The parallel postulate, the other four and Relativity

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Abstract: Because of Geometers scarcity, I was instigated to republish this article and to locate the weakness of proving this Axiom. Weakness created the Non-Euclid geometries which deviated GR in Space-time confinement, so not conceiving the beyond Planck’s existence, not explaining the WHY speed of light is constant, and thus the whole universe. In the manuscript is proved that parallel postulate is only in Plane (three points only and not a Spherical triangle) based on the four Postulates for Constructions, where all properties of Euclidean geometry compactly exist as Extrema on points, lines, planes, circles and spheres. Projective, Hyperbolic and Elliptic geometry is proved to be an Extrema (deviations) in Euclidean geometry where on them Einstein's theory of general relativity is implicated approximately to the properties of physical space. The universally outstanding denial perception that Proof by geometric logic only is inaccessible, is now contradicted, and this current knowledge is widely extended.

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1. Introduction

Euclid’s elements consist of assuming a small set of intuitively appealing axioms and from them, proving many other propositions (theorems). Although many of Euclid’s results have been stated by earlier Greek mathematicians, Euclid was the first to show how these propositions could be fit together into a comprehensive deductive and logical system self consistent. Because nobody until now succeeded to prove the parallel postulate by means of pure geometric logic and under the restrictions imposed to seek the solution, many self consistent non-Euclidean geometries have been discovered based on Definitions, Axioms or Postulates, in order that non of them contradicts any of the other postulates of what actually are or mean. In the manuscript is proved that parallel postulate is only in Plane (three points only) and is based on the four Postulates for Constructions, where all properties of Euclidean geometry compactly exist as Extrema on points, lines, planes, circles and spheres. Projective, Hyperbolic and Elliptic geometry is proved to be an Extrema (deviations) [16] in Euclidean geometry where on them Einstein's theory of general relativity is implicated and calls a segment as line and the disk as plane in physical space.

It have been shown that the only Space-Energy geometry is the Euclidean, on primary and on any vector unit AB, (AB = The Quantization of points and of Energy on AB vector) on the contrary to the general relativity of Space-time which is based on the rays of the non-Euclidean geometries and to the limited velocity of light. Euclidean geometry describes Space-Energy beyond Plank’s length level and also in its deviations which are described as Space-time in Plank’s length level. Quantization is holding only on points and Energy [Space-Energy] ,where Time is vanished [PNS], and not on points and Time [Space-time] which is the deviation of Euclidean geometry. [21]

2. Euclid Elements for a Proof of the Parallel Postulate (Axiom)

Axiom or Postulate is a statement checked if it is true and is ascertained with logic (the experiences of nature as objective reality).

Theorem or Proposition is a non-main statement requiring a proof based on earlier determined logical properties.

Definition is an initial notion without any sensible definition given to other notions.

Definitions, Propositions or Postulates created Euclid geometry using the geometrical logic which is that of nature, the logic of the objective reality.
Using the same elements it is possible to create many other geometries but the true uniting element is the before referred.

2.1. The First Definitions (D) of Terms in Geometry

D1: A point is that which has no part (Position)
D2: A line is a breathless length (for straight line, the whole is equal to the parts)
D3: The extremities of lines are points (equation).
D4: A straight line lies equally with respect to the points on itself (identity).
D: A midpoint C divides a segment AB (of a straight line) in two. CA = CB any point C divides all straight lines through this in two.
D: A straight line AB divides all planes through this in two.
D: A plane ABC divides all spaces through this in two.

2.2. Common Notions (Cn)

Cn1: Things which equal the same thing also equal one another.
Cn2: If equals are added to equals, then the wholes are equal.
Cn3: If equals are subtracted from equals, then the remainders are equal.
Cn4: Things which coincide with one another, equal one another.
Cn5: The whole is greater than the part.

2.3. The Five Postulates (P) for Construction

P1. To draw a straight line from any point A to any other B.
P2. To produce a finite straight line AB continuously in a straight line.
P3. To describe a circle with any centre and distance. P1, P2 are unique.
P4. That, all right angles are equal to each other.
P5. That, if a straight line falling on two straight lines make the interior angles on the same side less than two right angles, if produced indefinitely, meet on that side on which are the angles less than the two right angles, or (for three points on a plane)

5a. The same is plane’s postulate which states that, from any point M, not on a straight line AB, only one line MM’ can be drawn parallel to AB.

Step 1
Draw the circle (M, MA) be joined meeting line AB in C. Since MA = MC, point M is on mid-perpendicular of AC. Let A1 be the midpoint of AC, (it is A1A + A1C = AC because A1 is on the straight line AC. Triangles MAA1, MCA1 are equal because the three sides are equal, therefore angle < MA1A = MA1C (CN1) and since the sum of the two angles < MA1A + MA1C = 180° (CN2, 6D) then angle < MA1A = MA1C = 90°. (P4) so, MA1 is the minimum fixed distance h of point M to AC.

Step 2
Let B1 be the midpoint of CB,( it is B1C + B1B = CB because B1 is on the straight line CB) and draw B1M’ = h equal to A1M on the mid-perpendicular from point B1 to CB. Draw the circle (M’, M’B = M’C) intersecting the circle (M, MA = MC) at point D.(P3) Since M’C = M’B, point M’ lies on mid-perpendicular of CB. (CN1)

Step 3
Draw the perpendicular of CD at point C’. (P3, P1)
a. Because MA1 ⊥ AC and also M’C ⊥ CD then angle < A1MC’ = A1 CC’. (Cn 2,Cn3,E.1.15) Because M’B1 ⊥ CB and also M’C ⊥ CD then angle < B1M’C’ = B1CC’. (Cn2, Cn3, E.1.15)
b. The sum of angles A1CC’ + B1CC’ = 180° = A1MC’ +
3.1. The Succession of Proofs

3.2. Proofed Succession

1. Draw the circle \((M, MA)\) be joined meeting line \(AB\) in \(D\). On mid-perpendicular \(B1M'\) find point \(M'\) such that \(M1B1 = M'B1 = C'C = h\), i.e. the sum of angles in a Quadrilateral is 360° and in Rectangle all equal to 90°. (m)

2. Since angle \(< A1MM' = A1CC'\) and also angle \(< B1M1 = M'B1 = C'C\) (P4), therefore quadrilaterals \(A1C'CM, B1C'CM', A1B1M'\) are Rectangles (CN3).

3. The right-angled triangles \(MA1B1, M'B1A1\) are equal because \(A1M = M'B1\) and \(A1B1\) common, therefore side \(A1M' = B1M'\) and since their sum is 180° as before (6D), so angle \(< A1MM' = B1M'M = 90º\). (Cn2).

4. The right-angled triangles \(MA1B1, M'B1A1\) are equal, so diagonal \(M1B1 = M'B1\) and since triangles \(A1M, B1M\) are equal, then angle \(A1MM' = B1M'M\) and since their sum is 180°, therefore angle \(< A1MM' = M'MB1 = M'B1A1 = B1A1M = 90°\).

5. Since angle \(A1CC' = B1CC' = 90°\), then quadrilaterals \(A1CC'M, B1CC'M'\) are rectangles and for the three rectangles \(A1CC', B1CM', A1B1M'\) exists \(MA1 = M'B1 = C'C\).

