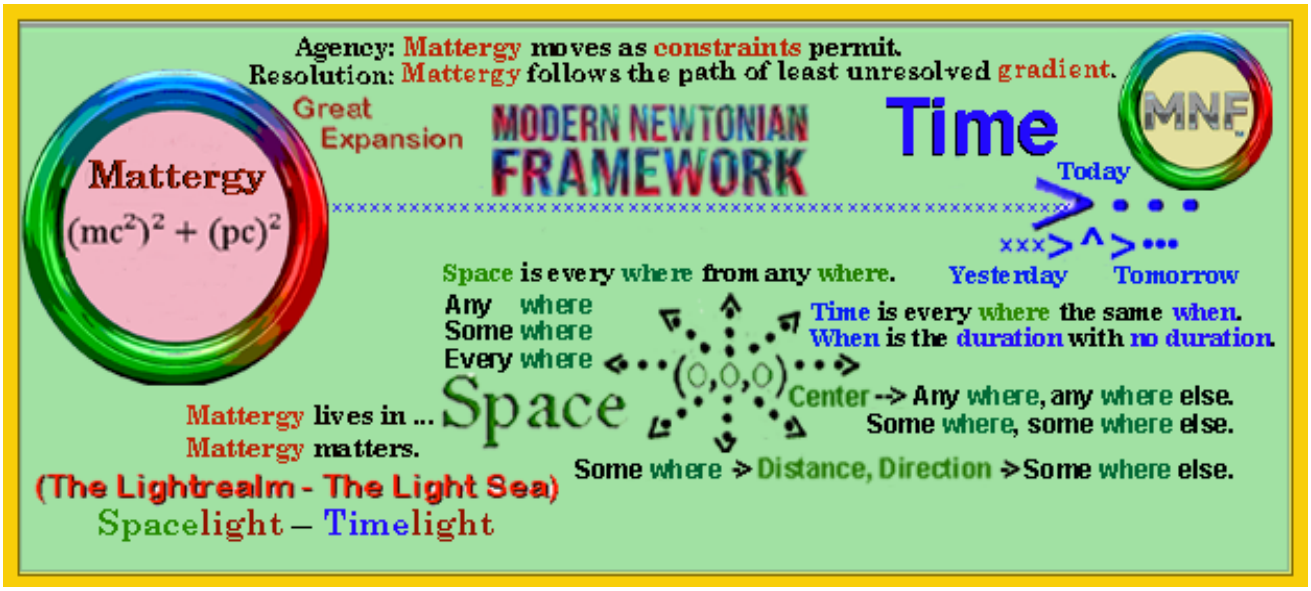
The Modern Newtonian Framework ^

<Table of Contents> <Sphere of Mattergy> <Ontology>



The Modern Newtonian Perspective

Your Guide to The Newtonian Approach

The Axioms:	<1. Space>	<2. Mattergy>	<3. Time>
The Sets:	<4. Ages>	<5. Certainty / Make Believe>	
Essentials:	<6. Measures>		
	<7. Laws/Principles>		
Structural:	<8. The Lightrealm, The Light Sea>		
Rebuild:	<9. Spacetime meets Spacelight, Timelight.>		

<Newtonian Walk-Thru>

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-> V

Walking The Modern Newtonian Framework

The Foundation
(The building blocks of understanding):



Axiomatic Scaffolding, the recognition of axiomatic truth,
the foundation of anchored, proper knowledge.
(Axioms are self-evident, no proof needed, only recognition.)

The Audit Layer (Enforcing A is A):

Distinguish proper from improper truth.
Improper truth—unanchored, unevidenced—is refused.
The Audit Layer walks only what threads clarity.
Extraordinary claims require extraordinary evidence.

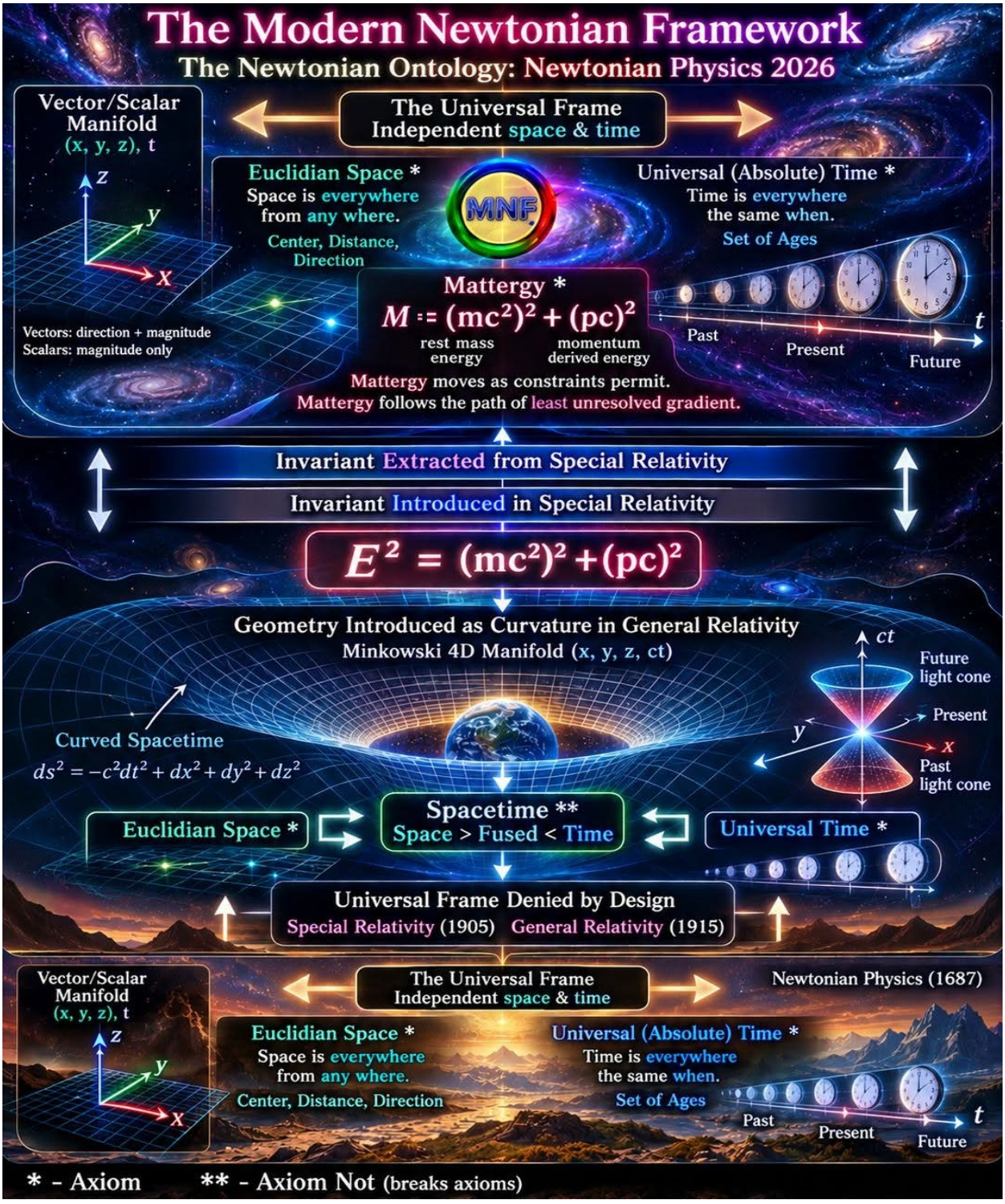
The Process:

Apply proper knowledge through the scientific method.
Walk proper truth—repeatable, falsifiable, and referent-aligned.

The Result:

Have an Open-Mind (The "how to" of any new, proper truth):
An open mind is the gate. Discover further proper truth from existing proper truth and presented evidence. This is the only means to reach any proper future discovery. From what is known and evidenced, we walk into what may be.
Hypothesis is the bridge. Audit is the compass.

<The Sphere of Mattergy> <The Ontology>



<* Space> <* Time> <* Mattergy> <The Sphere of Mattergy>

The Modern Newtonian Framework *For starters …* <- ^

Hello, curious minds and scientific stewards. Request for **peer review:**

Is it you? What do you say? Yay? Nay? Either way, this inquiring mind wants to know.

The Newtonian Framework is scalar in result, modular in scope, rigorously described.
One curious mind is enough. A hundred is better. Indeed, we are a bit closer to infinity.

I'm Craig Seavey, a creative individual passionate about clarity, agency, the scientific method. The Modern Newtonian Framework is a rigorous, readable, and scalar approach to restoring referent clarity in physics—preserving the math, refining the descriptions, and anchoring every claim in falsifiability and audit. The Newtonian Framework restores clarity using a modern Newtonian approach to discover and apply proper truth, verifiable, falsifiable, compatible with the scientific method. The Newtonian Framework is thorough in scope, readable, even entertaining at times. (It is physics, you know.)

$E^2 = (mc^2)^2 + (pc)^2$ remains unchanged.

Space? Euclidian. Time? The When (xxx>^>…), The Set of Ages.

***The Newtonian Vector/Scalar manifold:* (x, y, z), t.**

What I do:

1) Define ***space.*** ***Centers, Distances, Directions … Space is space. A is A.***
2) Define ***time.*** ***Timespans, Lightspans, The When (xxx>^>…),*** *The* ***Set of Ages.***
3) Define ***mattergy.*** ***Mattergy is $(mc^2)^2 + (pc)^2$. – Invariant from Special Relativity.***
4) Move ***agency.*** ***Spacetime → Mattergy constraints and gradients.***
5*) Describe the* ***ontology*** *in action in accordance with proper truth.*
The Lightrealm, The Light Sea, Spacelight, *and* ***Timelight are all properly derived.***



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Email: littleboblue@outlook.com

+ The Modern Newtonian Framework - Table of Contents <- ^ ->

1. The Axiom of Space: Space is every where from any where.

1a. Homogeny / Isotropy 1b. The Corollary of Distance and Direction.

