why didn't the decline occur at the exact time of eclipse? As explained, gravity beams from the sun arrive at earth from behind as they push us in orbit. Thus they are blocked by the moon just before it arrives at eclipse line. Then when the moon has passed total eclipse it blocks those other gravity beams that earth is about to experience by overtaking them. All are surprised that that the diminishment before the eclipse and the diminishment after the eclipse need separate explanations. Gravity's pressure is not simply straight down.

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g) *Galaxies*

The mistaken idea that gravity is different within galaxies ignores the fact that the solar system is central body dominated and galaxies have no such central body. We have shown that space structure is under the control of rotation. The apparent flow of star positions over time is a function of the rotation of all nearby stars. The picture here shows a series of rotations affecting a series of suns and creating the curves that causes arms. The paper addressing this is somewhat involved but the simple ideas can be seen in the laws of motion section that follows here.

Galaxial Arms

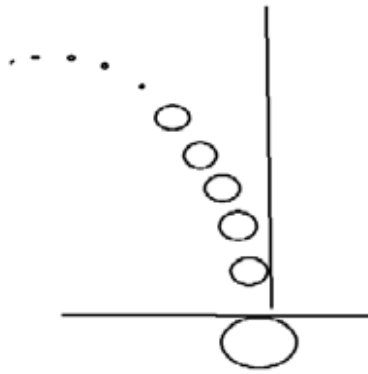


Figure 1

h) *Kepler's laws*

No issue was ever raised that the rotating surface of the sun did not fit with Kepler's formula for planetary time and distances in which the first 6 planets are coordinated. Note that although clouds and the atmosphere circle earth faster than earth rotates; celestial bodies revolve earth slower than earth's rotation. The revolution reversal applies to all planets and extends to a geosynchronous point for earth at which the orbital motion matches our rotation. The sun has such a synchronous point also, maybe at 11R, which serves as the focal point of orbital drive. Then calculating the 2 dimensional push as it expands outward to reveal the diminishing push by solar radiation as radial distance grows gives an approximate but insufficient total. There is more solar push from the sun's rotation sourced from greater solar latitudes. Gravity beams exiting the sun just above or below its equator may influence a nearby planet orbit but angle above or below further orbits and have no effect there. The analysis is complex.

i) *Einstein and Compton*

a) Regarding general relativity, there is a lack of simplicity in the space time: four dimensional base of relativity theory. The elimination of time as a factor fogs any understanding of motion. At some level

mysticism did fade away with a formula leading to a unified field theory. It states that space causes matter to move and matter causes space to curve. The unified field theory was to unify the general theory of relativity with electromagnetism, A "theory of everything" is closely related to unified field theory, but differs by not requiring the basis of nature to be fields, and also attempts to explain all physical constants of nature. The formula is

$$G_n + A_{g_w} = 8_{pi}G/c^4 \times T_m$$

For my contrary statements: I say: Space is a flow (caused by its radiation contents interacting with matter bodies which transfer their revolution and rotation motion), so given space is flowing it moves matter. Matter allows space to flow through during which the penetrating space beams become modified and redirected so that its overall flow becomes curved.

Space causes matter to move and matter causes space to curve

b) Einstein proposed photon particles within light waves and an x-ray test by Compton where the waves are deflected supposedly confirmed the photon as a bundle of energy. The thought was that the energy of photoelectrons should increase with intensity. The frequency shouldn't matter. Red and Blue signals were compared and surprisingly intensity didn't matter but frequency did. Supposedly that confirmed the photon. But it doesn't. The different penetrating and rebound action by different frequencies confirms that the variable coil separations of our pushing EM radiation beams are the source.

The graphs, where Compton deflected X-ray beams, show dual waves of different frequencies and variable heights. No reason is known. Using wave coils the bending results in 2 arrivals at different angles and perfectly explains the graphs.

j) *Electricity-lightening*

As mentioned earlier, bent that bent gravity beams from the sun form the winds upon earth beginning at points of arrival mostly near evening time. The amount of wind varies due to fluctuations in earth's revolution motion and in solar sunspots etc. Similar fluctuations occur for vertical incoming beams that intersect each other as they focus inward. If the intersecting is unusual, the fabric of the downward push of incoming beams is exposed as lightning or as centers of rotation such as tornados.

k) *Ancient Aliens*

When searching through the history of mankind we find the ancients have left us scrolls, cave pictures, pyramids, upright monoliths and circular and linear landscapes. It seems what was really happening was a system of documenting their capabilities to show to

other tribes or civilizations and to us in their future. We haven't understood the messages! They are telling how they could deal with gravity! Just the huge blocks forming the pyramids could never have been created and moved, even by armies of millions.