6. The right-angled triangles \(MCA1, MCC'\) are equal, so angle \(< A1CM = C'MC\) and since the sum of angles \(< A1CM + MCB1 = 180°\) then also \(C'MC + MCB1 = 180°\) which is the second to show, as this problem has been set at first by Euclid.

All above is a Proof of the Parallel postulate due to the fact that the parallel postulate is dependent of the other four axioms (now is proved as a theorem from the other four).

Since \(AB\) is common to \(\infty\) Planes and only one Plane is passing through point \(M\) (Plane \(ABM\) from the three points \(A, B, M\), then the Parallel Postulate is valid for all Spaces which have this common Plane, as Spherical, n-dimensional geometry Spaces. It was proved that it is a necessary logical consequence of the others axioms, agree also with the Properties of physical objects, \(d + 0 = d, d \times 0 = 0\), now is possible to decide through mathematical reasoning, that the geometry of the physical universe is Euclidean. Since the essential difference between Euclidean geometry and the two non-Euclidean geometries Spherical and hyperbolic geometry, is the nature of parallel line, i.e. the parallel postulate so, <<The consistent System of the - non-Euclidean geometry - have to decide the direction of the existing mathematical logic >>.

The above consistency proof is applicable to any line Segment \(AB\) on line \(AB\), (segment \(AB\) is the first dimensional unit, as \(AB = 0 \rightarrow \infty\), from any point \(M\) not on line \(AB\), \([MA + MB > AB\) for three points only which consist the Plane. For any point \(M\) between points \(A, B\) is holding \(MA + MB = AB\) i.e. from two points \(M, A\) or \(M, B\) passes the only one line \(AB\). A line is also continuous (P1) with points and discontinuous with segment \(AB\) [14], which is the metric defined by non- Euclidean geometries, and it is the answer to the cry about the < crisis in the foundations of Euclidean geometry > (F2).

3.3. A Line Contains at Least Two Points, is Not an Axiom Because is Proved as Theorem

Definition D2 states that for any point \(M\) on line \(AB\) is holding \(MA + MB = AB\) which is equal to < segment \(MA + segment MB\) is equal to segment \(AB\) > i.e. the two lines \(MA, MB\) coincide on line \(AB\) and thus this postulate is proved also from the other axioms, thus D2 is not an axiom, which
form a system self consistent with its intrinsic real-world meaning. F.a → F.2.

4. The Types of Geometry

![Diagram of geometries]

The structure of euclidean geometry

Any single point A constitutes a Unit without any Position and dimension (non-dimensional = Empty Space) simultaneously zero, finite and infinite. The unit meter of Point is equal to 0.

Any single point B, not coinciding with A, constitutes another one Unit which has also dimension zero. Only one Straight line (i.e. the Whole is equal to the Parts) passes through points A and B, which consists another unit dimension Unit since is consisted of infinite points with dimension zero. A line Segment AB between points A and B (either points A and B are near zero or are extended to the infinite), consists the first Unit with one dimensional, the length AB, beginning from Unit A and a regression ending in Unit B. AB = 0 → ∞, is the one-dimensional Space. The unit meter of AB is m = 2.(AB/2) = AB because only one middle Point (the all is one for Lines and Points).

Adding a third point C, outside the straight line AB, (CA+CB >AB), then is constituted a new Unit (the Plane) without position, since is consisted of infinite points, without any position. Shape ABC enclosed between parts AB, AC, BC is of two dimensional, the enclosed area ABC, and since is composed of infinite Straight lines which are filling Plane, then, nature of Plane is that of Line and that of Points (the all is one for Planes, Lines and Points). Following harmony of unit meter AB=AC=BC, then Area ABC = 0 → ∞, is the two-dimensional Space with unit meter equal to m = 2.(πAB²)² = π. AB², i.e. one square equal to the area of the unit circle.

Four points A,B,C,D (....) not coinciding, consist a new Unit (the Space or Space Layer) without position also, which is extended between the four Planes and all included, forming Volume ABCD and since is composed of infinite Planes which are filling Space, then, nature of Space is that of Plane and that of Points (the all is one for Spaces, Planes, Lines and Points). Following the same harmony of the first Unit, shape ABCD is the Regular Tetrahedron with volume ABCD = 0 → ∞, and it is the three-dimensional Space. The dimension of Volume is 4 - 1 = 3. The unit measure of volume is the side X of cube X³ twice the volume of another random cube of side a = AB such as X³ = 2.a³ and X = ³√2.a. Geometry measures Volumes with side X related to the problem of doubling of the cube. In case that point D is on a lower Space Layer, then all Properties of Space, or Space Layer are transferred to the lower corresponding Unit, i.e. from volume to Plane to Plane the Straight line and then to the Point. This Concentrated (Compact) Logic of geometry [CLG ] exists for all Space – Layers and is very useful in many geometrical and physical problems. (exists, Quality = Quantity, since all the new Units are produced from the same, the first one, dimensional Unit AB).

N points represent the N-1 dimensional Space or the N-1 Space Layer, DL, and has analogous properties and measures. Following the same harmony for unit AB, (AB = 0 → ∞) then shape ABC...M (i.e the ∞ spaces AB = 1, 2,...nth) is the Regular Solid in Sphere ABC...M = 0 → ∞. This N Space Layer is limiting to ∞ as N → ∞. Proceeding inversely with roots of any unit AB = 0 → ∞ (i.e. the Sub-Spaces are the roots of AB, ²√AB, ³√AB,..ⁿ√ AB then it isⁿ√ AB = 1 as n → ∞), and since all roots of unit AB are the vertices of the Regular Solids in Spheres then this n Space Layer is limiting to 0 as n→∞ The dimensionality of the physical universe is unbounded (∞) but simultaneously equal to (1) as the two types of Spaces and Sub-Spaces show.

Because the unit-meters of the N-1 dimensional Space Layers coincide with the vertices of the nth-roots of the first dimensional unit segment AB as AB = ∞ → 0 ,which is point, (the vertices of the n-sided Regular Solids), therefore the two Spaces are coinciding (the Space Layers and the Sub-Space Layers are in superposition on the same monads).[F.5]

That is to say, Any point on the Nth Space or Space-Layer, of any unit AB = 0 →∞, jointly exists partly or whole, with all Subspaces of higher than N Spaces, N = (N+1) -1 = (N+2) -2 = (N+N)-N, = (N+∞) - ∞, where (N+1),...(N+∞) are the higher than N Spaces, and with all Spaces of lower than N Subspaces, N = (N-1) +1 = (N-2)+2 = (N-N)+N = (N -∞) +∞, where (N-1), (N-2), (N-N), (N-∞) are the lower than N Spaces. The boundaries of N points, corresponding to the Space, have their unit meter of the Space and is a Tensor of N dimension (i.e. the unit meters of the N roots of unity AB), simultaneously, because belonging to the Sub-Space of the Unit Segments > N, have also the unit meter of all spaces. [ F.5 ]

1. The Space Layers: (or the Regular Solids) with sides equal to AB = 0 → ∞ The Increasing Plane Spaces with the same Unit. (F.3)

![Diagram of increasing plane spaces]

The Sub-Space Layers: (or the Regular Solids on AB) as Roots of AB = 0 → ∞ The Decreasing Plane Spaces with the same Unit. (F.4)
2. The superposition of Plane Space Layers and Sub-Space Layers: (F.5) The simultaneously co-existence of Spaces and Sub-Spaces of any Unit AB = 0 → ∞, i.e. Euclidean, Elliptic, Spherical, Parabolic, Hyperbolic, Geodesics, metric and non-metric geometries have Unit AB as common. The Interconnection of Homogeneous and Heterogeneous Spaces, and Subspaces of the Universe. [F.5]