2. The Axiom of Mattergy: Mattergy Matters. <Sphere of Mattergy>

2a. The Corollary of Agency. 2b. The Corollary of Resolution. 2c. Projections

3. The Axiom of Time: Time is every where the same when.

3a. The When	3b. Tiny Time	3c. Tensors
3d. Time Embedded	3e. Time Defined	3f. Time Travel? Not!
3g. Conceptualization	3h. Universality	

4. The Set of Ages

4a. Concurrent Ages	4b. Eras/Epochs	4c. Do Photons Age?	4d. Simultaneity

5. The Set of Certainty Always so. Never not.

5a. Set of Make Believe	5b. Table of Fallacy	5c. Paradox? Not!
5d. The Great Expansion	5e. Waves/Particles	

6. Measures 6a. Proper--Improper

6b. Relativity	6c. Family	6d. Foot-Long	6e. Insight	6f. Observer

7. Laws/Principles: Isaac, Albert, Both at Once.

7a. Modernizing	7b. Fan	7c. Real	7d. Cone	7e. Sphere

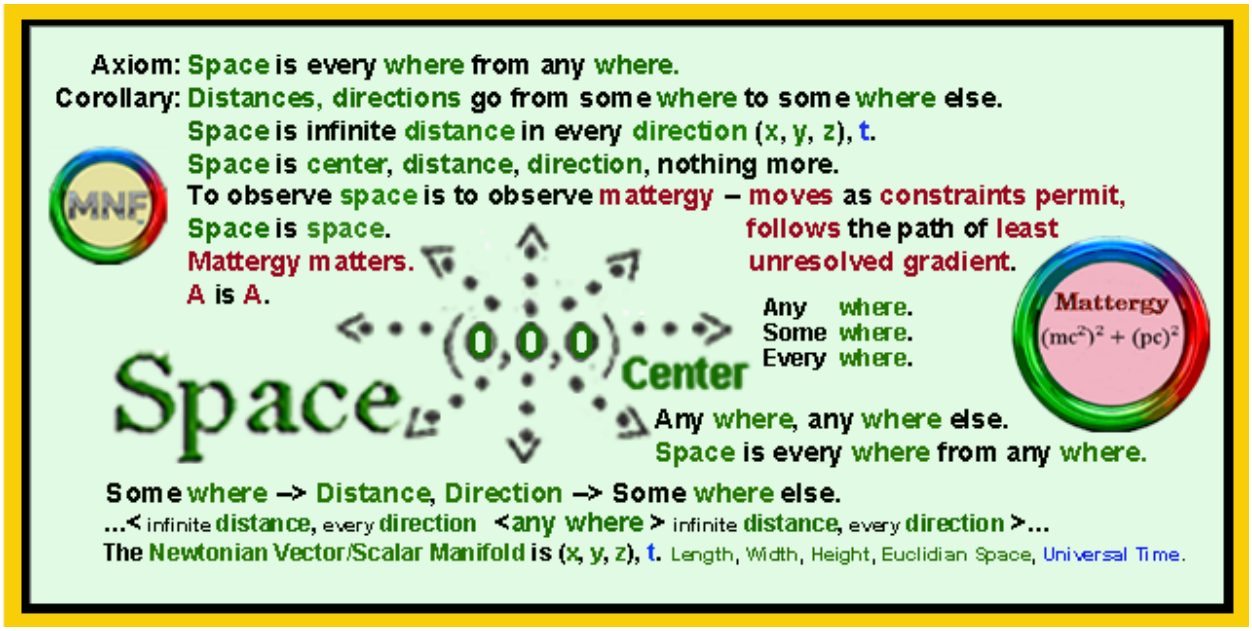
8. The Lightrealm: Keeper of the Light. 8a. The Light Sea: Carrier of the Light.

8b. Parent Concept	8c. Child Concepts	8d. Root Primitives

9. Spacetime meets Spacelight, Timelight.

1. The Axiom of Space: *The Euclidian Space.*

^ ->



Space is every where from any where. The axiom of space is self-evident.

- Space is the first condition, self-evident, no proof needed.

Space is simply space. Space is Space. A is A.

Space requires no proof. **Space presupposes proof.**

(x, y, z) is the **center any where** but must be **some where.**

From any where (0, 0, 0), all Space derives.

Space is **ordered and centered**, from **any where.**

Space is infinite distance in all directions for **every where any where.**

Space allows **measure** in terms of **length, width, height (x, y, z).**

How big, how small, how short, how tall, that is **mattergy, not space.**

The relation of Space to Time: *Space is every where from any where.*

<> **Time is every where the same when.**

The when is every where at once. The Vector/Scalar manifold is (x, y, z), t.

Space is observed directly for what it is, simply Space.

That's it. (x, y, z), length, width, height, Euclidian Space.

Space is every where from any where, the simplest concept in physics.

<The Sphere of Mattergy> <Ontology>

Euclid and Descartes ... *Euclidian Space* <- ^ ->

Euclid for the geometry … Descartes for the algebra.

The Modern Newtonian Framework

Euclid: Some Definitions ...

1: A point is that which has no part → dimensionless anchor.
2: A line is breadthless length. → no width.
3: The ends of a line are points. → these points are dimensionless, too.
4: A straight line is a line which lies evenly with the points on itself. → no bend.
5: A surface is that which has length and breadth only. → planes are 2D.

Euclid's Five Postulates ...

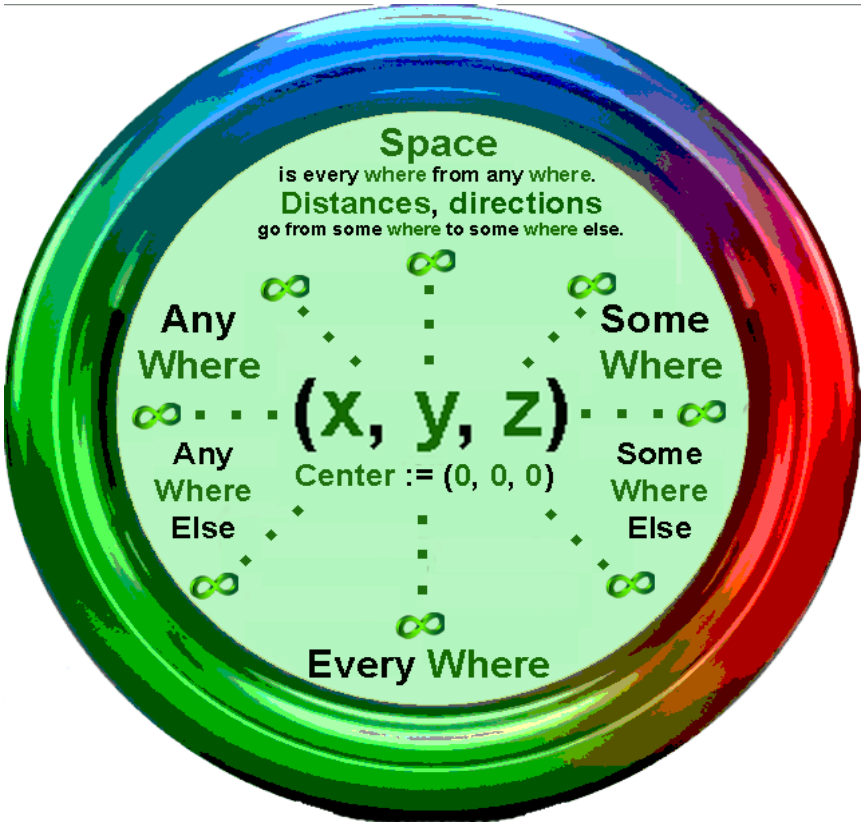
1. A straight line can be drawn extending from any point two points.
→ Directional anchor. Rank-1 vector consequence.
2. A finite straight line can be extended forever in a straight line.
→ Scalar extension. No stitched curvature.
3. A circle can be drawn with any center and radius.
→ Symmetry in scalar space. Curvature without inflation.
4. All right angles are equal to one another.
→ Geometric consistency. Scalar invariance across frames.
5. If a line intersects two lines such as the interior angles on the same side are less than two right angles, the two lines will eventually meet.
→ The parallel postulate.

Descartes' Five Postulates ... (Extensions of Euclid)

1. A referent can be anchored between any two points.
→ Modular direction. Rank-1 vector consequence.
2. A scalar extension can be continued without stitched curvature.
→ Audit integrity. No inflation.
3. A curvature can be drawn from any center with any radius.
→ Symmetry in scalar space. Glyph of consequence.
4. All right angles are scalar invariants.
→ Geometric consistency across frames.
5. If a referent intersects two frames such that the interior consequene is less than scalar parity, the frames will converge.
→ Parallel postulate rephrased. Audit over assumption.

<The Sphere of Mattergy> <The Ontology>

1a. Euclidian Space: Homogenous and Isotropic <- ^ ->



Homogeny -- A homogeneous system has the same properties at every point, uniform, no irregularity. Euclidian space is exactly that, infinite potential distance in every direction. Pick any point. Call it center. From any center there is infinite distance in every direction. Every *where* has the same properties, uniform every *where*, no irregularity possible, by definition, self-evident, obvious.

Isotropy -- Isotropy is a fundamental concept in physics that describes a system which has the same properties in all directions. The term is derived from the Greek 'isos', meaning equal, and 'tropos', meaning direction. Euclidian Space is isotropic by definition, self-evident, obvious.

<The Sphere of Mattergy> <Ontology>

1b. The Corollary of Distance and Direction. <- ^ ->

Distances, directions go from some where to some where else, from any where to any where else.

Space has no agency. Space cannot flex, bend, expand, contract—none of that. Space has no substance for agency to occur. Space is a mapped terrain: a canvas of projected infinite distance in an infinity of potential directions. Space is mapped in context, anchored by chosen center/origin. Direction is scalarized when a line segment is drawn between two origins—its slope expresses consequence, not agency.

Centers: A center is a where, a particular where. Wheres relate space outward from a chosen where. Context determines the where. Wheres may appear within finite objects—a baseball, a tree, the Earth, the Sun, the Milky Way. Any one of infinite wheres, any where . The center of the Universe is chosen arbitrary where—a some where in every where.

Origins: Origins acquire meaning only when particular distances are measured. Origins are endpoints. Both sides of a distance measure are endpoints of that measure; one is a here, the other a there. The here and there are interchangeable. Orientation does not affect measure. Take a yardstick: does it matter if the measure is right to left, left to right, up to down, down to up, in to out, or out to in? No. It is the same distance that is measured.

Any where: From any center, all space is derived. The Center of The Universe can be any where, from yourself, from myself, from Earth, from the Solar System, from Sagittarius A*, from Andromeda, from the Laniakea Supercluster, any choice of center is proper according to context. Context determines the chosen where as the origin of any spatial measure.

Every where: The set of all potential wheres for distances and directions.

Some where / some where else: Locations that define a finite distance, in a particular direction. Distances are always measured from some where to some where else. Again, some where and some where else are interchangeable.

The **axiom of space** is embedded in all such measures. **Some where** is a particular location. **Any where** is any one of the particular locations within the infinite **every where**.

<The Sphere of Mattergy> <Ontology>

2. The Axiom of Mattergy - The Axiom of Relativity <- ^ ->

Mattergy matters.

Mattergy is $(mc^2)^2 + (pc)^2$ *: rest mass + momentum derived energy***.**

$(mc^2)^2 + (pc)^2$ is ***invariant*****. The invariant matters.**
The ***invariant itself is axiomatic*****.** Therefore, **Mattergy matters.**

Mattergy is the conserved substrate of change.

Relativity is fact; the math stands, and we use it here.
Mattergy *respects the axioms of both space and time.*
Light, for example, travels distance over time--spatial distance--scalar time.
Mattergy *matters. Clarity matters, too. A is A.*

Space is every where from any where.
Space is the first condition, self-evident, no proof needed.
Space is Space, simply space.
The **center** (**0, 0, 0)** is the **any where** from which **every where** derives.
Euclidian Space is a framework of **distance** and **direction** from a **center.**

It is said, in the ***absence*** *of* ***mattergy*** *space is Euclidian, i. e. Flat.*
Well, duh! Space is the empty stage. Mattergy acts on that stage.