Even more difficult to understand are the upright stones of Stonehenge where hundreds more upright monoliths have been found somewhat buried. How were they raised? The "simple" way to move such mass is by blocking the downward push of gravity! Once gravity is blocked you can even move the mass elsewhere. Also there is a pattern of 2 miles of 8 across stones in Thailand. It matches the pattern of 2 miles of holes in Peru. Possibly the stones were transported half way across the world. Then there are the Easter Island stone figures. They are all similar. A monolith is created by slowly detaching and raising sections of granite. Something is needed to help separate the monolith from its laterally attached ground while lifting. The finding of liquid Mercury in significant places suggests Mercury could serve the blocking gravity role that electrons do for magnetism.

l) Black Holes and Other Fantasies

Since much of Astrophysics focuses on light, many bad theories abound. The idea that there are things with mass and things without mass led to the massless nature of light and EM radiation. That led to photons which caused the wave particle duality which becomes an impediment to physics.

Science chose the 'rate of travel of light' to map the universe. That led to establishing a constant velocity for light, at least within a given medium. Then came the red shifts which gained the Doppler function assuming stars move away and cause expansion. Given that model even some red shifts exceeded theory and we gained white and neutron stars which held back light via gravitation. Expanding that model led to black holes as the ultimate retention of light. Such stars/holes had to have nearly infinite mass and thus density. Thus anything became possible such as time tunnels and worm holes. All of this would not have happened if light was allowed a variable velocity, no matter how small the deviations might be. The basic ignored argument is that if black hole gravity could stop light then what about a mass that almost could stop light T. We would get gravitational red shifts rather than Doppler red shift from stars depending on density etc.

This reveals the idea that both the mass of the source and the distance of the source work together to determine the red shift. Since External Gravitation removes fixed light speed it opens up the universe to logical interpretations. We are seeing some relevant interpretations about Quasars for example.

Other fantasies include dark matter due to misunderstanding galaxies. Also dark energy was

needed for universe boundaries. Extra dimensions are illogical as are worm holes.

II. SUMMARY OF THEORY COMPONENTS

By resolving my gravity concepts with relevant physics issues I have developed different views about numerous concepts including how rotating centers cause orbiting as measured by Kepler's third law of planetary motions. Fundamental concepts include:

- a. The term gravity can refer to the source or to the detectible effect of the action of the source. The effects are motion and the existence of matter.
- b. Gravity is a push rather than an attraction. As such it solves 'action at a distance'.
- c. The push implies the source is external from matter. The source is beams with velocity. Motion of beams is confirmed by waves within the beams.
- d. Gravitation pushes as if it contained moving particles - Paeps - 'particles applying external pressure'. But gravity particles can't be particles. They would cause too much heat upon impact and would interfere with orbiting. So paep is a generic term for gravity source. It's form is as waves or coils within beams.
- e. Gravitation is best pictured as lines rather than fields. Beam lines help analyze and contemplate a linear push. Pressure gradients that summarize the situation inhibit analysis.
- f. Gravitation functions as beams pushing from all directions upon every point of space. Thus matter takes on spherical shapes. Attraction gravity is linear and is insufficient to understand the universe. We need transverse radiation wave/particles that strike matter with impact. The amount of impact depends on the wave amplitude/energy. Light and EM radiation are composed of waves/coils which can apply pressure like particles can. This removes the separate concept of photons and solves science's wave/matter conflict.
- g. EM radiation such as light slightly penetrates masses due to its wave structure. But longer wave gravity radiation theoretically penetrates more and extends its push throughout masses. Thus gravity beams replicate long wave EM radiation.
- h. Gravity beams, like radiation rays, move at velocity 'C'.
- i. The universe is infinite and isotropic. Space primarily contains EM waves. Gravity beams are the structure of space simulating the aether others refer to. Like-wise gravity is the undetectable background.
- j. Gravity interacts with matter. Matter exists as rotation/spins relative to the local equilibrium. The spin may be of the atomic particles such as protons and electrons as well as spin of the entire mass. The amount of spin determines the density of