3. A linear shape is the shape with N points on a Plane bounded with straight lines. A circle is the shape on a Plane with all points equally distance from a fix point O. A curved line is the shape on a Plane with points not equally distance from a fix point O. Curved shapes are those on a Plane bounded with curved lines. Rotating the above axial-centrifugally (machine AB ┴ AC) is obtained Flat Space, Conics, Sphere, Curved Space, multi Curvature Spaces, Curved Hyperspace etc. The fact that curvature changes from point to point, is not a property of one Space only but that of the common area of more than two Spaces, namely the result of the Position of Points. Euclidean manifold (Point, sectors, lines, Planes, all Spaces etc) and the one dimensional Unit AB is proved to be the same thing (according to Euclid ἐν τὸ πάν). [F.5]

Since Riemannian metric and curvature is on the great circles of a Sphere which consist a Plane, say AMA’, while the Parallel Postulate is consistent with three points only, therefore the great circles are not lines (this is because it is MA + MA’ > AA’) and the curvature of Space is that of the circle in this Plane, i.e. that of the circle (O, OA), which are more than three points. Because Parallel Axiom is for three points only, which consist a Plane, then the curvature of < empty space > is equal to 0, (has not metric or intrinsic curvature). [F.6]

The physical laws are correlated with the geometry of Spaces and can be seen, using CLG, in Plane Space as it is shown in figures F3 - F5. A marvellous Presentation of the method can be seen on Dr Geo-Machine Macro-constructions.

Perhaps, Inertia is the Property of a certain Space Layer, which is the conserved work as a field, and the Interaction of Spaces happening at the Commons (Horizon of Space, Anti-Space) or those have been called Concentrated Logic = Spin, and so create the motion. [21].

Today has been shown in [38] that this common horizon is the common circle of Space, Anti-space equilibrium, which creates breakages and by collision all particles, dark matter and dark energy exist in these Inertial systems.

Gravity field is one of the finest existing Space and Anti-space quantization, which is restrained by gravity force. Hyperbolic geometry and straight lines:

The parallel axiom (the postulate) on any Segment AB in empty Space is experimentally verifiable, and in this way it is dependent of the other Axioms and is logically consistent, and since this is true then is accepted and so the Parallel Postulate as has been shown is a Parallel Axiom, so all Nature (the Universe as objective reality) is working according to the Principles (the patterns), the Properties and the dialectic logic of the Euclidean geometry. [17]

Hyperbolic and Projective geometry transfers the Parallel Axiom to problem of a point M and a Plane AB-C instead of problem of three points only, a Plane, which such it is. (F.6)

Vast (the empty space) is simultaneously ∞ and 0 for every unit AB, as this is for numbers. Uniformity (P4 = Homogenous Plane) of Empty Space creates, all the one dimensional units, the Laws of conservation for Total Impulse, and moment of Inertia in Mechanics, independently of the Position of Space and regardless the state of motion of other sources. (Isotropic Spaces) Uniformity (Homogenous) of Empty Time creates, the Laws of conservation of the Total Energy regardless of the state of motion (Time is not existing here, since Timing is always the same as zero) and Time Intervals are not existing. [17]. It was shown in [38] that Time is the conversion factor between the conventional units (second) and length units (meter).

In Special Relativity events from the origin are determined by a velocity and a given unit of time, and the position of an observer is related with that velocity after the temporal unit.

Since all Spaces and Subspaces co-exist, then Past, Present and Future simultaneously exist on different Space Layer. Odd and Even Spaces have common and opposite
Properties, (the regular Odd and Even regular Polygons on any dimensional Unit) so for Gravity belonging to different Layers as that of particles, is also valid in atom Layers. Euclidean geometry with straight lines is extended beyond Standard Model \((AB < 10^{-33} \text{ m})\) from that of general relativity where Spaces may be simultaneously Flat or Curved or multi-Curved, and according to the Concentrated, (Compact) Logic of the Space, are below Plank’s length Level, so the changing curvature from point to point is possible in the different magnitudes of particles. In Planck length level and Standard Model, upper speed is that of light, while beyond Planck length a new type of light is needed to see what is happening.

5. Respective Figures

5.1. Rational Figured Numbers or Figures

This document is related to the definition of “Heron” that gnomon is as that which, when added to anything, a number or figure, makes the whole similar to that to which it is added. In general the successive gnomonic numbers for any polygonal number, say, of \(n\) sides have \(n-2\) for their common difference. The odd numbers successively added were called gnomons. See Archimedes (Heiberg 1881, page 142). The Euclidean dialectic logic of an axiom is that which is true in itself.

This logic exists in nature (objective logic) and is reflected to our minds as dialectic logic of mind. Shortly for ancient Greeks was, \(\text{µηδέν εν τη νοήσει ειµή πρότερον εν το ί αισθήσοι}\) i.e. there is nothing in our mind unless it passes through our senses. Since the first dimensional Unit is any Segment \(AB\), it is obvious that all Rational Segments are multiples of \(AB\) potentially the first polygonal number of any form, and the first is \(2AB = AB + AB\), which shows that multiplication and Summation is the same action with the same common base, the Segment \(AB\). To Prove in F7:

The triangle with sides \(AC_1, AB_2, C_1B_2\) twice the length of initial segments \(AC, AB, CB\) preserves the same angles \(< A = BAC, B = ABC, C = ACB\) of the triangle. Proof:

a. Remove triangle \(ABC\) on line \(AC\) such that point \(A\) coincides with point \(C\) (\(A_1\)). Triangles \(CB_1C_1, ABC\) are equal, so \(CA' = AB, C_1A' = CB\).

b. Remove triangle \(ABC\) on line \(AB\) such that point \(A\) coincides with point \(B\) (\(A_2\)). Triangles \(BB_2C_2, ABC\) are equal, so \(BC_2 = AC, B_2C_2 = BC\).

c. The two circles \((C, CB_1 = AB)\) and \((B, BC_2 = AC)\) determine by their intersection point \(A'\), so triangles \(CBA', CBA\) are equal, and also equal to the triangles \(CC_1B_1, BB_2C_2\), and this proposition states that sides \(CB_1 = CA', BC_2 = BA'\). Point \(A'\) must simultaneously lie on circles \((C_1, C_1B_1), (B_2, B_2C_2)\), which is not possible unless point \(A'\) coincides with points \(B_1\) and \(C_2\).

d. This logic exists in Mechanics as follows: The linear motion of a Figure or a Solid is equivalent to the linear motion of the gravity centre because all points of them are linearly displaced, so 1st Removal \(--- BB_1 = AC, CB_1 = AB, BC = BC\) 2nd Removal \(--- CC_2 = AB, BC_2 = AC, BC = BC\) 1st +2nd Removal \(--- CC_2 = AB, BC_2 = AC, BC = BC\) which is the same. Since all degrees of freedom of the System should not be satisfied therefore points \(B_1, C_2, A'\) coincide.

e. Since circles \((C_1, C_1B_1 = C_1A' = CB), (B_2, B_2C_2 = B_2A' = CB)\) pass through one point \(A'\), then \(C_1A'B_2\) is a straight line, this because \(C_1A' + A'B_2 = C_1B_2\), and \(A'\) is the midpoint of segment \(B_2C_1\).

f. By reasoning similar to what has just been given, it follows that the area of a triangle with sides twice the initials, is four times the area of the triangle.

g. Since the sum of angles \(< C_1A'C + CA'B + BA'B_2 = 180°\) (6D) and equal to the sum of angles \(CBA + CAB + ACB\) then the Sum of angles of any triangle \(ABC\) is \(180°\), which is not depended on the Parallel theorem or else-where.