So, what then, is curving? lensing? bending? worm holing? Black-holing?

Mattergy is the **invariant. Space** and **time** are **self-evident** conditions. **Mattergy** is the **self-evident consequence** of those conditions. **The Modern Newtonian Framework** removes the **agency** wrongly applied to **space** and **time,** and applies that **agency** instead to **Mattergy**. **Spacetime** is **geometry rather than real. Mattergy** is **the** real **conserved substrate of change.**

<Sphere of Mattergy> <Ontology> <Agency> <Resolution> <Projections>

2a. Mattergy: The Corollary of Agency.

<- ^ ->

Mattergy moves as constraints permit.

Agency: Mattergy is the only domain in which agency occurs. Space has no agency; time has no agency. Agency belongs to mattergy alone. Mattergy cannot be created or destroyed. Mattergy is conserved. Its total quantity remains invariant; only its configuration changes. Mattergy is the agent of physical evolution. Where space provides center, distance, and direction, mattergy provides change, consequence, and motion.

Substance: Mattergy is substance, not setting. Space is the mapped terrain; mattergy is what occupies, moves, interacts, and changes within that terrain. Mattergy expresses gradients. Differences in mattergy distribution define gradients. Gradients are not forces; they are conditions that mattergy resolves.

Constraint: Mattergy resolves under constraint. Constraints—geometric, structural, or relational—shape how mattergy can redistribute. Constraints do not cause motion; they permit or forbid configurations.

Consequence: Mattergy carries consequence. All observable change is the reconfiguration of mattergy. Motion, interaction, and transformation are expressions of mattergy adjusting within permitted pathways. Mattergy is local but not isolated. Mattergy occupies particular locations (“somewhere”), but its redistribution is always relational, shaped by the surrounding configuration.

The Dynamics: Mattergy is the seat of dynamics. Dynamics are not imposed from outside; they arise from mattergy resolving its gradients within the system’s constraints.

<Sphere of Mattergy> <Ontology> <Mattergy> <Projection>

2b. Mattergy: *The Corollary of Resolution.* <- ^ ->

Mattergy follows the path of least unresolved gradient.

Selection: Mattergy selects among all pathways permitted by the system's constraints. Selection arises from the configuration itself, not from external imposition. A permitted pathway is one that does not violate conservation or constraint structure.

Preference: Mattergy prefers the pathway that most reduces unresolved gradient. This preference is not a choice but a structural consequence of gradient expression. In systems with internal structure, coherence imposes intrinsic admissibility constraints; preferred pathways reduce unresolved gradient while preserving the system's structural invariants. The preferred pathway is the one that most effectively resolves imbalance.

Uniqueness: When multiple pathways resolve gradients equally, symmetry determines equivalence. Equivalent pathways are indistinguishable in consequence and therefore interchangeable. Symmetry removes distinctions; it does not create new motion.

Continuity: Mattergy transitions smoothly when gradients change smoothly. Discontinuities arise only when constraints impose abrupt changes in permitted pathways. Continuity reflects the relational structure of mattergy, not an external smoothing rule.

Determinacy: The selected pathway is determined entirely by the configuration of mattergy and constraints. No external agency, force, or field selects the motion. Determinacy is internal agency acting within permitted structure.

Non-randomness: Selection is not probabilistic; it is structurally determined. Randomness reflects incomplete knowledge of configuration, not intrinsic indeterminacy. Resolution expresses lawful behavior, not statistical preference.

Locality: Selection depends on local gradients and local constraints. Mattergy resolves what is present where it is, not what is distant or disconnected. Locality grounds resolution in the immediate configuration.

Closure: Resolution completes the dynamical rule initiated by Agency. Agency establishes that mattergy moves; resolution determines how it moves. Together, they form a complete Newtonian generator for physical evolution.

<The Sphere of Mattergy> **<Ontology>**

=

The Modern Newtonian Framework

Mattergy := $(mc^2)^2 + (pc)^2$: ***Agency - Resolution***

Agency and Resolution describe what mattergy does:
Geodesic Motion - Mattergy moves as constraints permit.
Least Action - Mattergy follows the path of least unresolved gradient.
The Vector/Scalar manifold is (x, y, z), t.

Position of mattergy subsystem $x(t)$

Christoffel symbol (encodes constraint distribution) (Euclidian Space)

scalar age τ (subsystem's accumulated time)

Agency:

$$\frac{d^2x^\alpha}{d\tau^2} + \Gamma^\alpha_{\beta\gamma}\frac{dx^\beta}{d\tau}\frac{dx^\gamma}{d\tau} = 0$$

second derivative of spatial position with respect to scalar age τ

components of mattergy's spatial velocity and scalar aging (x, y, z), t

Resolution:

$$S = \int_{t_1}^{t_2} (KE - PE)dt$$

Mattergy selects its path as scalar time accumulates. The scalar integral S measures the total unresolved gradient over the interval of scalar time t. Mattergy resolves gradients by selecting the path that minimizes this quantity.

Key Components

- $x^\alpha(\tau)$ spatial coordinates of mattergy as scalar age τ accumulates.
- $\Gamma^\alpha_{\beta\gamma}$ Christoffel symbols built from the constraint geometry. They encode how constraints distribute mattergy's motion in Euclidian space.
- τ scalar age τ — the subsystem's accumulated time in the Universe-as-system.
- $\frac{dx^\alpha}{d\tau}$ components of mattergy's spatial velocity and scalar aging in the manifold (x, y, z), t

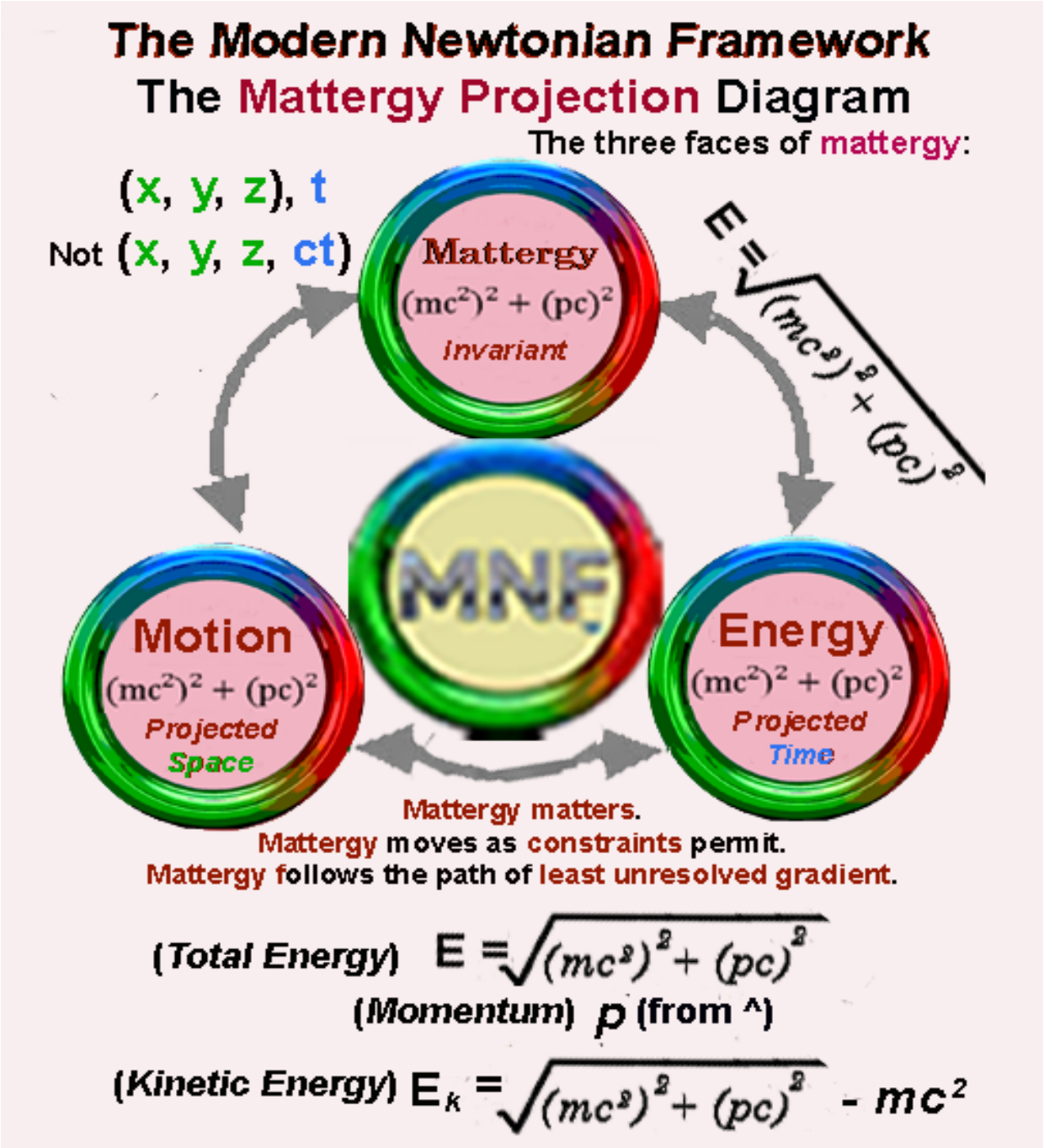
KE = kinetic energy; PE = potential energy

Agency: Mattergy moves as constraints permit.
Resolution: Mattergy follows the path of least unresolved gradient.
Unified identity: When Agency and Resolution are satisfied, net unresolved action is zero.

<Sphere of Mattergy> <Mattergy> <Agency> <Resolution>

2c. ***Mattergy Projects*** *Energy and Motion*

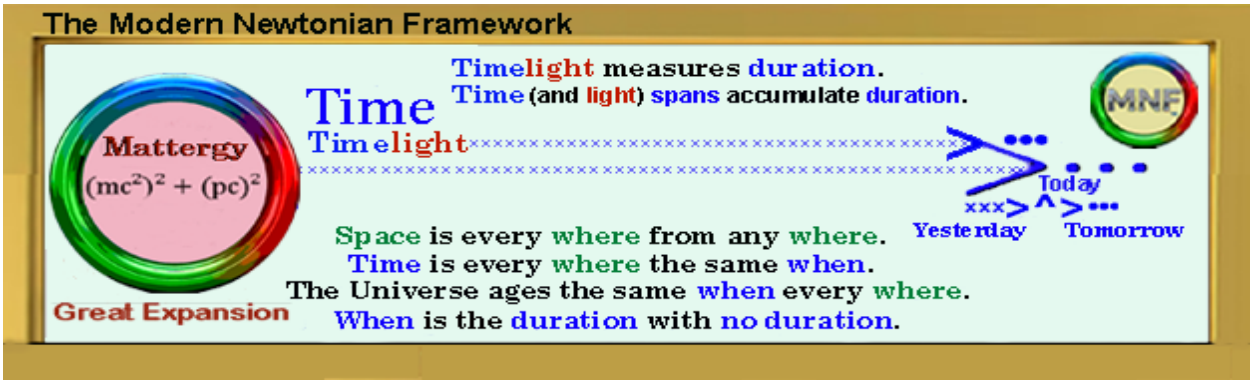
<- ^ ->



<Sphere of Mattergy> <Ontology>

<Mattergy> <Agency> <Resolution>

3. Axiom of Time: *Experience before measure* <- ^ ->



Space is every where from any where. Euclidian Space.
Time is every where the same when. Universal Time.
The **when** is every **where** at once. The age of The Universe is **when** to **when**, one **when** to the next, a one-directional accumulated duration. The first **when** begins the Great Expansion. The current age of The Universe is from then to today, recorded history. Tomorrow follows today, future anticipated.