- masses. The lack of relative spin signifies the absence of matter.
- k. Equilibrium is the net balance of horizontal pushes, yet with an imbalance of vertical pushes -gravity. Structural equilibrium causes equivalent light speed in both directions. A better answer than Einstein's time dilation.
 - l. Gravity beams mostly penetrate matter. Atoms are mostly empty space. Paep waves interacting with atomic particles both modify each other.
 - m. Penetrating gravity beams exit the mass and are modified. Beam amplitude is diminished, beam wavelength modified into shorter waves as heat and light radiation, and the beam's motion is redirected.
 - n. The gravitational push at a mass surface offsets diminished exiting beams with undiminished incoming beams resulting in a 'NET' downward push often called attraction gravity.
 - o. R^2 laws apply for attraction gravity because it is centered at a central point of matter. Pushing gravity also requires a mass to centralize the modification of the beam. Thus identical central points of reference correspond for equations.
 - p. During gravity penetration some impacted matter particles are modified into radiation or different matter. The sun's eternal power is caused by continuous penetration and exiting of modified gravity beams.
 - q. Paeps can be redirected by spin of atomic particles or by the spin of the whole mass. As noted in point 10, spin defines matter because the moving mass particles intersect incoming gravity beams.
 - r. Redirected paep beams exit in a bent path relative to both the source and the observer. They curve throughout their travels. We draw as lines and curves but can view as a mean average line. These curves have 3 velocity components, the long up line - C, the minor sideways rotation value and a diminishing component reducing the value of the line vs local space as it travels.
 - s. Space is 3 dimensional but its contents flow and distort linear analyses.
 - t. Undiminished gravity beams flow in all directions across earth's surface, not just downward. They mostly net out. A minor extra counterclockwise flow of exiting beams bent by the rotation of the mass occurs. The flow matches the mass's rotation yielding local equilibrium.
 - u. Counterclockwise motion relative to our Z axis north and to orbital centers dominates the spin and orbital motions of the universe. Antigravity would result from a clockwise flow.
 - v. Newton said orbital motion continues absent external forces, thus no friction. The implied void of space can't exist given radiation, meteors, and solar winds. A motive force is needed.
 - w. Newton's "motive" external force was centrifugal force, subsequently inertia, a force with no source. Newton's inertia is more properly defined as 'adhering to the local flow of gravity'. The application of inertia saved Newton from explaining the source of motions.
 - x. Planets incur lateral pushes of gravity caused by the bent beams from the rotating sun, and moons incur pushes from the sun and their rotating planet. This is the motive force causing orbiting. The revolution push by spinning bodies upon their orbitals is maximum at their equator and decreases with altitude. So Bode's law finds planets to exist at the extension of the solar equator and not at significant altitudes.
 - y. Orbital revolution rates must be less than their central body rotation rate. Multiple centers complicate the analysis. Rotation of the master (sun) adds to the local central body (planet) push upon moons.
 - z. The lateral pushes on orbitals causes the rotation of the orbital as well as the revolution. The rotation rate is dependent on how far to the right of the 12 o'clock/6 o'clock axis the push is centered.
 1. Rotating bodies usually rotate counterclockwise relative to their central body. Central body bent gravity beams add to atmospheric rotation as well as the masses 'rotation' for orbitals. The sum of bent gravity beams from earth's rotation and from the sun causes winds on earth.
 2. Solar gravity beams are the solar wind when passing by earth. Magnetosphere pictures are attempts to represent bent gravity beams. At a point between planet and the sun, bent beams from each source collide, creating a small chaotic region.
 3. Sufficient bending of radiation beams and interaction with other beams creates mass. Electrons are beam crossings.
 4. The nuclear - strong force is simply the sum of gravitation beams pushing from all directions.
 5. Magnetism is the 'net' push of gravity beams when beams from one direction are redirected.
 6. Charge is simply the direction of flow. As noted in point 21, anti-gravity is pushing in the opposite direction.
 7. A spectrum of existence associates waves from the longest Paep gravity beams, thru EM radiation, and extending to mass itself. All relates to the wave structure in the spectrum of EM radiation.
 8. Three dimensional waves are best pictured as coils. Consider a flowing beam wrapping around inside a straw like a counterclockwise screw.
 9. Diminished gravitation occurring locally within the sun or stars is replenished by the gravitational stretching of light beams into microwaves, then radio waves, and further into paep gravity beams as

they travel from very distant stars. The gravity source is continuously recycled

10. Rotating bodies cause orbitals to encircle them. Kepler detected this and determined orbital times for our solar system with a large central body. More nearly equal rotating bodies are not similarly studied. Given their joint revolution action forcing each to orbit the other significantly changes/decreases the orbital times calculations. Proper calculations would override Kepler's third law. In galaxies.