This proof is a self consistent logical system Verification:

Let be the sides \(a=5, b=4, c =3\) of a given triangle and from the known formulas of area \(S = (a + b + c) / 2 = 6\), \(\text{Area} = \sqrt{6.1.2.3} = 6\) For \(a=10, b=8, c=6\) then \(S = 24/2 = 12\) and \(\text{Area} = \sqrt{12.2.4.6} = 24 = 4 \times 6\) (four times as it is)

5.2. A given Point \(P\) and Any Circle \((O, OA)\)

To Prove:

The locus of midpoints \(M\) of segments \(PA\), is a circle with center \(O'\) at the middle of \(PO\) and radius \(O'M = OA / 2\) where, \(P\) is any point on a Plane \(A\) is any point on circle \((O, OA)\) \(M\) is mid point of segment \(PA\), Proof:

Let \(O'\) and \(M\) be the midpoints of \(PO, PA\). According to the previous given for Gnomon, the sides of triangle \(POA\) are twice the size of \(PO'M\), or \(PO = 2O'P'\) and \(PA = 2PM\) therefore as before, \(OA = 2O'M\), or \(O'M = OA/2\).

Assuming \(M\) found, and Since \(O'\) is a fixed point, and \(O'M\) is constant, then \((O', O'M = OA/2)\) is a circle. For point \(P\) on the circle: The locus of the midpoint \(M\) of chord \(PA\) is
the circle \((O,O'M = PO / 2)\) and it follows that triangles 
OMP, OMA are equal which means that angle \(<\ OMP = OMA = 90°\), i.e. the right angle \(<\ PMO = 90°\) and exists on 
diameter PO (on arc PO), and since the sum of the other two 
angles \(<\ MPO + MOP\) exist on the same arc \(PO = PM + MO\), it 
follows that the sum of angles in a rectangle triangle is \(90° + 90° = 180°\)

5.3. The Two Angles Problem

Any two angles \(\alpha = AOB, \beta = A'O'B'\) with perpendicular, 
sides are equal.

\[O = O' = O = O' \neq O'\]
\[\text{angle} \alpha \leq 90^\circ \quad \text{angle} \alpha > 90^\circ \quad \text{any angle} \]
Rotation of \(\alpha\) Rotating of \(\alpha = \beta\) Displacing of \(\alpha \neq \beta\)

Let \(AOB = a\) be any given angle and angle \(A'O'B' = b\) 
such that \(AO \perp O'A', OB \perp O'B'.\)

To proof that angle \(b\) is equal to \(a\).

Proof:

\[\text{CENTRE } O' = O, \alpha \leq 90^\circ\]
\[\text{Angle } < AOA' = 90^\circ = AOB + BOA' = \alpha + x (1)\]
\[\text{Angle } < BOB' = 90^\circ = BOA' + A'O'B' = x + \beta (2),\]
subtracting (1), (2) → angle \(\beta = \alpha\)

\[\text{CENTRE } O' = O, 90^\circ < \alpha < 180^\circ\]
\[\text{Angle } < AOA' = 90^\circ = AOB - BOA' = \alpha - x (1)\]
\[\text{Angle } < BOB' = 90^\circ = A'O'B' - A'O'B' = \beta - x (2),\]
subtracting (1), (2) → angle \(\beta = \alpha\)

\[\text{CENTRE } O' = O.\]

Draw circle \((M, MO = MO')\) with \(OO'\) as diameter 
intersecting \(OA,O'B'\) produced to points \(A1,B1.\)

Since the only perpendicular from point \(O\) to \(O'A'\) and 
from point \(O'\) to \(OB\) is on circle \((M, MO)\)
then, points \(A1, B1\) are on the circle and angles \(O'A1O,\)
\(O'B1O\) are equal to \(90°.\)

The vertically opposite angles \(a = a1 + a2, b = b1 + b2\) 
where \(O\perp OO'.\)

Since \(MO = MA1\) then angle \(<\ MOA1 = MA1O = a1.\)
Since \(MA1 = MO'\) then angle \(<\ MA1O' = MO'OA1 = x\)
Since \(MO' = MB1\) then angle \(<\ MO'B1 = MB1O' = z\)
Angle \(MO'C = 90° = x + b1 = z + b2.\)
Angle \(O'A1O = 90° = x + a1 = x + b1 → a1 = b1\)
Angle \(O'B1O = 90° = z + a2 = z + b2.\)
By summation \(a1 + a2 = b1 + b2\) the two angles \(a, b\) having their sides perpendicular among them are equal.

From upper proof is easy to derive the Parallel axiom, and 
more easy from the Sum of angles on a right-angled triangle.

5.4. Any Two Angles Having their Sides Perpendicular 
among them are Equal or Supplementary \([F.10]\)

\[AB = \text{Diameter } M \rightarrow B, AB \perp BM', AM1 \perp BM1,\]
\[AM2 \perp BM2 = AM2 \perp BM\]

Let angle \(<\ M1AM = a\) and angle \(<\ M1BM = b,\)
which have side \(AM1 \perp BM1\) and side AM2 \(\perp BM2\)

Show:
1. Angle \(<\ M1AM = M1BM = a\)
2. Angle \(<\ M1AM + M1BM = a + b = 180°\)
3. The Sum of angles in Quadrilateral \(AM1BM2\) is \(360°.\)
4. The Sum of angles in Any triangle \(AM1BM2\) is \(180°.\)

Proof:
1. In figure 10.3, since \(AM1 \perp BM1\) and \(AM2 \perp BM2\) or 
the same \(AM2 \perp BM,\) then according to prior proof, \(AB\)
is the diameter of the circle passing through points \(M1,\)
\(M2,\) and exists \(a1 + b1 = m1 = 90°, a2 + b2 = m2 = 90°\)
and by summation \((a1 + b1) + (a2 + b2) = 180°\) or \((a1 +\)
a2) + (b1 + b2) = \(a + b = 180°,\) and since also \(x = b\) \(=\)
\(180°\) therefore angle \(<\ x = a\)

2. Since the Sum of angles \(M1BM2 + M1BM = 180°\) then 
\(a + b = 180°\)

3. The sum of angles in Quadrilateral \(AM1BM2\) is \(a + b + 90° = 180° = 180° + 360°\)
4. Since any diameter \(AB\) in Quadrilateral divides this in 
two triangles, it is very easy to show that diamesus 
\(M1M2\) form triangles \(AM1BM2, BM1M2\) equal to \(180°\) 
each.

so, Any angle between the diameter \(AB\) of a circle is right 
angle \(90°).\)

1. Two angles with vertices the points \(A, B\) of a diameter 
\(AB,\) have perpendicular sides
2. and are equal or supplementary.
3. Equal angles exist on equal arcs, and central angles are 
twice the inscribed angles.
4. The Sum of angles of any triangle is equal to two right 
angles.

i.e two Opposite angles having their sides perpendicular 
between them, are Equal or Supplementary between them.
This property has been used in proofs of Parallel Postulate 
and is also a key to many others \([20]\).