Durations go from some **when** to a later **when:**

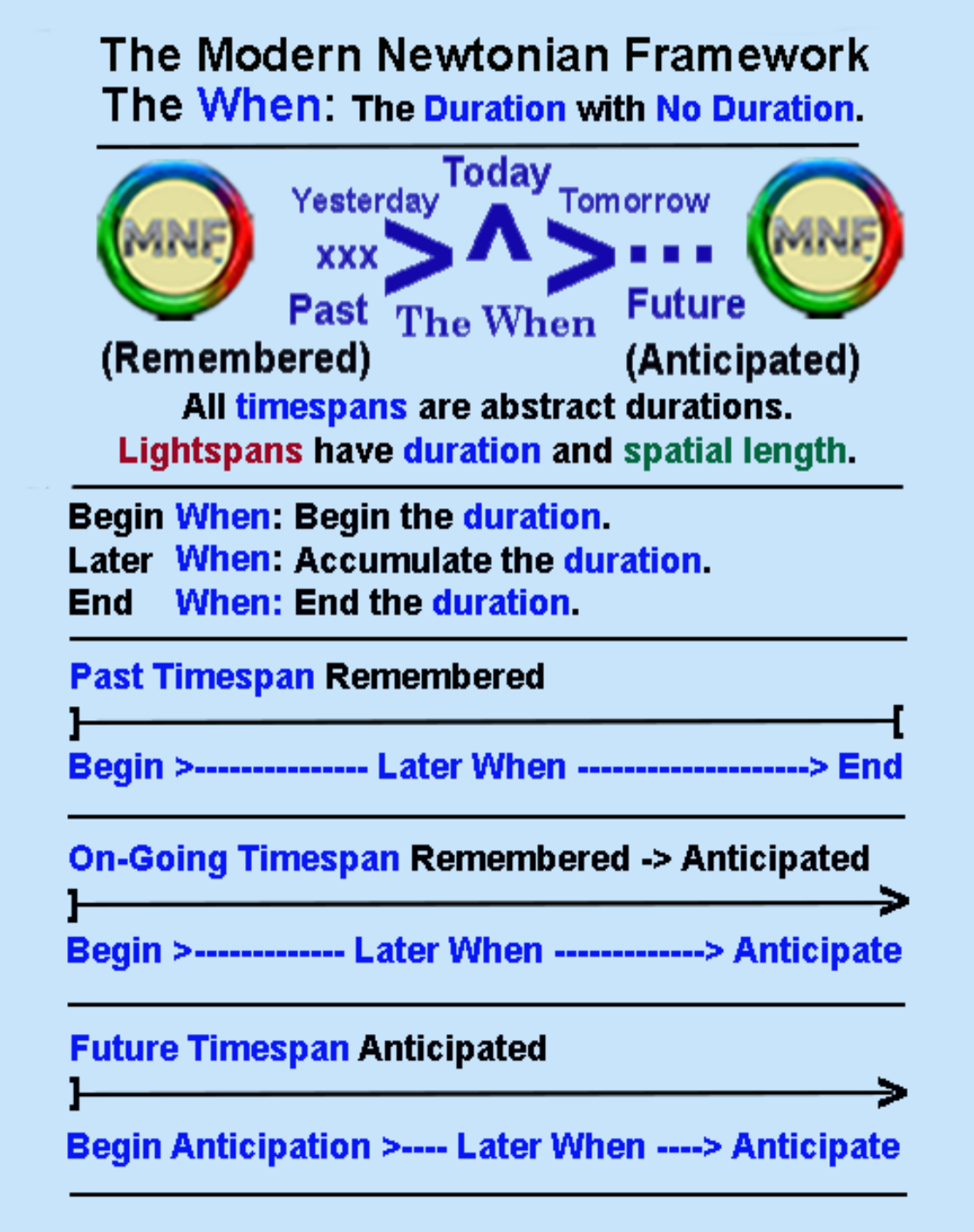
Timespans begin at a particular **when**, end at some later **when**.
Timespans are always abstractions—never directly physical.
Timespans exist as experience: a second, a minute, an hour, a day, a lifetime.
The Universe experiences years in that sense. 13. 8 billion years currently.
Timespans are measured from **when** to **when**, yes, but lived through as well.

- Timespans are measured durations as a sequence of continuous when.
- Time flows now to future wherever and whenever experienced.
- Time is both measured and experienced. These are separate things.
- The experience of time is always here and now, however measured.
- Time is *lived through experience. Timespans are kept as abstractions*.

<Sphere of Mattergy> <Ontology>

<Tensor> <Embed> <Timespans> <Travel> <Concept> <Universe>

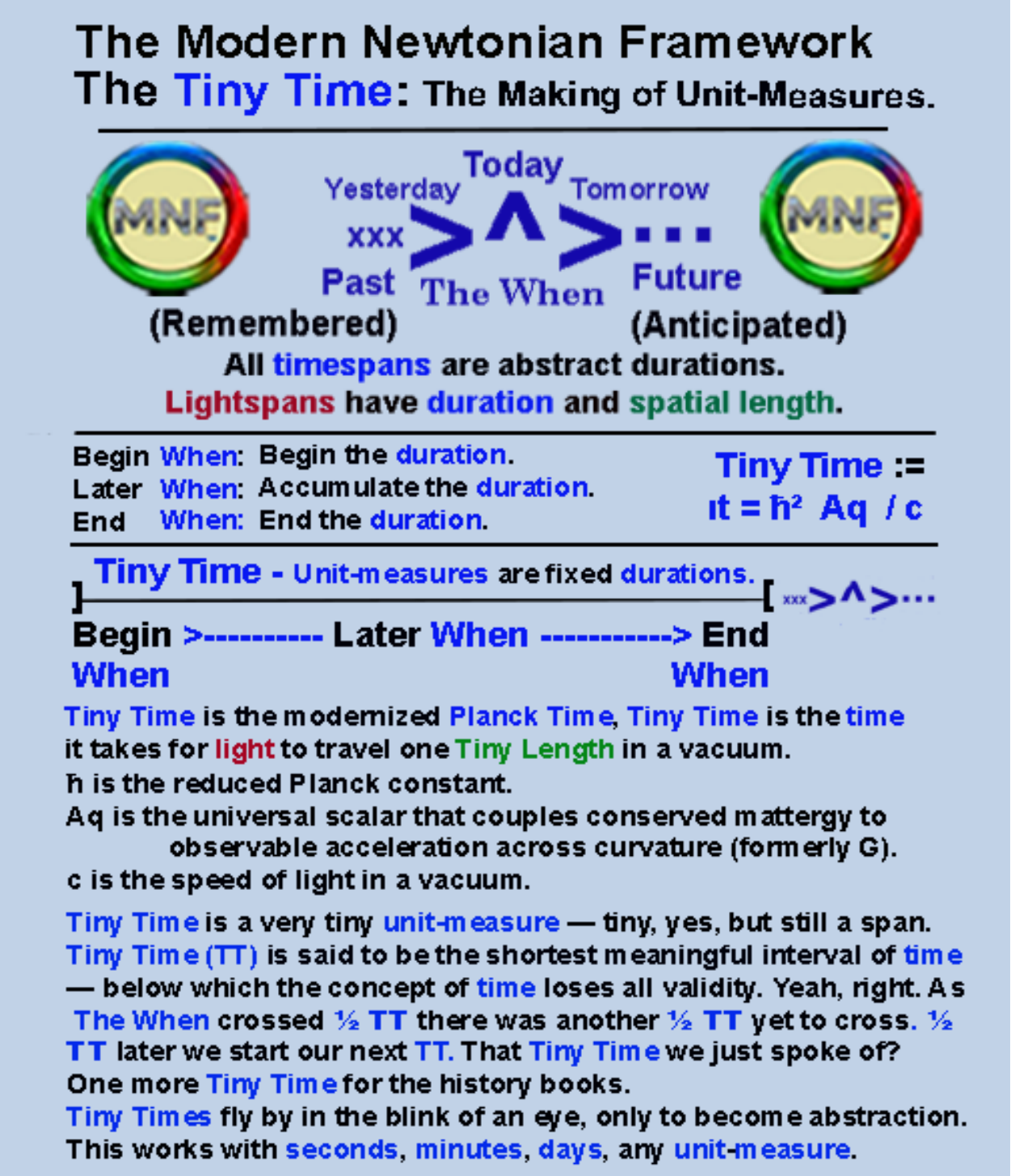
3a. ***The When*** (The duration with no duration.) <- ^ ->