Mutual Revolution

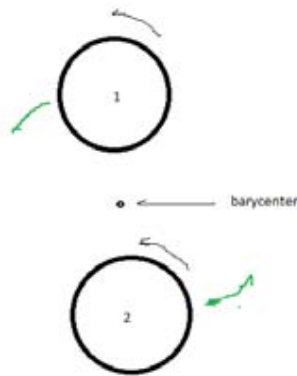


Figure 2

11. Kepler's third law is that the inner planets revolution period is a constant times the $3/2$ power of the solar distance R for each planet. Thus the central body sun has to be the source of their orbital times. It is the push by bent solar gravity beams that forms this relationship as the orbits increase by R^2 . The factor R is the 2 dimensional component and $R^{1/2}$ is the Z axis contribution.
12. The bent flow of gravity defeats any exact linear calculations of gravity effects in large geometric analyses. The difficulty increases when multiple rotating masses contribute to the flow.
13. Actions within our solar system contend simultaneously with the linear flow of gravity at speed C (300,000 Km/sec) and the perpendicular flow from the solar rotation of 2 Km/sec.
14. Gravity beams condense together approaching mass bodies and the beams interact such that crossings are electrons, regions are protons and neutrons. Thus the higher frequency waves can create matter.
15. Regions of optimum matter creation occur when beams from 120 degree angles interact. The Trojan asteroids are such a place where solar and Jupiter EM radiation beams interact.
16. A proper picture of gravity beams diminished by the sun and traveling toward earth shows them bent inward from the right. The motion of earth causes

unbent beams to arrive from our left as if bent by earth's motion. Thus beams from both sides show the bending flow of the magnetosphere.

17. The mentioned bending of gravity beams produces both sides of the bumps of gravity detected during a lunar eclipse. Refer to discussions of the Wang eclipse. The causes of the two bumps are different for each one.

III. THE LAWS OF MOTION

Rotations, Revolutions and Apparent Motions of Heavenly Bodies

Summarizing my views of galaxies suggests outlining a preliminary set of motion laws, and corollaries.

We first step back to the Copernican revolution ending the Ptolemaic, Earth centered sun revolving, view. Earth centric worked with sub orbitals, but sun centered requires less adjustments. Are revolution vs rotation in two body systems interchangeable? Impressions are that it is the outside issues from which one decides what is right.

Revolution vs Rotation

That the planets most logically orbit the sun is what led Copernicus to propose the sun centric system. But given enough subsystems, could we go back to earth centric system? There is even a third workable two body system in which earth circles the sun daily.

It takes the Paep pushing gravity systems to lock in the sun centric system. Paeps become the outside component, like planets, that define the center.

a) The relativity of rotation

Law 1.

Rotation and revolution are interchangeable concepts between two bodies in a vacuum which are in relative motion while retaining the same distance. Neither is a privileged non-rotating or stationary body.

Corollary 1.

Specifying rotation vs revolution motion depends upon our determination of apparent motions of other relevant bodies

Rotation 2

Corollary 2.

Specifying rotation vs revolution may alter if a determination of other relative motions is changed. For example, ignoring other motions allows converting the Copernican revolution, in which earth revolves counterclockwise around the sun, back to the sun circling the earth.

Rotation 3

Law 2.

Paep gravity is the "other relevant motion" negating law 1.

Law 3.

Specifying the nature of spatial motion is decided to an outside observer stationed, or imagined to be, north of the defined platform/plane containing the motions. A participating observer makes assumptions by becoming a virtual outside observers in order to theorize the nature of motions.

Law 4.

Orbital directions in space may be labeled clockwise or counterclockwise relative to an outside observer. That corresponds to our usual view of earth's activities from the north Z axis. All larger planes such as the ecliptic and galaxy planes have a Z axis whose north is 'by definition' within 90 degrees of earth's north. So revolutions are counterclockwise.

*b) "Otherwise" Laws of Space**Law 1*

Space serves as the container for substance and provides the forces which create motion among the substances. Space provides the gravitational mechanism we call attraction. Space, distorted by rotating mass, provides the "drive motive" which offsets the attraction force by providing the rotational impetus for motion.

Corollary 1

Rotations within space insure continual separation of bodies.

Corollary 2.

There is no absolute vacuum region, as suggested by Newton, where motion continues for lack of potential interference such as friction. Such a void would not exist as space nor have dimension.

Corollary 3.

Two bodies in space neither collide nor separate permanently because of the way their relative rotations modify space locally.

law 2 of Space

Any body, such as the sun, serving as the center, and as the cause of revolution for other bodies/orbitals, is likewise influenced by each orbital and attempts to revolve around the orbital. The small quantity of force generated, along with the motion of the orbital results in the suns motion approximating rotation rather than revolution. The related force calculations upon the sun and upon the planets are separate and result in a barycenter of gravity around which each body revolves.

Corollary 1.

Most centers of gravity lie within the sun for our solar system because of the extreme differences in size. The multiple centers each form a rotation center for the sun.

Law 3 of Space

The more equal in size two masses are, the more central is their theoretical revolution point. Given two equal masses, each mass serves as origin to a revolving coordinate system of which the other body is a part. The revolution periods are $\frac{1}{4}$ or less of that determined by Kepler's formula. Choosing which mass to consider as the center of revolution is optional.