Many theorems in classical geometry are easily proved by 
this simple logic.

Conclusions, and how useful is this invention is left to the 
reader.
5.5. A Point M on any Circle

5.5.1. A Point M on a Circle of any Diameter $AB = 0 \to \infty$

Let $M$ be any point on circle $(O, OM = OA = OB)$ and $M_1$, $M_2$ the middle points of $MA$, $MB$ and in second figure $MM_1 \perp BA$ at point $B$ (angle $AMM_1 = 90^\circ$).

In third figure $MM_1$ is a diameter of the circle.

Show:

1. Angle $< AMB = MBA + ABM = a + b = m$
2. Triangles $MBM_1$, $MBA$ are always equal and angle $< MBM_1 = AMB = 90^\circ$
3. The Sum of angles on triangle $MAB$ are $< AMB + MBA + ABM = 180^\circ$. 

Proof:

1. Since $OA = OM$ and $M1A = M1M$ and $OM1$ common, then triangles $OAM_1$, $OM1M$ are equal and angle $< OAM = OMA = BAM = a \to (a)$ Since $OM = OB$ and $M2B = M2M$ and $OM2$ common, then triangles $OM2B$, $OM2M$ are equal and angle $< OBM = OMB = ABM = b \to (b)$ By summation $(a)$, $(b)$ $BAM + ABM = (OMA + OMB) = AMB = a + b = m. (c)$ i.e. When a Point $M$ lies on the circle of diameter $AB$, then the sum of the two angles at points $A$, $B$ is constantly equal to the other angle at $M$. Concentrated logic of geometry exists at point $B$, because as on segment $AB$ of a straight line $AB$, which is the one dimensional Space, springs the law of Equality, the equation $AB = OA + OB$ i.e. The whole is equal to the parts, so the same is valid for angles of all points on the circumference of the circle $(O, OM)$, [ as Plane $ABM$ and all angles there exist in the two dimensional Space ], and it is $m = a + b$. In figure (11), when point $M$ approaches to $B$, the Side $BM'$ of angle $< ABM$ tends to the perpendicular on $BA$ and when point $M$ coincides with point $B$, then angle $< ABM = 90^\circ$ and $< OAM = BAM = 0$, therefore angle $< AMB = 90^\circ$ and equation $(c)$ becomes: $BAM + ABM = AMB = 90^\circ = AMB \perp BM$, and the sum of angles is $(BAM + ABM + AMB = 90^\circ + 90^\circ = 180^\circ$, or $BAM + ABM + AMB = 180^\circ$.

2. Triangles $MBA$, $MBM_1$ are equal because they have diameter $MM_1 = AB$, $MB$ common and angle $< OBM = OMB = b$ (from isosceles triangle $OMB$). Since Triangles $MBA$, $MBM_1$ are equal therefore angle $< MM_1B = MBA = a$, and from the isosceles triangle $OM1B$, angle $< OBM_1 = OM1B = a$ The angle at point $B$ is equal to $MBM_1 = MBA + ABM_1 = b + a = m = AMB$.

Rotating diameter $MM_1$ through centre $O$ so that points $M$, $M_1$ coincides with $B$, $A$ then angle $< MBM_1 = MBA + ABM_1 = BBA + ABA = 90^\circ + 0 = 90^\circ$ and equal to $AMB$ i.e. The required connection for angle $MBM_1 = AMB = m = a + b = 90^\circ$. (o.e.δ)

3. Since the Sum of angles $a + b = 90^\circ$, and also $m = 90^\circ$ then $a + b + m = 90 + 90 = 180^\circ$. It is needed to show that angle $m$ is always constant and equal to $90^\circ$ for all points on the circle. Since angle at point $B$ is always equal to $MBM_1 = MBO + OBM_1 = b + a = m = AMB$, by Rotating triangle $MBM_1$ so that points $M, B$ coincide then $MBM_1 = BBA + ABA = 90^\circ + 0 = m$. Since angle $< AMB = a + b = m$ and is always equal to angle $< MBM_1$, of the rotating unaltered triangle $MBM_1$, and since at point $B$ angle $< MBM_1$ of the rotating triangle $MBM_1$ is $90^\circ$, then is always valid, angle $< AMB = AMB_1 = 90^\circ$ (o.e.δ),

2a. To show, the Sum of angles $a + b = constant = 90^\circ = m$.

F11 $M$ is any point on the circle and $MM_1$ is the diameter. Triangles $MBA, MBM_1$ are equal and by rotating diameter $MM_1$ through centre $O$, the triangles remain equal.

Proof:

a. Triangles $MBA$, $MBM_1$ are equal because they have $MM_1A = M1B = M1M$ and $OM1$ common, then triangles $OAM_1$, $OM1B$ are equal and angle $< OAM = OMA = BAM = a \to (a)$ Since $OA = OB$ and $M2B = M2M$ and $OM2$ common, then triangles $OM2B$, $OM2M$ are equal and angle $< OBM = OMB = ABM = b \to (b)$ By summation $(a)$, $(b)$ $BAM + ABM = (OMA + OMB) = AMB = a + b = m. (c)$ i.e. When a Point $M$ lies on the circle of diameter $AB$, then the sum of the two angles at points $A$, $B$ is constantly equal to the other angle at $M$. Concentrated logic of geometry exists at point $B$, because as on segment $AB$ of a straight line $AB$, which is the one dimensional Space, springs the law of Equality, the equation $AB = OA + OB$ i.e. The whole is equal to the parts, so the same is valid for angles of all points on the circumference of the circle $(O, OM)$, [ as Plane $ABM$ and all angles there exist in the two dimensional Space ], and it is $m = a + b$. In figure (11), when point $M$ approaches to $B$, the Side $BM'$ of angle $< ABM$ tends to the perpendicular on $BA$ and when point $M$ coincides with point $B$, then angle $< ABM = 90^\circ$ and $< OAM = BAM = 0$, therefore angle $< AMB = 90^\circ$ and equation $(c)$ becomes: $BAM + ABM = AMB = 90^\circ = AMB \perp BM$, and the sum of angles is $(BAM + ABM + AMB = 90^\circ + 90^\circ = 180^\circ$, or $BAM + ABM + AMB = 180^\circ$.

b. When point $M$ moves on the circle, Euclidean logic is as follows:

Accepting angle $ABM' = b$ at point $B$, automatically point $M$ is on the straight line $BM'$ and the equation at point $B$ is for $(a = 0, b = 90^\circ, m = 90^\circ) \to 0 + 90^\circ = m$ and also equal to, $0 + b + 90^\circ = m$ or the same $\to b + (90^\circ - b) = m$ …… (B)

In order that point $M$ be on the circle of diameter $AB$, is necessary $\to m = b + a...(M)$ where, $a$, is an angle such that straight line $AM$ (the direction $AM'$) cuts $BM'$, and is $b + (90^\circ - b) = m$ constant, i.e. the demand that the two angles $a$, $b$, satisfy equation $(M)$ is that their sum must be constant and equal to $90^\circ$. (o.e.δ)

3. In figure 3, according to prior proof, triangles $MBA, MBM_1$ are equal. Triangles $AM1B$, $AMB$ are equal because $AB$ is common, $MA \equiv BM1$ and angle $< MAB = AMB_1$, so $AM1 = MB$. Triangles $AM1B$, $AMB$ are equal because $AB$ is common $MB = AM1$ and $AM = BM1$ therefore angle $< BMA = ABM = b$ and so, angle $MAM1 = ABM = 90^\circ$. (ο.ε.δ)
a + b = MBM_1.