<Tensor> <Embed> <Timespans> <Travel> <Concept> <Universe>

<Sphere of Mattergy> <Ontology>

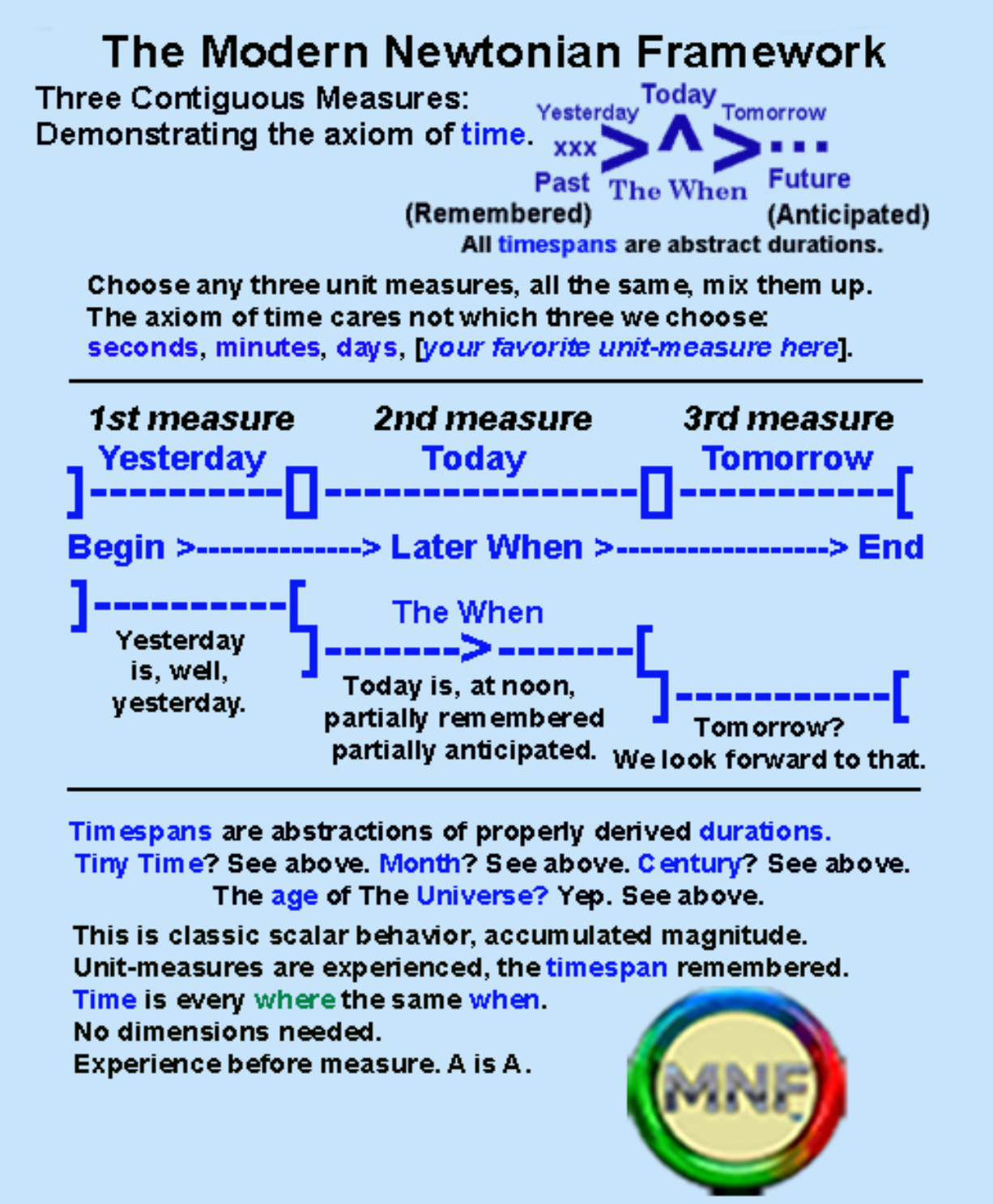
3b. *Tiny Time* (The Tiny/Maxi scale constants.) <- ^ ->



<Tensor> <Embed> <Timespans> <Travel> <Concept> <Universe>

<Sphere of Mattergy> <Ontology>

The Demonstration: *Who proves axioms?* <- ^ ->



<When> <Tiny> <Embed> <Timespans> <Travel> <Concept> <Universe>
<Time Definitions> <Cone> <Sphere> <Ontology>

3c. Tensors *(Durations are Scalars.)* <- ^ ->

The Modern Newtonian Framework Tensor Rank (Time is Rank-0)

The Table of Tensors describes how different ranks model consequence. Each rank reflects the dimensionality of interaction, not stitched complexity. Time is a magnitude expressed as the accumulation of age in timespans..—a scalar, not a dimension. Higher ranks emerge as relationships grow in directionality, curvature, and observer modulation.

The Tensor Table: Ranks and Regimes

Rank		Function	Example
0	Scalar	No Direction. Pure Magnitude.	Time as anchor, Timespans, Lightspans as scalar ripples.
1	Vector	Directional Magnitude.	Acceleration, Observer Drift, Field Gradient
2	Matrix	Interactions Between Directions.	Stress-Energy Tensor, Curvature Field
3+	High Rank	Multi-Dimensional Consequence.	Mattergy Ripples, Gravity Waves, Observer-Modulated Collapse, String/M-Theory Constructs

Rank-0: Time is not stitched flow or dimension—it's a rank-0 tensor. We explore timespans, lightspans and energy densities using scalars; these are all pure magnitude.

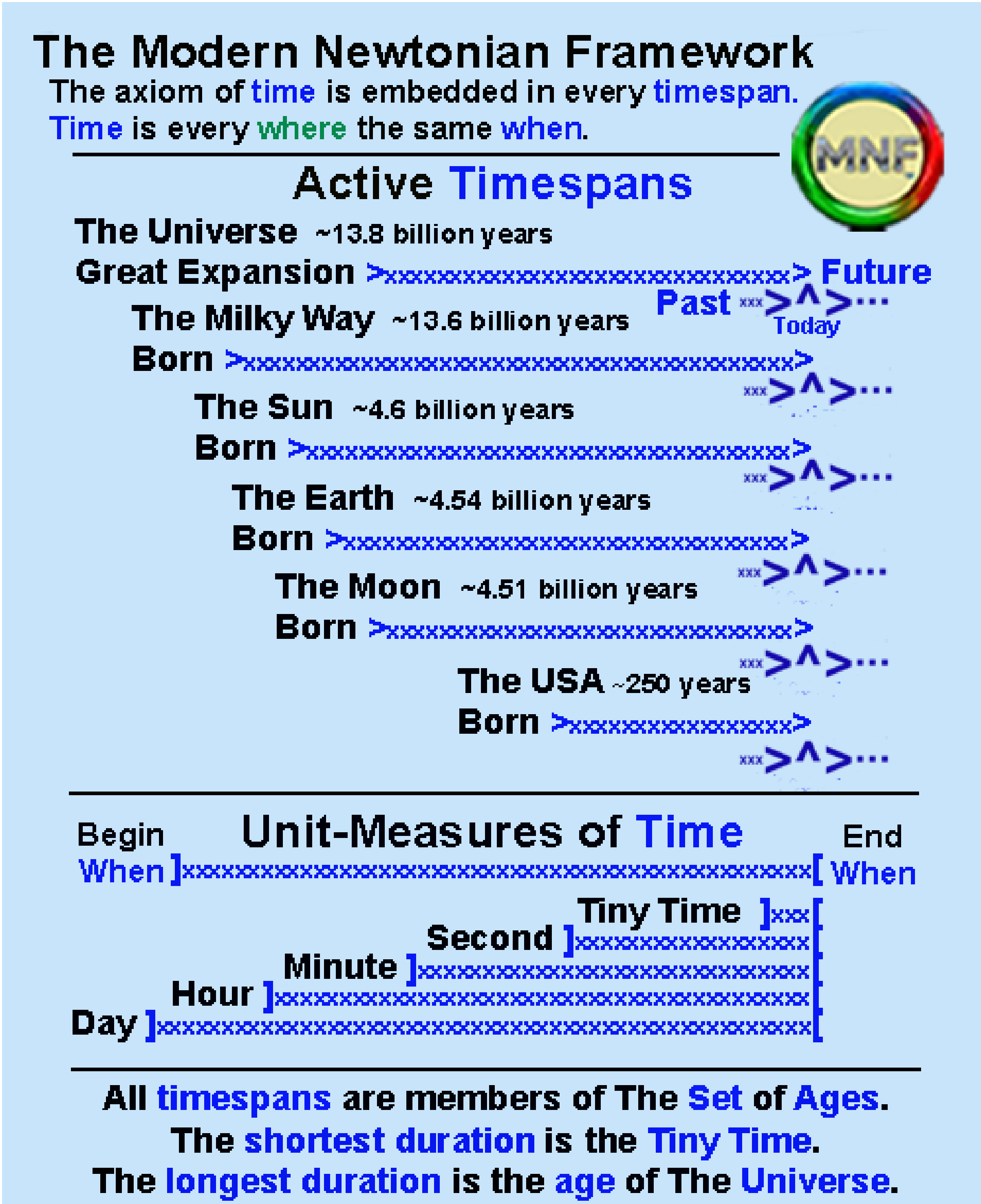
Rank-1: Space is 3-dimensional, so vectors (rank-1 tensors) model directional phenomena. This includes acceleration, observer drift, and field gradients. These are the arrows of consequence.

Rank-2: When directions interact, we enter matrix territory. Rank-2 tensors model stress, strain, and curvature—the backbone of general relativity and field theory.

Rank-3+: These model complex, multi-directional relationships. Think gravitational waves, mattergy ripple, and the stitched scaffolds of string theory and M-theory. These are not mystical—they're just higher-order consequence maps.

<Axiom> <When> <Tiny> <Travel> <Concept> <Universe> <Webster> <Sphere of Mattergy> <Ontology>

3d. Every timespan embeds the axiom of time. <- ^ ->



<Axiom> <When> <Tiny> <Tensor> <Timespans> <Travel> <Concept>
<Universe> <Sphere of Mattergy> <Ontology>

3e. Time to Define It:

<- ^ ->

Call It What It Is. Labels can make us, or labels can break us. In the case of time, timespans, and lightspans, improper labels weaken our means to understand a thing for what it actually is.

Time: What it is not ...

Dimension – (noun) A measurable extent of some kind, such as length, breadth, depth, or height; often used in various models to describe time as a fourth coordinate alongside spatial axes. This reclassification dissolves experience and replaces span with geometry.

What it is (Rank-0, actually) ...

Tensor – (noun) A mathematical construct that generalizes scalars and vectors, representing directional flow or transformation across coordinates. In sovereign framing, time is a tensor of becoming—anchoring change, not measuring extent. Time flows. It does not stretch.

Timespans: What they are not ...

Length – (noun) The measurement or extent of something from end to end; a spatial property. Misused when time is treated as having physical length rather than abstract span. This confusion invites stitched metaphors and dissolves the Now.

What they are (in our heads, of course) ...

Duration – (noun) The amount of time something lasts; a span anchored in experience. Duration is lived scalar time. <Sphere of Mattergy> <Ontology> <Axiom> <When> <Tiny> <Embed> <Travel> <Concept> <Universe>

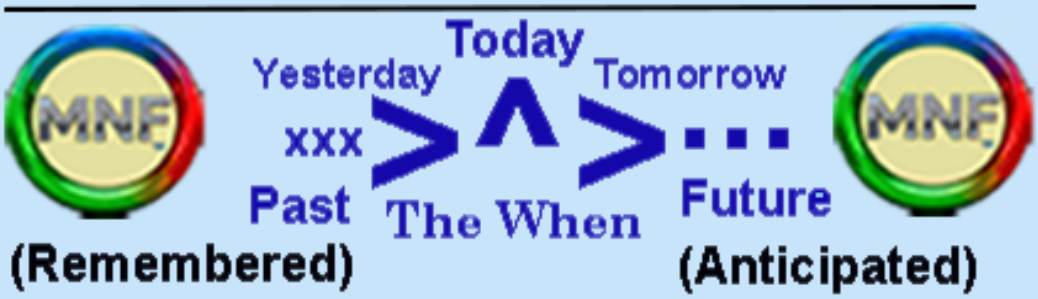
3f. *Time Travel? Not! Dimension in math only.* <- ^ ->



<Sphere of Mattergy> <Axiom> <When> <Tiny> <Embed> <Concept>
<Ontology> <Timespans> <Universe> <Set of Ages>

The Modern Newtonian Framework

Time travel? Not: Every where the same when.



All timespans are abstract durations.

Lightspans have duration and spatial length.

Let us examine the fact that the laws of physics are the same every where. We are in an inertial frame, we experience the same laws. The laws of physics apply universal and invariant. Here on Earth, we experience the same physics as [your favorite exoplanet here] same physics, here, there, every where.