Corollary 1.

Two bodies revolving around a central point provide optional views of relative revolution. One body may be thought of as stationary in which case the center of mass and the other body revolve around it, both in the same time period. Equivalently one body may be stationary and rotate such that the other body and the center of mass are stationary relative to it. The relative action of outside bodies determines which motions are assumed.

Law 4 of Space

When equal sized adjacent bodies are rotating in similar directions, their rotations drive each other into orbital motions.

Corollary 1.

A body #2, orbiting another and approaching others may be driven and passed from one orbital center to the next rather than completing its original orbit. The more bodies supplying the drive, the more linear becomes the appearance of body 2s line of passage.

Law 5 of space

Were there 2 adjacent bodies rotating oppositely (clockwise vs counterclockwise) along a common plane, they would push each other in the same linear direction and create swirls that violate the continuation of separation. Picture them occupying 2 ends of a figure U, moving down together, and eventually colliding at the bottom center.

Corollary 1.

Opposite rotation can occur in a plane only when radial separation of the orbitals is immense. Overlapping push causes turbulence that leads to inclined orbits. Collisions are avoided throughout space

Law 6 of Space

If body 1, originally driven by body 2, passes between body 2 and a body 3, the body 1 orbital must follow an inclined path to avoid the center of revolution vortex and to avoid body 3.

Law 7 of Space

Assume all equal sized bodies in a group are rotating counterclockwise. An outside or a participating observer will determine that all bodies are revolving relative to their adjacent bodies. The relative revolutions along a line of bodies are cumulative so that the farther

the observer looks in any direction; the more rapid the orbital motions measure relative to him on their circumferences.

Corollary 1.

Apparent linear motion velocity depends on the angular motion of the line of sight. Apparent velocity of distant bodies increases up to 90 degrees of cumulative angles of revolution. Higher angles curve motion back toward the observer, limiting the apparent speed and ultimately the distance of separation between observer and target.

Law 8 of Space

It is the spin of a central body that determines the action and existence of its orbitals. The quantity of effect varies with the tilt of the orbital plane. The maximum rate of spin occurs at the equator and diminishes as you approach its poles.

Corollary 1.

In the solar system, most orbital bodies exist near the ecliptic, on the spin line of the sun, because that is where the sun supports them by its maximum rotation velocity.

Law 9

Orbits are elliptical rather than circular because there is a secondary force of attraction centered at a second focus which represents the summary influence of all outside forces.

Corollary 1.

The real body being orbited supplies the revolution impetus. The secondary/imaginary focus provides no revolution impetus and interferes with the ongoing revolution. That causes an orbital to redirect toward perigee, incur less swirling and lose some of its forward motion pressure.

c) *Laws of motions within galaxies*

Galaxy Law 1.

A series of equally spaced stars in a line, rotating counterclockwise, will each swirl their adjacent star into orbit so that the line may gradually bend to the left. The bending establishes the apparent speed of rotational motion. Observers will view a nearby rotating body as revolving and will calculate that more distant bodies in linear sequence move faster. The relative revolutions add up. The maximum linear speed occurs when the revolution angles sum to 90 degrees.

Galaxy Law 2

Bent lines of stars form arms and stars far from a galaxy center form arm ends. As the angle of bending approaches or exceeds 90 degrees at arms end, the distant stars apparent motion will either: 1. Appear about to escape. 2. Achieve the exact velocity to continue orbiting the galaxy center. 3. Further increase the angle thus falling back toward the galaxy center.

The actual motion depends on the length of the arm, the distance of adjacent stars and the stellar concentration within the center and within the arm.

Galaxy Law 2 Corollaries

Corollary 1. Fall back/returning stars, in arms which bend 180 degree, will probably not complete orbiting their neighbor nor pass between two stars. They will be passed from one mainline star's control to another and 'slide' along the bottom of the arm.

Corollary 2. A dense bunch of stars will bend an arm more than a sparse region does. Stars sufficiently departed from dense regions have a linear motion which reduces the bending relative to the center.

Galaxy Law 3

The gravitational retention and the velocity of an orbital depend on the rotation speed of a dense galaxy center. Rotation speed is maximum at the equator and lesser at higher latitudes. The greater the angle above or below the galaxy disk, the less the center will retain lines of orbitals. The shortened lines will suggest a dome above and below the center.

Galaxy Law 4

Orbits of stars near the galaxy center or a cluster center are tilted relative to the disk of the galaxy. The highest declinations occur nearest the galaxy center. They display polar regions to the galaxy plane presenting a different look. Thus they appear different, giving us the impression of being older stars.

Galaxy Law 4 Cont.

Corollary 1.