Since angle AMB = AM_1B = 90° then AM ⊥ BM and AM_1 ⊥ BM_1.

Triangles OAM_1, OBM are equal because side OA = OB, OM = OM_1 and angle < MOB = AOM_1, therefore segment M_1A = MB.

Rotating diameter MM_1 through O to a new position M_x, M_1x any new segment is M_xB = M_xA + M_xB and segment BM x = AM_1x.

Simultaneously rotating triangle M_xBM_1 through B such that BM_x ⊥ AB then angle < M_xBM_1x = M_xB + A_1B = 90° + 0 = 90°, i.e. in any position M_x of point M angle < AM_1x = M_xBM_1x = 90°.

i.e. two Equal or Supplementary between them opposite angles, have their sides perpendicular between them. (the opposite to that proved)

Followings the proofs, then any angle between the diameter of a circle is right angle (90°), central angles are twice the inscribed angles, angles in the same segments are equal to one another and then applying this logic on the circumscribed circle of any triangle ABM, then is proved that the Sum of angles of any triangle is equal to two right angles or < BAM + ABM + AMB = 180°

5.5.2. A Point M on a Circle of Any Diameter AB = 0 → ∞

F.12

F.12.1 : It has been proved that triangles AMB, M_1BM_1 are equal and angle < AMB = M_1BM_1 = m for all positions of M on the circle. Since triangles OMB, OAM_1 are equal then chord BM = AM_1 and arc BM = AM_1.

F.12.2 : The rotation of diameter MM_1 through centre O is equivalent to the new position M_x of point M and arc BM = AM_1 = 0, and angle < M_1BM_1 = M_xBM_1.

F.12.3 : When diameter MM_1 is rotated through O, point M lies on arc MB = AM_1 and angle < M_1BM_1 is not altered (this again because MB = AM_1) and when point M is at B, point M_1 is at point A, because again arc BM = AM_1 = 0, and angle < M_1BM = M_1BM_1 = ABM_1 = 90° = m = a + b

Conclusion 1.

Since angle < AMB is always equal to MBM_1 = M_1BM_1 and angle M_1BM_1 = 90° therefore angle < AMB = a + b = m = 90°

Conclusion 2.

Since angle < ABB_1 = 90° = ABM + MBB_1 = b + a, therefore angle MBB_1 = a, i.e. the two angles < BAM, MBB_1 which have AM ⊥ BM and also AB ⊥ BB_1 are equal between them.

Conclusion 3.

Any angle < MBB_1 on chord BM and tangent BB_1 of the circle (O, OA = OB), where is holding (BB_1 ⊥ BA), is equal to the inscribed one, on chord BM.

Conclusion 4.

Drawing the perpendicular MM_1 on AB, then angle BMM_1 = MAB = MBB_1, because they have their sides perpendicular between them, i.e. since the two lines BB_1, MM_1 are parallel and are cut by the transversal MB then the alternate interior angles MBB_1, BMM_1 are equal.

Conclusion 5.

In Mechanics, the motion of point M is equivalent to, a curved one on the circle, two Rotations through points O, B, and one rectilinear in the orthogonal system M_1BM_1 = MBM_1.

5.5.3. A Point M on a Circle of any Diameter AB = 0 → ∞

F.13

Figure 13. Any angle on a circle - (5.5.2)

To show that angle < AMB = m = 90°
BB_1 ⊥ BA (angle ABB_1 = 90°), M = ⊥ AB

F.12.1 : It has been proved that triangles AMB, M_1BM_1 are equal and angle < AMB = M_1BM_1 = m for all positions of M on the circle. Since triangles OMB, OAM_1 are equal then chord BM = AM_1 and arc BM = AM_1.

F.12.2 : The rotation of diameter MM_1 through centre O is equivalent to the new position M_x of point M and arc BM = AM_1 = 0, and angle < M_1BM_1 = M_xBM_1.

F.12.3 : When diameter MM_1 is rotated through O, point M lies on arc MB = AM_1 and angle < M_1BM_1 is not altered (this again because MB = AM_1) and when point M is at B, point M_1 is at point A, because again arc BM = AM_1 = 0, and angle < M_1BM = M_1BM_1 = ABM_1 = 90° = m = a + b

Conclusion 1.

Since angle < AMB is always equal to MBM_1 = M_1BM_1 and angle M_1BM_1 = 90° therefore angle < AMB = a + b = m = 90°

Conclusion 2.

Since angle < ABB_1 = 90° = ABM + MBB_1 = b + a, therefore angle MBB_1 = a, i.e. the two angles < BAM, MBB_1 which have AM ⊥ BM and also AB ⊥ BB_1 are equal between them.

Conclusion 3.

Any angle < MBB_1 on chord BM and tangent BB_1 of the circle (O, OA = OB), where is holding (BB_1 ⊥ BA), is equal to the inscribed one, on chord BM.

Conclusion 4.

Drawing the perpendicular MM_1 on AB, then angle BMM_1 = MAB = MBB_1, because they have their sides perpendicular between them, i.e. since the two lines BB_1, MM_1 are parallel and are cut by the transversal MB then the alternate interior angles MBB_1, BMM_1 are equal.

Conclusion 5.

In Mechanics, the motion of point M is equivalent to, a curved one on the circle, two Rotations through points O, B, and one rectilinear in the orthogonal system M_1BM_1 = MBM_1.

F.14

Figure 14. An angle on a circle - (5.5.3)

Show that angle MBM_1 is unaltered when plane MBM_1 is rotated through B to a new position M_xBM_1x
Let Plane (MBM_1), (F13) be rotated through B, to a new position B1BM_1x such that:
1. Line BM → BB_1 intersects circle (O,OB) at point M_x and the circle (B,BM = BB_1), at point B1.
2. Line BM_1 → BM_1x extended intersects circle (O,OB) at the new point M_1x.
3. Angle < M_1BM_1x = MBB_1 = MBM_1, is angle of rotation.

Proof : Since angle < M_1BM_1x = MBM_1x, therefore angle < M1BM is unaltered by rotation → i.e. Angle < M_1BM = M_1xBM_1x and diameter MM_1 is sliding uniformly on their sides.

Data + Remarks.
1. Diameter MM_1 is sliding in angle M_1BM which means that points M_1, M lie on the circle (O,OB) and on lines
BM1, BM respectively, and also sliding to the other sides BM1x, BMx of the equal angle < M1xBMx. Any line segment M1xMw= MM1 is also diameter of the circle.
2. Only point Mx is simultaneously on circle (O,OB) and on line BB1.
3. The circle with point M1 as centre and radius M1xMw = MM1 intersect circle (O, OB) at only one unique point Mw.
4. Since angle < M1xBB1= M1BM and since segment M1xMw = MM1 then chord M1xBM1 must be also on sides of angles M1xBB1, M1BM, i.e. Point Mw must be on line BB1.
5. Ascertain 2 and 4 contradict because this property belongs to point Mx, unless this unique point Mw coincides with Mx and chord MxM1x is diameter of circle (O,OB).