In a galaxy, far, far away -- *The Light from a thing is not the thing ...*

The Milky Way starts. The galaxy far, far away started, too. The galaxies are the same age! But the galaxy far, far away, is truly far, far away. Let's make it easy; it is as far away in light distance as is the age of our own Milky Way. That's far enough, right there. I could go farther, but still...
We look at them. They look at us.

xxx(Great Expansion) []==========>... Today
The Universe xxx>^>...
Yesterday Tomorrow

xxx(They are old) []==========>... (We are modern.)

xxx (We are old) []==========>... (They are modern.)

We young. They old. True. They young. We old. True.
Everybody young. Nobody old.
The light from the thing is not the thing.

<Sphere of Mattergy> <Ontology> <Axiom> <When> <Tiny> <Tensor> <Embed> <Timespans> <Universe>

3g. *The Power of Conceptualization.* <- ^ ->

Experience precedes measure. Becoming precedes boundary.

Claim: Tiny Time is the smallest span of time we can measure.

Claim accepted. But, is that the smallest measure of time there is?

Let's conceptualize:

½ Tiny Time + ½ Tiny Time = 1 Tiny Time.

1/3 Tiny Time + 1/3 Tiny Time + 1/3 Tiny Time = 1 Tiny Time.

1/10 Tiny Time + 4/5 Tiny Time + 1/10 Tiny Time = 1 Tiny Time.

Timespans exist independent of measure.

Claim: Time starts at The Great Expansion.

Claim denied. Time existed before The Great Expansion.

Let's conceptualize: We could divide it further, but paraphrasing

One tiny time before the Great Expansion? Yes. Conceptualized.

One hour before the Great Expansion? Yes. Also conceptualized.

One year before the Great Expansion? Yes. Easy-peasy.

What did we discover? *Simple common sense, really.*

Timespans are abstractions. That's it right there.

<Sphere of Mattergy> <Ontology>

<Axiom> <When> <Tiny> <Tensor> <Embed> <Timespans> <Universe>

3h. What is ***Universality?*** *Call me Captain Obvious.* <- ^ ->

Can we experience a minute together? Don't look at your watch. Pay no mind to that clock up there on the wall. Let us each experience that minute instead. Let's avoid any notion of time dilation, please.

Here we go then, sing along with me …

1 Mississippi 2 Mississippi 3 Mississippi. Four.
5 Mississippi 6 Mississippi 7 Mississippi. More …
53 Mississippi 54 Mississippi 55 Mississippi. Fun.
57 Mississippi 58 Mississippi 59 Mississippi. Done.

Great! Please, remember we just experienced a minute together. That minute is now history. Want to experience it again? That'll take another minute, for sure.

Okay. We've experienced a minute, what else experienced that minute**?**
Gee! This will take a while. Lots of things aged by that same minute.

Let's conceptualize: Myself? Yourself? Ourselves? Yes. We're all a minute older. How about the dead? They don't age. They've been dead a minute longer, though.

Did The Earth get a minute older? It sure did, yes.
How about The Sun? 4.6 billion years + a minute. Heck! It's only a minute, but still, did the Milky Way also age by a minute? Yep.
And our local supercluster? Darn! The whole thing got a minute older, too.

And the biggie …

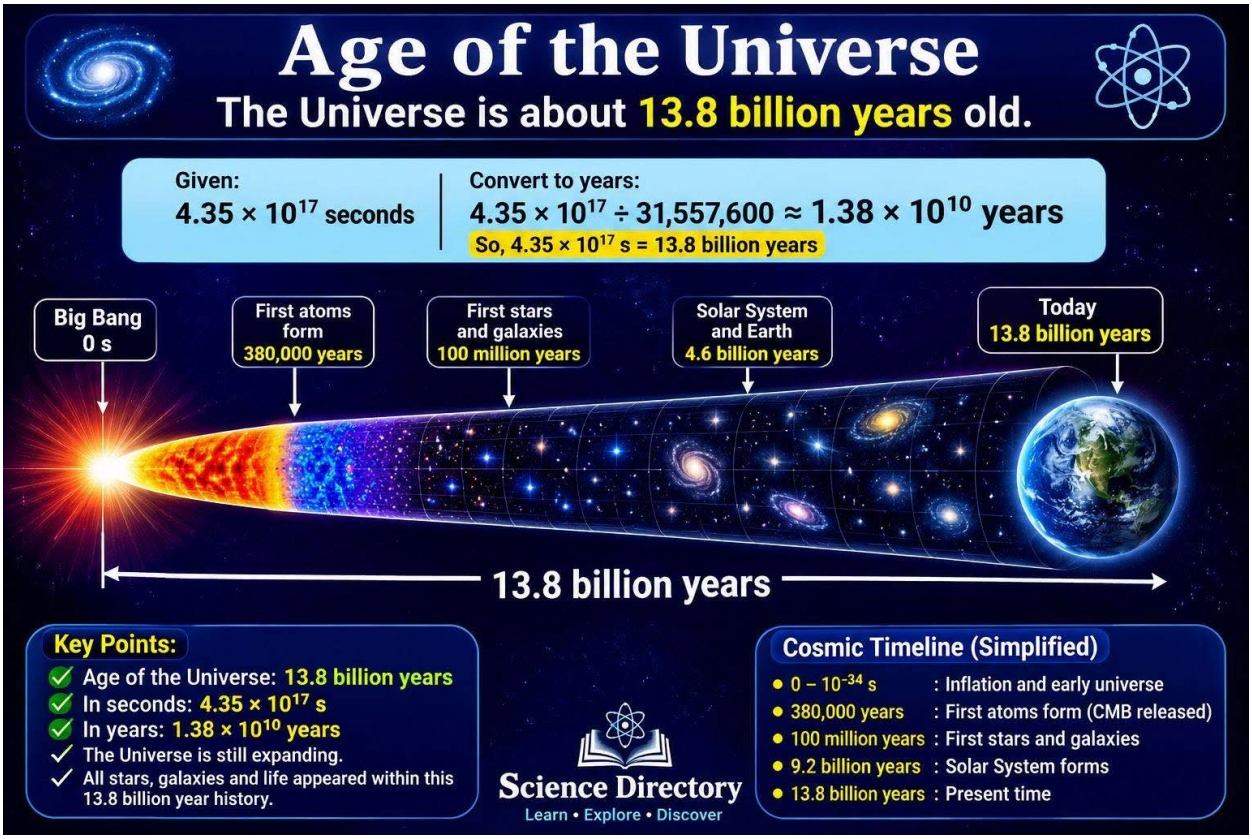
Did The Universe age by a minute? 13.8 billion years + a minute.
Experience before measure. Remember that.

And, that's why we call it Universal. <Sphere of Mattergy> <Ontology>

<Axiom> <When> <Tiny> <Tensor> <Embed> <Timespans> <Travel>

4. Essential Set: *The Set of Ages.*

<- ^ -> v



*The **Set of Ages** is the inclusive set of all empirical or abstract durations, from the smallest—the first **Tiny Time**—to the largest, **the Age of the Universe** itself. Every age is a duration that parallels the single scalar magnitude that is the age of The Universe. All ages relate as magnitudes that begin at the **Great Expansion**, grow in magnitude to the present, and continue increasing into the future.*

***Time is every where the same when.** For this to be properly true, time must be a magnitude. The axiom of time produces a magnitude that behaves in a single, immutable way for all things. This is self-evident: we experience time as a uniform increase in age. My age is a magnitude. Your age is a magnitude. The age of everything that ages is an accumulation of magnitude established by the magnitude that is the age of The Universe.*

***Space is every where from any where.** The axiom of space establishes that the Universe is every where. The age of The Universe is a scalar, every where at once—a universal magnitude from which all durations derive. All ages track along with this one grand magnitude, properly true.*

<The Sphere of Mattergy> <Ontology>

Typical Timespans

^ v

Empirical Ages: **Direct measure (e.g., A human age in years).**
Remembered Ages: **History (e.g., historical eras).**
Projected Ages: **Age by inference (e.g., life span of a star still living).**
Speculative Ages: **Concept spans (e.g., time before the Great Expansion).**

Newtonian Relativity: *Measures are related after experience.*

Concerning Boundary: *The Set of Ages.* *(the set of t).*

xxx➔[]==========➔...

xxx^^==========^==========^...

The **Great Expansion** starts. **The Universe** is aging.
The first Tiny Time. All timespans in between.
The Set of Ages is the cardinality of Tiny Time durations since the first such t.

Let T_when be equal to N multiples of the Tiny Time:

***Then T is* an inclusive, well-ordered set:** $T = \{ t_1, t_2, t_3, \ldots, t_N \}$

The largest duration in *The Set of Ages* is *The Age of The Universe.*

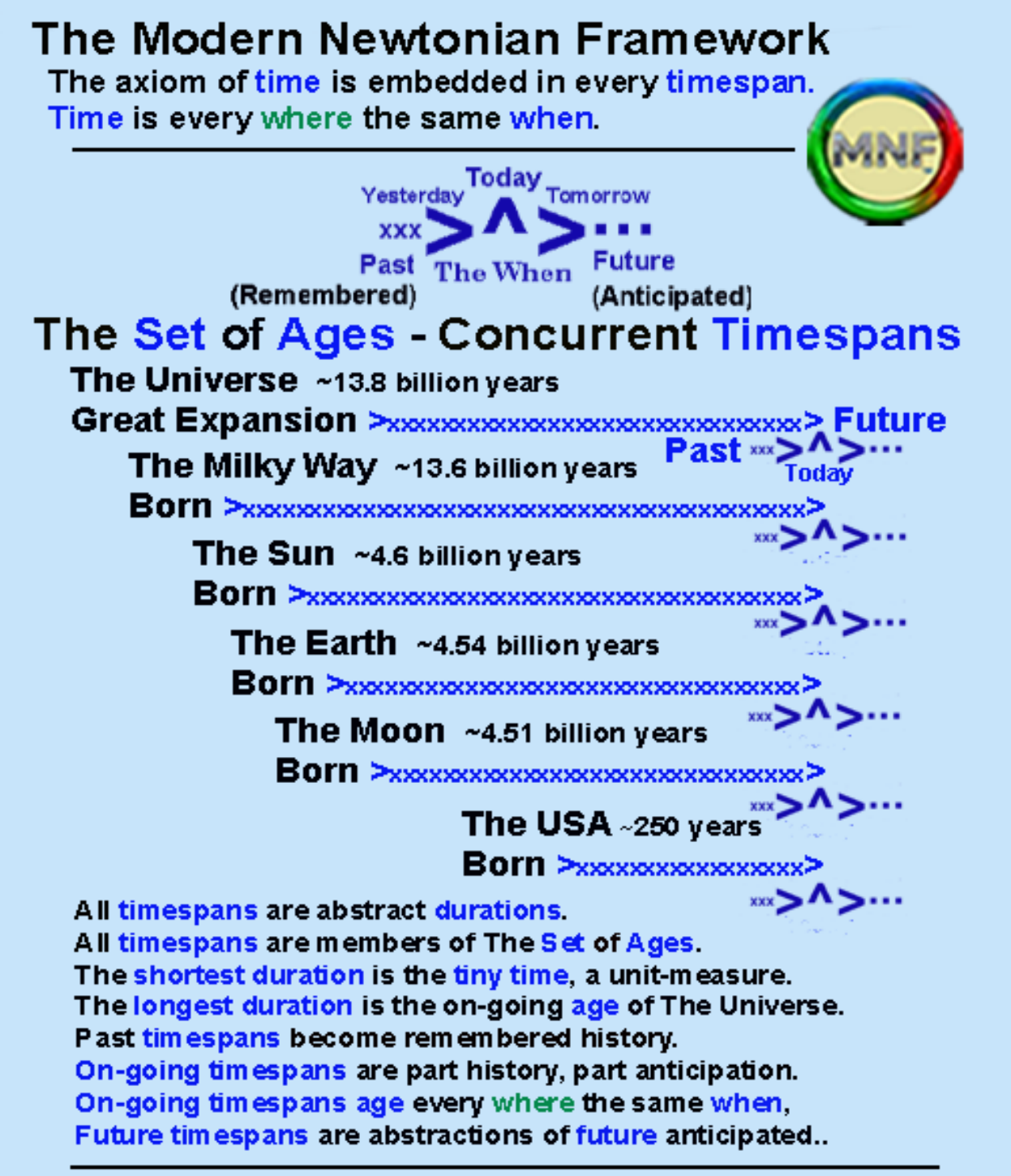
The Set of Ages grows Tiny Time by Tiny Time as the Universe ages.
The age of the Universe is a simple scalar. Tiny Time is a unit-measure.