Stars along the galaxy disk rotate approximately in our plane so their makeup appears similar to our sun. We see their brightness and call them younger.

IV. GALAXIES

a) *Gravity and Revolution Rates within Galaxies*

Mankind did not understand the motions of planets and moons until Copernicus, Kepler, and Newton defined the structure and workings of the solar system. Our understanding of galaxy motions is in that early stage today. There is a mystery surrounding the constant rotation rates observed for stars orbiting within galaxies unlike the solar system where more distant planets orbiting the sun do so more slowly than inner planets. Some suggest there something different about gravity in galaxies and they invented dark matter, dark energy and MOND to explain it. But proper analysis of gravity finds it is constant though its environment may vary. So the answer is otherwise.

b) *Introduction*

Galaxies consists of stars that are somewhat similar to each other in size, while in the solar system we

have the large central body sun and small planets. Though galaxies have a dense central dome, it is not a central body. Our challenge is to investigate galaxy revolution at its circumference vs. internally. My External Gravitation model helps by concluding 'the rotation of central bodies pushes other bodies gravitationally'. Two rotating bodies drive each other in their orbits. You can arrive at similar perspectives by applying the inertia and centrifugal force terms to suggest that two adjacent bodies in space must orbit relative to each other or they will crash together due to gravitation.

Our discussions of gravity are about the physical mechanism, not the 'net' amount which is commonly identified as 'attraction'.

c) *Direction*

Communicating here requires a common perspective about directions in space. Revolution and rotation are two angular motions and for ease of communication here, they will always be assumed counterclockwise. When considering revolution/rotation it matters whether you view the event from the top or the bottom as they give opposite results. Using the three dimensional coordinate system with three axes, those viewing the event from the north Z axis, which defines up and down, can relate to clockwise direction. But not all observations are from the due north point and viewers with different positions have different perspectives and even assign different coordinate systems. We inherently draw the solar system as viewed from the solar north because we define earth's North Pole as north, the top for our top down view. If the galaxy plane was tipped more than 90 degrees relative to the ecliptic, then we would naturally draw it upside down and the arms would flare out in the opposite direction. As it is, there is a significant tipping of the galaxy plane relative to ours but it can never be greater than 90 degrees or we would just call its bottom north without thinking about all this perspective business. So it is valid to make references to counterclockwise revolutions in this analysis.

There is a preponderance of curvature in space. All motions in space are curved rather than linear. Things launched from earth are subject to, and acquire, some of the original motions of their launch site. Those motions are the rotation and the revolution motions of earth. The interchanges between bodies such as light/appearance, and gravity also must be somewhat curved. The curvature of light is sometimes referred to as aberration. That is where the direction from which images arrive is offset by motion of the observer. To consider the motion of the source, my 'pushing' gravity particles called Paeps penetrate a body such as the sun and leave the other side acquiring an angular component of motion due to the rotation of the sun. They don't go straight up. At an orbital, such as the planet earth, there is then an excess of paeps to the

right of the planet pushing it counterclockwise in its orbit and also causing its rotation.

d) *Motion geometry*

Rotation and revolution are interchangeable in any two body system where you exclude external considerations. Consider 2 equal sized bodies, call them stars. For them to coexist near each other they must be moving or revolving relative to each other. The bodies orbit each other. The speed of revolution is necessarily constant, so an outside observer sees their joint orbiting as having a continuous velocity. As we expand this view we see many interacting sources in galaxies. Note that the center of revolution, called the barycenter, is between not inside the two bodies participating in mutual revolutions.

Consider next 3 equal sized bodies along a line with 1 and 3 equidistant from 2. So, 1 and 2 would try to orbit each other and while 1 would pretty much succeed, 2 would be affected by the outside influence of 3. Similarly 2 and 3 try to orbit each other, and while number 3 pretty much succeeds, 2 is interfered with by 1. Essentially 1 and 3 motivate 2 to orbit in exactly opposite directions. So, 2 becomes stationary while 1 and 3 revolve around it. The lesser influence of 1 and 3 on each other additionally motivates them to revolve around each other essentially increasing the velocity of their joint revolutions around 2. Bodies cause both revolution and rotation in others via pushing gravitation. Body 2 gains rotation and now spins at twice speed of the other two bodies. The rotation increases the mass by increasing the density for body 2. Conveniently, body 2 acts a bit like a central body. The appearance of this system to an outside observer like the 2 body system above except the barycenter now has mass.

The galaxy revolution picture is more like the sun, earth, moon system where we recognize significant mutual gravitation, than it is like the overall solar system where one central body causes the gravitating.