Point Mx is simultaneously on circle (O, OB), on angle < M1xBB1= M1BMx and is sliding on line BB1. We know also that the unique point Mw has the same properties as point Mx, i.e. point Mw must be also on circle (O, OB) and on line BB1, and the diameter M1xMw is sliding also on sides of the equal angles M1xBB1, M1xBMx, M1BM.

Since point Mw is always a unique point on circle (O,OB) and also sliding on sides of angle M1BM = M1xBMx and since point Mx is common to circle (O,OB) and to line BB1 = BMx , therefore, points Mw, Mx coincide and chord MxM1x is diameter on the circle (O,OB), i.e. The Rotation of diameter MM1 through O, to a new position MxM1x, is equivalent to the Rotation of Plane (MM1) through B and exists angle < MBM1 = MxBM1x, so angle < MBM1 = MxBM1x = AMB = 90▫ = m = a + b ……… ο.ε.δ

Since angle < MBMx = M1BMx is the angle of rotation, and since also are MMx = M1xM1x (this because triangles OMMx, OM1M1x are equal) then: Equal inscribed angles exist on equal arcs.

6. General Remarks

6.1. Axiom not Satisfied by Hyperbolic or other Geometry

It has been proved that quadrilateral MA1C'C' is Rectangle (F1,d) and from equality of triangles MA1C, MC'C then angle < C'MC = MCA1. Since the sum of angles < MCA1 + MCB = 180▫, also, the sum of angles < C'MC + MCB = 180▫ which answers to Postulate P5, as this has been set (F1,e). Hyperbolic geometry, Lobachevsky's, non-Euclidean geometry, in Wikipedia the free encyclopedia, states that there are TWO or more lines parallel to a given line AB through a given point M not on AB. If this is true, for second angle C2MC, exists also the sum of angles < C2MC + MCB = 180▫, which is Identity (C2MC = C'MC), i.e. all (the called parallels) lines coincide with the only one parallel line MM', and so again the right is to Euclidean geometry.

Definitions, Axioms or Postulates create a geometry, but in order this geometry to be right must follow the logic of Nature, the objective reality, which is the meter of all logics, and has been found to be the first dimensional Unit AB = 0 → ∞ (F.3-4) i.e. the reflected Model of the Universe. Lobachevsky's and Riemann's Postulate may seem to be good attempts to prove Euclid's Fifth Postulate by contradiction, and recently by “compromising the opposites “in the Smarandache geometries. Non of them contradicts any of the other Postulates of what actually are or mean. From any point M on a straight line AB, springs the logic of the equation (the whole AB is equal to the parts MA, MB as well as from two points passes only one line (theoemp- ), which is rightly followed (intrinsically) in Euclidean geometry only, in contradiction to the others which are based on a confused and muddled false notion (the great circle or segment is line, disk as planes and others), so all non-Euclidean geometries basically contradict to the second definition (D2) and to the first Euclidean Postulate (P 1).

6.2. Hyperbolic Geometry Satisfies the Same 4 Axioms as Euclidean Geometry, and the Error if Any in Euclidean Derivation of the 5th Axiom

An analytical trial is done to answer this question.
Postulate 1: States that “Let it have been postulated to draw a straight-line from any point to any point”. As this can be done by placing the Ruler on any point A to any point B, then this is not in doubt by any geometry. The world “line” in Euclid geometry is straight line (the whole is equal to the parts, where lines on parts coincide) and axioms require that line to be as this is (Black color is Black and White color is White). For ancient Greeks < Ευθεία γραµµή έστιν, ή τις εξ’ ίσου τοίς εαυτής σηµείοι κείται. > Postulate 2 : states that, “ And to produce a finite straight-line ” Marking points A, B which are a line segment AB, and by using a Ruler then can produce AB in both sides continuously, not in doubt by any geometry.
Postulate 3: states that, “And to draw a circle with any centre and radius” Placing the sting of a Compass at any point A (centre) and the edge of pencil at position B and (as in definition 15 for the circle) Radiating all equal straight lines AB, is then obtained the figure of the circle (the circumference and the inside), not in doubt by any geometry.
Postulate 4 : states that, “And all right angles are equal to one another ” In definition D8 is referred as Plane Angle, to be the inclination of two lines in a plane meeting one another, and are not laid down straight-on with respect to one another, i.e. the angle at one part of a straight line. In definition D9 is stated “ And when the lines containing the angle are straight then the angle is called rectilinear ” and this because straight lines divide the plane, and as plane by definition is 360▫ then the angles on a straight line are equal to 180▫ In definition D10 is stated that a perpendicular straight line stood upon (another) straight-line makes adjacent angles (which are) equal to one another, each of the equal angles is a right-angle and this because as the two adjacent angles are equal and since their sum is 180▫, then the two right-angles are 90▫ each and since this happen to any two perpendicular straight-lines, then all right angles are equal to one another, not in doubt by any geometry.
Postulate 5: This postulate is referred to the Sum of the two internal angles on the same side of a straight-line falling across two (other) straight lines, being produced to infinity, and be equal to 180°. Because this postulate, beside all attempts to prove it, was standing for centuries, mathematicians created new geometries to step aside this obstruction. In my proposed article the followings have been geometrically proved:

From any point M to any line AB (the three points consist a Plane) is constructed by using the prior four Postulates, a system of three rectangles MA1CC’, C’CB1M’, MA1B1M’ which solve the problem. (3.d)

The Sum of angles C’MC and MCB is < C’MC + MCB = 180 °, which satisfies initial postulate P5 of Euclid geometry, and as this is now proved from the other four postulates, then it is an axiom.

The extended Structure of Euclidean-geometry to all Spaces (Spaces and Sub-spaces) resettles truth to this geometry, and by the proposed solution which is applicable to any point M, not on line AB, answers to the temporary settled age-old question for this problem.

Mathematical interpretation and all the relative Philosophical reflections based on the non-Euclid geometry theories must be properly revised and resettled in the truth one.

6.3. The sum of Angles on Any Triangle is 180°

Since the two dimensional Spaces exists on Space and Subspace (F.10) then this problem of angles must be on the boundaries of the two Spaces i.e. on the circumference of the circle and on any tangent of the circle and also to that point where Concentrated Logic of geometry exists for all units, as straight lines etc. It was proved at first that, the triangle with hypotenuse the diameter of the circle is a right angled triangle and then the triangle of the Plane of the three vertices and that of the closed area of the circle (the Subspace), measured on the circumference is 180 °.

6.4. Angles with Perpendicular Sides are Equal or Supplementary

In Proofed Succession (3.3.1), is referred that two angles with perpendicular sides are equal (or supplementary). To avoid any pretext, a clear proof is given to this presupposition showing that, any angle between the diameter AB of a circle is right angle (90°).

Any two angles with vertices the points A, B of a diameter AB, have perpendicular sides and are also equal or supplementary.

Equal angles exist on equal arcs, and central angles are twice the inscribed angles.

The Sum of angles of any triangle is equal to two right angles. So, there is not any error in argument of proofs.

The 5th Postulate is Depended on (derived from) the prior four axioms.

7. Criticism to Non-Euclid Geometries

The essential difference between Euclidean and non-Euclidean geometries is the nature of parallel lines.