The Universe is so many Tiny Times old, so many minutes old, so many days old … How many years old is the Universe? Yes. This one is nice. Years it is. We have a winner! Still …

The Universe is as old as the 1st Tiny Time to this very moment.

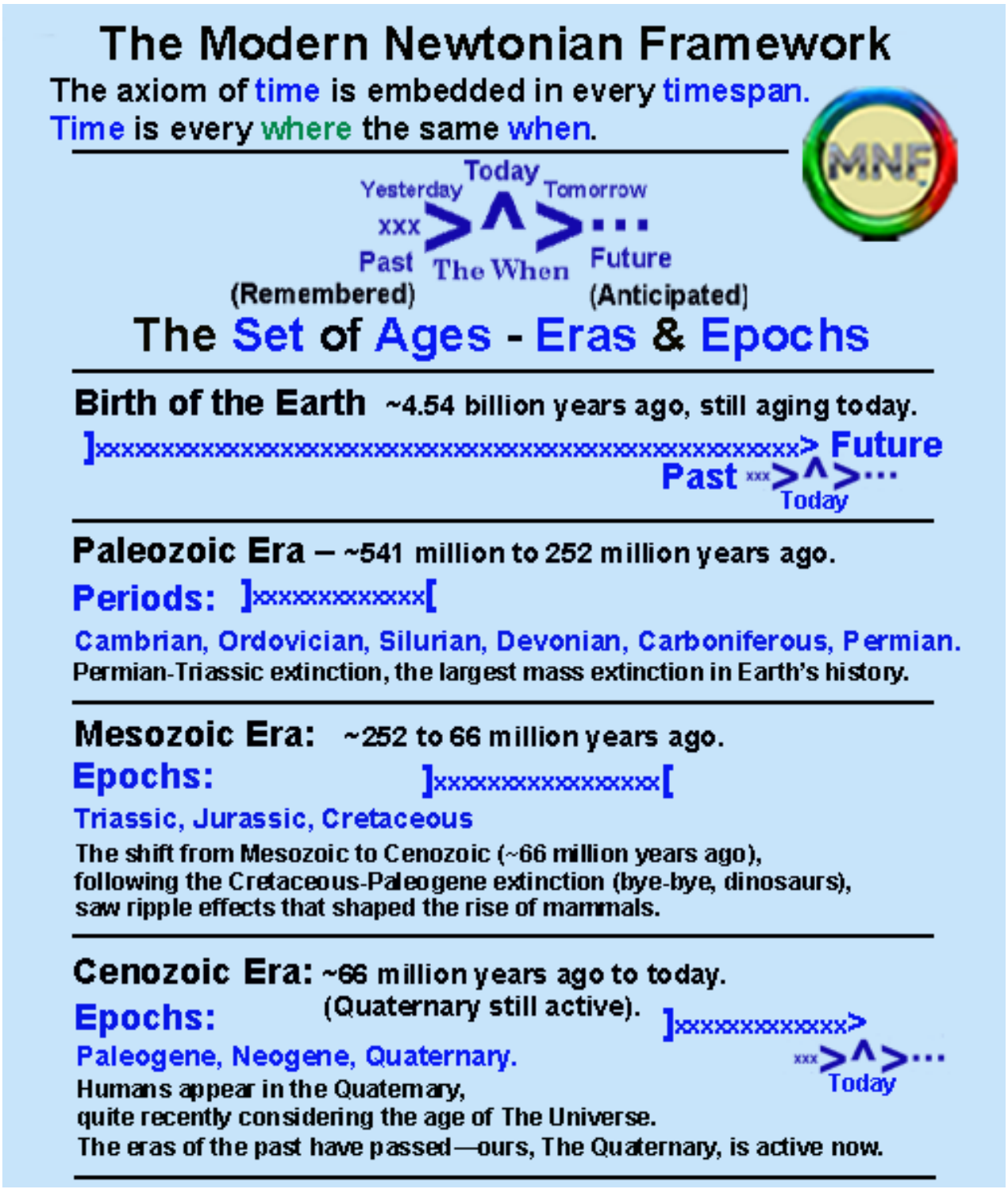
<Eras/Epochs> <Photons> <Simultaneity> <*The Sphere of Mattergy*>

4a. The Set of Ages -- concurrent timespans: <- ^ ->



<Photons> <Simultaneity> <*The Sphere of Mattergy*>

4b. The Set of Ages -- *Eras and Epochs*. [<-](#) [^](#) [->](#)



<Ages> <Simultaneity> <*The Sphere of Mattergy*>

4c. *Do Photons Age? Waves certainly do.* <- ^ ->

Quick answer: Yes. Indeed, they do. The Universe ages a minute, everything in The Universe ages a minute. That was easy. Q. E. D.
I see some raised eyebrows. I will elaborate.

We experience time. We measure it. too. **Experience before measure.** Timespans, being abstractions, relate experience by duration and context, in this case age, from when to a later when, the age of a photon from is a simple duration. Granted that, we will use lightspans here. It is a photon, I mean a wave, I mean I was asked, **"Do photons age?"** I could use any lightspan but keep it simple. All lightspans behave the exact same way. We will use the lightspan we are receiving right now from our very own Sun. At this very moment that light we see is on average 8 minutes, 20 seconds old. Gee! We are using the word 'old.' Why? **As the light travels it ages.**

Consider, when that **light left the Sun,** the Sun was 8 minutes, 20 seconds younger than now. that light travels as waves. Waves? Particles? Keep it simple, poetic license granted. Okay, it took **8 minutes and 20 seconds** for that light to arrive at our optic nerves. **The Sun is 8 minutes, 20 seconds older** than we see, true? Photons appear at absorption. The wave is aging. We have that poetic license thing. That wave was launched 8 minutes and 20 seconds ago**.** The wave arrives after 8 minutes, 20 seconds have passed. **The wave is 8 minutes and 20 seconds old.** The photon appears at absorption (emission/wave | absorption/photon). Yes, the photon carries the age of the parent wave. The wave has been aging all along, in this case by 8 minutes, 20 seconds**. The photon appears at the end of that journey.**

We do have a measure here, true. That measure is **8 minutes, 20 seconds.** The wave is not affected by our measuring **8 minutes and 20 seconds.** before it hit the back of our eyeballs and the photon appears. Simple enough. **The wave/photon ages as The Universe itself ages.** The wave traveled for **8 minutes, and 20 seconds.**

The light from a thing is not the thing. The Sun *is seen* ***8 minutes younger*** *than it actually is. The* ***lightspan*** *is* ***8 minutes, 20 seconds old. The Sun is 8 minutes, 20 seconds older*** *than we see because* ***the wave is 8 minutes, 20 seconds old*** *when we see the photon.* ***Experience before measure,*** *that's what this is.*

<Ages> **<Concurrency>** ***<The Sphere of Mattergy>***

4d. Essential Study: *Simultaneity.* <- ^ ->

Events are simultaneous when they occur at the same time, at the same moment of now. Take Albert Einstein's example of two lightning strikes being simultaneous. By Albert's own admission, the two strikes are indeed simultaneous. They are simultaneous when both strikes occur at the same time, no observer needed. Should we be equidistant between them we "see" them as simultaneous. If we are not equidistant, we see one before the other because it takes light time to travel over distance. Albert has put up a red herring. Einstein's lightning example distracts from event simultaneity by spotlighting signal delay.

Simultaneity can include many events at once. Simultaneous events simply occur at the same time. We stand in the rain; the water rains down. As countless raindrops fall, some of them hit us in the face at once, yes, simultaneously.

Our Moon orbits The Earth. Simultaneously, Phobos and Deimos are orbiting Mars. Those well-known Galilean moons all orbit Jupiter. Every moon of every planet in our solar system orbits its planet simultaneously. Gee! Every orbit of every star in the Milky Way simultaneously orbits Sagittarius A*.

Do we need more examples? Might we discuss all the events that are indeed simultaneous? The list of events is much too long.

All life living anywhere in The Universe lives simultaneously along with us.

All timespans whether extrapolated, completed, or on-going, age along with The Universe. Indeed, all active timespans age simultaneously, no exception.

Events do not need a witness to be simultaneous.

<Ages> <Concurrency> <Eras/Epochs> <*The Sphere of Mattergy*>

5. Essential Set: *The Set of Certainty.* <- ^ ->

The Modern Newtonian Framework
The Set of Certainty
The Set of Make Believe



The Set of Certainty - is an inclusive set, the set of all proper truths. The members of this set are independently derived, each taken case-by-case.Proper truth is validated truth. Truth must be earned, not assumed. All must be true, no exceptions.

The Set of Make Believe -- Where imagination rules.

Standard Truth Table

P	Q	If P then Q (P⇨Q)		
T	T	Certainty If water then wet.	Water is indeed wet.	Row 1
T	F	If wet then water.	Kerosine is wet. We have wet paint.	
F	T	Make Believe If fairy then fly.	Fairies indeed fly.	Row 3
F	F	If fly then fairies.	Planes fly. Birds fly. No pigs, pigs don't fly.	

Certain: Light obeys both the axioms of space and time.
Timespans & the time aspect of lightspans are both scalars, pure magnitude, Universal scalar time. This is properly true, passes the "proper" test, earns membership.

Make Believe: *Time has dimension.*
Nope. Fails the "proper"test, No violations of the axiom of time allowed. Time is a DINO (dimension in name only) and a DIMO (dimension in math only).

<Make Believe> <Paradox> <G E> <W/P>

Certainty, always so, never not.