For relating to a four equal sized bodies system, interactions get much more complex. With 2 bodies there was 1 interaction. With 3 bodies there are 3 interactions. With 4 bodies there are 6 interactions. For analysis, place the 4 bodies along a line at distance marks 1,2,3, and 4 with 1 at the top end of the line. Consider their line to suggest 2 clocks, where 1 is 12 o'clock and 2 is 6 o'clock on clock 1, while 3 is 12 o'clock and 4 is 6 o'clock on clock 2. Then 1 is being pushed left by 2 while 4 is pushed right by 3. When 1 reaches 11 o'clock, 4 reaches 5 o'clock on his clock. Because 2 and 3 influence each other, while being influenced by their clock mates, they move less on their clock. Now 2 might be at 5:50 while 3 is at 11:50. The lesser revolution of 2 and 3 relative to each other might cause gravity to pull them together a bit. Pushing gravity stabilizes systems containing multiple bodies. If

we allow random collapses, the galaxy would never have existed in the first place.

Following the revolutions onward, I suggest next time locations might be 10 o'clock, 5:30, 11:30, and 4 o'clock. Then come 9, 5, 11, and 3 o'clock. Given approximately another time period and the 4 spheres now serve as the corners of a rectangle. Note, there is always an equal balance relative to the original barycenter point. However upon assigning one of the stars as a center, the system revolves counterclockwise relative to it. Also the system shows a relatively consistent velocity along it's circumference to outside observers.

The 5 body system has 10 interactions. Much net attraction between each suggests cluster formation. Any odd number linear system has a central body around which all other bodies rotate. The 6 body system has 15 interactions and more complications. In the solar system, planets essentially do not coincidentally orbit each other, unlike stars in galaxies. The concern that stars far from the center of galaxies have much higher velocities than predicted, indicates current theory assumes the center provides the velocity source and ignores the velocity sources spread across the galaxy. As we add more bodies, the back and forth motions are less distinguishable than is the overall forward orbiting of all the bodies around the center. This forward motion helps picture the creation of galaxy arms.

Galaxial Arms

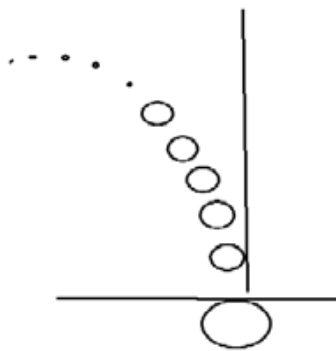


Figure 3

If all bodies are the same, every body/star over the long term achieves the same 'average' distance from the galaxy center. Most will move in and out and back and forth in sub-orbits, but their average distance will be the same. Thus over the long term they will all take the same average time to orbit the center. Kepler's law, where velocity depends on distance, suggests that objects at the same 'average' distance take the same average time to orbit. The time for revolving around the galaxy center must account for the

sub-orbiting. The average orbit time for all Milky Way galaxy stars may take many cycles for all revolutions to equal out. Our sun is orbiting around other star groups within the galaxy besides the center itself.

e) *Spiral arms, domes and other features of galaxies*

As you keep adding bodies, you can choose to view any one as a center. In reality they are all orbital centers while all orbiting the galaxy center. Given 100 bodies in line on the north and on the south of center, something like body 7 from center on the north line has a line of bodies both to the north and to the south that wish to orbit it and also wish to push it into orbit. The north line bodies push body 7 to an outside observer's right, the southern line bodies push it left. The difference is that there are more total bodies to the south so they will win in the long term. They will force body 7 to revolve counterclockwise around center. By comparison, they will force body 14 north to revolve even faster because of the greater south vs north imbalance it experiences. Likewise body 1 north will revolve slower than any other northern body.

The actual rotation of the line depends on the separation of the bodies along the line. With bodies equally spaced, the farther from center the body, the more its proper motion will exceed the inner bodies. The greater proper motion causes more bending so galaxies form arms.

Consider a body # 0 as center. Then consider a Y axis line of many stars numbered 1 - 100 equally spaced north of center. Say the innermost star in a line is gravitationally caused to rotate 1 degree counterclockwise relative to the Y axis. There is a sequence of counterclockwise forces by it and by each star further out upon the next star in line. In that single time period further out stars are multi-shifted causing higher angular motions. That creates the arm in this single shift. The further out the star the faster it moves to its new position relative to the original line. Each star orbits its predecessor so all move/orbit at the same speed and the same 1 degree of angular shift relative to their prior star.

As we continue out the line of bodies, the degree of angular offset increases and may reach 90 degrees. Those star's motions have become perpendicular to the original line. They suggest the spiral arm of the galaxy. Note that the arm extends leftward in a direction that appears to an outside observer as the direction opposite presumed the galaxy rotation. This motion occurs naturally from the counterclockwise pushing of all gravitating bodies within the system.