Euclid’s fifth postulate, the parallel postulate, states that, within a two-dimensional plane ABM for a given line AB and a point M, which is not on AB. F1(3), i.e. MA+MB > AB, there is exactly one line through M that does not intersect AB because if MA+MB = AB then point M is on line AB and then lines MA, MB coincide each one passing from two points only and thus is answered the why any line contains at least two points. In Euclid geometry, in case of two straight lines that are both perpendicular to a third line, the lines remain at a constant distance from each other and are known as parallels. Now is proved that, a point M on the Nth Space, of any first dimensional Unit AB = 0 → ∞, jointly exists, with all Sub-Spaces of higher than N Spaces, and with all Spaces of lower than N Subspaces.

This is the Structure of Euclidean geometry. F2(2) As in fundamental theorem of Algebra Equations of Nth degree can be reduced to all N-a or N+a degree, by using the roots of the equations, in the same way Multi-Spaces are formed on AB. Nano-scale-Spaces, inorganic and organic, Cosmic-scale-Spaces are now unified in our world scale. Euclidean Empty Space is Homogenously Continues, but all first dimensional Unit-Spaces Heterogeneous and this because all Spaces constitute another Unit (the Nth Space Tensor is the boundaries of N points). All above referred and many others are springing from the first acceptance for point, and the approaching of Points. By multiplication is created another one very important logical notion for the laws concerning Continues or not Continues Transformations in Space and in Time for Mechanics, Physics Chemistry and motions generally. From this logic yields that a limited and not an unlimited Universe can Spring anywhere. Since Non-existence is found everywhere then Existence is found and is Done everywhere.

If Universe follows Euclidean geometry, then this is not expanded indefinitely at escape velocity, but is moving in Changeable Spaces with all types of motions, < a twin symmetrically axial –centrifugal rotation > into a Steady Space (This is System AB ↓AB = 0 → AB → ∞), with all types of curvatures. (It is a Moving and Changeable Universe into a Steady Formation) [7]. It was proved that on every point in Euclid Spaces exist infinite Impulse P = 0 → P → ∞, and so is growing the idea that Matter was never concentrated at a point and also Energy was never high < very high energy > [17], i.e. Bing Bang has never been existed, but it is a Space conservation Energy State → W = [A-B [ P ds ] = Σ P.δ = 0. [21]

Gravity is particle also, in Space-Energy level which is beyond Plank’s length level which needs a new type of light to see, with wave length smaller than that of our known visible light and thus can enter our wave length of light, and thus the Euclidean geometry describes this physical Space. An extend analysis in [21] → [23 – 34-36].

Hyperbolic geometry, by contrast, states that there are
infinitely many lines through M, not intersecting AB. In Hyperbolic geometry, the two lines “curve away” from each other, increasing in distance as one moves further from the points of intersection with the common perpendicular, which have been called ultra-parallel. The simplest model for Hyperbolic geometry is the pseudo-sphere of Beltrami-Klein, which is a portion of the appropriate curvature of Hyperbolic Space, and the Klein model, by contrast, calls a segment as line and the disk as Plane.???. In hyperbolic geometry the three angles of a triangle add less than 180°, without referring that triangle is not in Plane, but on Sphere < Spherical triangle F2(1) >. This omission created the wrong hyperbolic geometry. Mobius strip and Klein bottle (complete one-sided objects of three and four dimensions) transfers the parallel Postulate to a problem of one point M and a Plane, because all curves and other curve lines are not lines (For any point on a straight line exists < the whole is equal to the parts which is an equality > and not the inequality of the three points) because contradict to the three points only and anywhere. Einstein's theory of general relativity is bounded in deviation Plank's length level, where exists Space-time. Euclidean geometry is extended to zero length level where Gravity exists as particle with wavelength near zero and infinite Energy, a different phenomenon than Space-time. In this way is proved that propositions are true only then, they follow objective logic of nature which is the meter of all logics. Answers also to those who compromise incompatibility by addition or mixture.

If our Universe follows Hyperbolic geometry then this is expanded indefinitely, which contradicts to the homogenous and isotropic Empty Spaces. [36].

This guides us to a concentrated at a point matter and Energy << very high energy >>, Bing Bang event. Elliptic geometry, by contrast, states that, all lines through point M, intersect AB. In Elliptic geometry the two lines “curve toward” each other and eventually intersect. The simplest model for Elliptic geometry is a sphere, where lines are “great circles”???. For any great circle (which is not a straight line) and a point M which is not on the circle all circles through point M will intersect the circle. In elliptic geometry the three angles of a triangle add greater than 180°, without referring that triangle is not in Plane, but in the Sphere (spherical triangle). This omission created the wrong elliptic geometry and all others.

Assuming the postulate of Relativity, c = constant, was valid without restrictions, this would imply that all forces of nature must be invariant under Lorentz transformations in order that principle be rigorously and universally true.

Also say that an object flying pass a massive object, the space time is curved by the massive object.

It is proved [8] that from any point, M, not on line AB can be drawn one and only one parallel to AB, which parallel doesn’t intersect line. GR assimilating gravity as the curvature in space-time and not as Force and this based on Elliptic geometry, by contrast, which states that, all lines through a point M and parallel to a line AB intersect line is failing. Since also in [34-36] Gravity is force |Vi=2(wr)²| in the Medium-Field Material-Fragment |± s²|= (MFMF) which is the base for all motions, Elliptic Geometry must be properly revised.

Appealing space-time a Prieri accepts the two elements, Space and Time, as the fundamental elements of universe without any proof for it, so anybody can say that this stay on air. It has been proved [22-26] that any space AB is composed of points A,B which are nothing and equilibrium by the opposite forces PA = - PB following Principle of Virtual Displacement. Time is the conversion factor between the conventional units (second) and length units (meter). By considering the moving monads (particles etc. in space) at the speed of light, pass also through Time, this is an widely agreeable illusion.

The Parallel postulate is proved to be dependent on the other four therefore is a theorem, and was one of the unsolved from ancient times Greek problems and because, this age-old question was faulty considered settled with the Non-Euclidean geometries, part of modern Physics and mathematics from Astrophysics to Quantum mechanics have been so progressively developed on these geometries, resulting to Relativity’s space-time confinement and thus weak to conceive the beyond Planck’s existence and explain universe.

It is a provocation to all scare today Geometers and mathematicians to give an answer to this article.

8. Conclusions

A line is not a great circle, so anything is built on this logic is a mislead false.

The fact that the sum of angles on any triangle is 180° is springing for the first time, in this article (Rational Figured numbers or Figures).

This admission of two or more than two parallel lines, instead of one of Euclid’s, does not proof the truth of the admission. The same to Euclid’s also, until the present proved method. Euclidean geometry does not distinguish, Space from time because time exists only in its deviation - Plank's length level-, neither Space from Energy because – Energy exists as quanta on any first dimensional Unit AB-
which connects the only two fundamental elements of Universe, that of points and that of energy. [21]

The proposed Method in this article, based on the prior four axioms only, proofs, (not using any admission but a pure geometric logic under the restrictions imposed to seek the solution) that, through point M on any Plane ABM (three points only which consist the Plane), passes only one line of which all points equidistant from AB as point M, i.e. the right is to Euclid Geometry.

Thrust of two quaternion is the, Action of quaternions, from the dot product of ,w, spin, and represents the , Anti-Space, part of quaternion. The composition and the decomposition of monads into the two elements of nature, that of Space, Anti-space and that of energy.

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