The reorientations relative to the line discussed thus far occur within a single time unit. Additional time units lead to higher angles of the revolutions relative to the original line. A star may cycle back and cross between the two stars prior in the line or perhaps the

whole line spiral in on itself like octopus arms. If star 100 wraps back around and cross between stars 99 and 98, then each will intersect its next lower body in a cascading effect. Extend the revolution sequence so the outer arm stars motion perpendicular to the Y axis give or take. As stars continue to revolve beyond that perpendicular direction, they start heading more toward the galaxy center. Do they continue their orbit of their adjacent star, or is the galaxy center gravity strong enough to pull them downward and gradually roll up the whole arm? Or do the stars from the arm end begin to slide back along the under side of the arm more like a chain saw blade?

Do orbiting stars complete orbits around their original partners or are they passed along. Stars get to the underside of an arm either by sliding back down or via some giant midway orbit. Either our sun is part of the upper line extending and growing outward or it is part of the series of stars sliding back toward center, being forced there by the upper arm stars. Sol is core side (underneath) on its spiral arm - Orion. Per my geometry, that means sol should perform in one of two ways. It is core side because 1. It is orbiting something central on the arm so that its local orbital radius is the distance to the arm center, or 2. Sol is rolling back toward the galaxy center underneath its arm. In either case we are orbiting backward relative to the rest of the arm. Questionable theory says we are currently orbiting the galaxy center clockwise at 226 million years per revolution. Thus most of the rest of the outer galaxy orbits slower or oppositely - counterclockwise. My construction suggests a counterclockwise motion. Only a base picture of most all local motions can yield an overall motion. How do we define a stationary, non rotating observer who can make these judgments?

Given its rapid relative motions, is Barnard's star one that is wrapping back downward? To successfully pursue analysis of motions requires data, sort of like what Tycho Brahe provided for Kepler. A lot of data has been collected by a Danish study.

f) *Proximity – system stability concerns*

Stars balance their local environment by both 'attracting' nearby bodies and guiding them into orbital motions. Otherwise, with all the stars in the galaxy 'gravitationally pulling' on each other, some would ultimately collide. We could try saying the original speeds, distances, and sizes are just right to prohibit collapse. But there is more to it.

Gravity tidal ripples form in the gravitation field between two stars. The ripples interfere with the passage of star X between them. That star is forced to, travel above or below the tidal action, bringing the 3rd dimension into consideration for the motions within the galaxy.

Gravitation revolution support is greatest along the extension of the central body's equator and is less as the latitude angle increases. So star X drifts up or down when passing between and it does so sufficiently to decrease the attraction effects of each. Its orbit around either body is therefore inclined. This reveals that galaxial orbitals must follow paths inclined relative to the galaxial plane during their orbit. Similar reasoning extends to moons crossing equatorial planes.

Galaxies are sometimes described as domed pinwheels. Essentially the inclinations must increase as bodies are closer in to the galaxy center. The higher the orbit latitude relative to the center body, the less net gravitational push is applied to it. Bodies in inclined orbits experience less of the central spin due to latitude. In a galaxy stars, ever closer to the central body, must travel in planes increasing in latitude relative to the center. As more and more bodies are visualized near the center of the galaxy, there is increasing inclination to the orbits to avoid the tidal action of many bodies passing through the region, and to minimize the pull of the center. The closer in toward the center the body is, the greater the angle of inclination that is required. There becomes a 3rd dimensional build up called a dome around the center, and to a lesser extent near other suborbital centers within the galaxy.

For another perspective about the necessity of domes, picture a line of stars from the center. Angle the line above or below the galactic plane. The length of the line must be shorter. The length of the line is dependent upon the angle of inclination because the central body provides less revolution support as the latitude angle increases. Also less spin is applied to revolve the orbitals.

Regarding potential system collapse, gravitation as the medium provides the potential of system self adjustment to compensate for local disturbing events. There must be attraction variations due to the role spin plays in determining density and therefore in determining mass. Expected circular orbits within systems are affected by pulling of a nearby system which causes the internal orbits to become oblong/elliptical, rather than circular. Such interaction mathematically defines the second focus of an ellipse as being a virtual center. Then the reason the orbital motion is slower in the vicinity of the second focus is that its source provides 'attraction' but none of the orbital push that the central body does.

The sun's rotation also provides more gravitational support to orbitals along its equator than it does in other directions. The greater the latitude, the less the revolution support. Solar system orbits can be inclined and may be elliptical rather than circular. We may fully understand both solar system planetary inclinations and their elliptical second (virtual) focus if we can determine the location and motion of secondary centers of gravitation outside our solar system.

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