<- ^ ->

Newtonian Physics does **not** begin with mathematics. It begins with **nothing at all** — no assumptions, no geometry, no equations. It begins with **simple objectivity**, the same method Isaac used We start small. We build up. We begin ignorant. As Sgt. Shultz says: *"We know nothing!"* We must learn. We must be certain. We know nothing — nothing whatsoever

I begin, I ask, "Space? What is space?' I discover my first proper truth, Space is every where from any where. Space is Euclidian. Every where space has no bounds, length, width, height, every where, any where a center. That's all there is, this one thing. All other things remain unknown. There is only one proper truth, the axiom of space.

I ask again, "Time? What is time?" I have a new proper truth that uses the first proper truth to discover a 2nd proper truth. Time is every where the same when. Time has a spatial aspect (every where) and a temporal aspect (any when) which I now discover to be also properly true. It is that any where, some where, some where else, all the same when. All the same when every where.

With these two facts now known the question becomes, "Where might there be the thing that does?" Matter? Energy? The SR invariant! Right there in the open, mattergy. Mattergy matters. Mattergy is $(mc^2)^2 + (pc)^2$: rest mass + momentum derived energy. Mattergy := $(mc^2)^2 + (pc)^2$, invariant, the same in every frame, always so, never not, the axiom of mattergy. Mattergy matters. Mattergy is the conserved substrate of change. Mattergy moves as constraints permit. Mattergy follows the path of least unresolved gradient.

There are now three proper truths. For all other things, remains there be context. Space is every where from any where. Time is every where the same when. Mattergy matters. This is certain, these three things.

When does mattergy matter? Why does mattergy matter? How does mattergy matter? The Set of Certainty is only that which is properly true. Maybe is the knock that never answers. The knock that no one hears.

<Paradox> <G E> <W/P>

5a. *The Set of Make Believe:* Stitch This to That. <- ^ ->

Stitched (adj.) — A stitched term hides its seams. It is composite, metaphorical, or unobservable. A stitch signals vagueness: a failure to anchor experience.

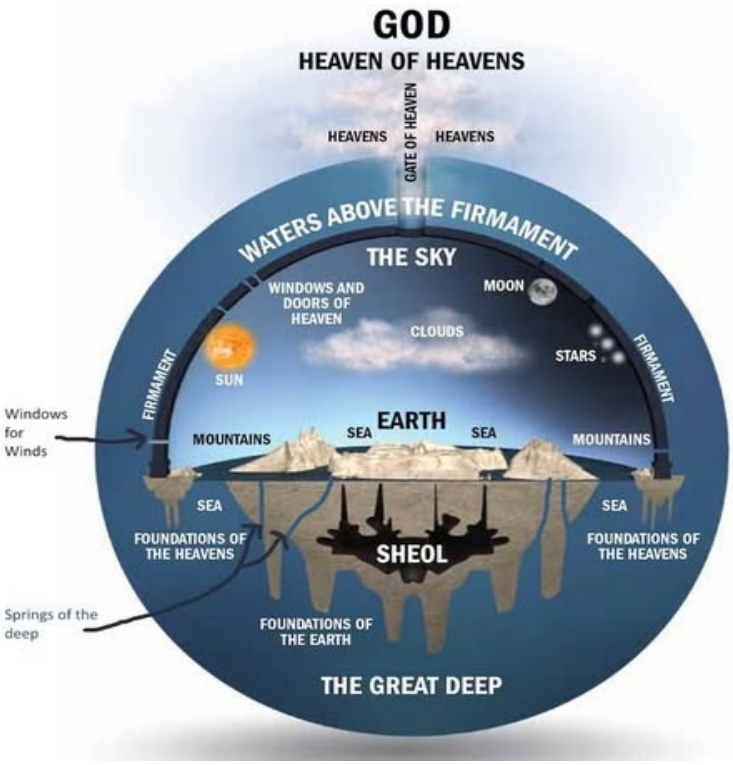
Examples: stitched assumption, stitched metaphor, stitched narrative.

(e.g., "Flat Earth" — the Earth is an oblate spheroid.)

Anchored (adj.) — An anchored term is grounded in fact: observable, experiential, and free of stitched seams. Anchoring replaces vagueness with clarity.



How to Stitch: Begin with a false premise, treat the premise as true. Go for it.



The good news:
Shake it. You get snow.
(Best use: snow globe.)

<Paradox>
<Great Expansion>
<Wave/Particle>

5b. *Table of Make Believe:* Improper Truths. <- ^ ->V

The Modern Newtonian Framework
Improper Truth - Running on Make Believe

Premise	Treat the Premise	Outcome	Condition
True	as Properly True	Anchored	Scalar Clear
True	as False but Not	Suppressed	Epistemic Error
False	as True but Not	Stitched	Blinding Fog
False	as Properly False	Rejected	Fails Audit

That third row is where stitched cosmologies become paradox theater, and metaphor masquerades as measure. It's where "Time is dimension" becomes "The future already exists," or "let's not kill our grandpa before dad is born." "Flat Earth" becomes "observable model." It's whether armies in Andromeda make war with us, or not. It's where [Place your number of dimensions here] get "compactified," curled up at every point in space. It is where twins age differently and foot-long subs shrink. It's where photons are cosmic BBs. Heck. It's where the Sun stops in the sky for a whole day. (Joshua's enemies do die, though. They're right about that.) Shucks. Joshua dies, too. Oh, well ...

Fallacies that reinforce Improper Truth and hinder Proper Truth.

Character Attack – Attacks on character rather than the argument itself.
Straw Man – Misrepresentation/Exaggeration of a particular argument.
Red Herring – Arguing for or against a thing not relevant to an argument.
It Doesn't Follow – Premise does not lead to the conclusion.
Hasty Generalization – Implying Increased scope from tiny examples.
Begging the Question – Treating false premises as true.
False Cause – Sequence isn't consequence. Causes must be properly true.
False Dichotomy – Reducing choice to two when further choices exist.
Argument from Ignorance – Ignorance has no bearing on truth, or falsehood.
Burden of Proof – Claims without evidence can be properly dismissed.
Unlinked Conclusion – Illogical connections between argued points.
Bandwagon Fallacy – A thing widely, popularly believed must be true.
Argument from Authority – [insert your expert here] says so.
Proper Truth requires consequence, not credentials.

The list is incomplete. There are many such fallacies.
These are the most commonly encountered ones.

<Certainty> <G E> <W/P>

Fallacies by Category (1 through 5). <-^->

1: Attacks on the Person (Avoiding the Argument)

* *These fallacies bypass the argument entirely.*
* **Character Attack –** *Attacks on character rather than the argument itself.*
* **Guilt by Association –** *Assigns blame by proximity rather than premise.*
* **Tone Policing –** *Dismisses the argument based on delivery.*

2: Attacks on the Premise (But Illegitimately)

* *These fallacies pretend to address the argument but distort it.*
* **Unlinked Conclusion –** *Illogical connections between argued points.*
* **Straw Man –** *Misrepresentation/exaggeration of an argument.*
* **Red Herring –** *Arguing for/against something irrelevant to the argument.*
* **False Dichotomy –** *Reducing choices to two discarding many.*

3: Attacks on the Logic (Improper Inference)

* *These fallacies break the chain of consequence.*
* **It Doesn't Follow –** *Premise does not lead to the conclusion.*
* **Hasty Generalization –** *Expanding scope from tiny examples.*
* **False Cause –** *Sequence not consequence; causes must be properly true.*
* **Begging the Question –** *Treating false premises as true.*

4: Attacks on the Epistemic Standard

* *These fallacies substitute social/psychological triggers for truth.*
* **Argument from Ignorance –** *Ignorance has no bearing on true or false.*
* **Burden of Proof –** *Claims without evidence can be dismissed.*
* **Argument from Authority –** *Credentials substituted for consequence.*
* **Bandwagon Fallacy –** *Popular belief is treated as truth.*

5: Meta-Fallacies Defended with Improper Truth

* *These fallacies protect false premises from being falsified.*
* **Moving the Goalposts –** *Changing standards to avoid refutation.*
* **Motte-and-Bailey –** *Retreating to a safer claim when challenged.*
* **Equivocation –** *Switching meanings mid-argument.*
* **Special Pleading of Rules Exempted –** *You – Not others*
* **<Certainty> <G E> <W/P>**

5c. ***Paradox? Not!*** *A Small Dose of Fact …* <- ^ -> v

Paradox occurs when facts are obscured. Facts provide solution.

Paradox	Resolution	Axiom
Twin	We all age the same.	Time
Grandfather	Timespans are pure magnitude.	Time
Fermi	Time and distance prevent arrival.	Time, Space, Mattergy

Concerning the Fermi Paradox (sic):

The laws of physics, in fact physics itself, are the same everywhere.

Let us examine, actual, real time (The Now): xxx➔^➔…

^ Infinity in. Infinity out. Nothing in-between. Past Future

Time: *Time is a condition of existence, us, them, everyone, anyone.*

Space: *The distance to travel is beyond exorbitant.*

Mattergy: *Loosely coupled baryonic systems collapse always somewhere in the spectrum of mush. Baryonic particles collapse upon collision.*

The spectrum of mush: Mattergy is the sum of two identities: $(mc^2)^2$ rest-mass and $(pc)^2$ momentum-derived energy. At zero speed mattergy is entirely rest-mass. At the speed if light mattergy is entirely momentum-derived energy. Between those two extremes lives the spectrum of mush – the continuous redistribution of the two identities when there is a change to velocity redistributing the rest-mass and momentum-derived energy.

All beings, both we and they, live in the Now.
The faster we go, the less time the trip takes.
The slower we go, the more time the trip takes.
The speed of mush is below the speed of light.

Distance? Exorbitant. Speed? Count on mush.

At least it's a spectrum. Give 'em some leeway with that.

<Certainty> <Make Believe> <W/P>

= The Spectrum of Mush

<- ^ ->

Regime: $v = 0c$ ... *The Full-Rest Mushmark.*

Partition: 100% rest-mass, no momentum-derived energy.

Physically: A system at rest expresses **no momentum-derived identity**. All of its mattergy is structural. Motion is zero; only rest-mass identity is present. This is the simplest possible physical state: **structure without expression**. Baryonic systems *approach* full at rest identity as constraints reduce motion.

Regime: $v = c$ ... *The Null Worldline Mushmark.*

Partition: No rest-mass, 100% momentum-derived.

Physically: The Lightrealm, pure propagation, all motion is at **c**.

Regime: $v \lesssim 0.5c$ ... *The Rest-Mass Dominant Mushmark.*

Partition: *rest-mass majority, momentum-derived minority.*

Physically: Baryonic systems—atoms, molecules, stars, planets, we here on Earth — *These are loosely bound structures. Structure dominates; motion is expression riding on top of a big rest-mass identity. In the slow regime* **mattergy** *is mostly* **rest-mass. The motion of** baryonic systems are a minority contribution to their total identity.

Regime: $v \lesssim 0.707c$ ... *The Equilibrium Mushmark 50/50.*

Partition: *structure and motion are equal participants.*

Physically: *The knife edge, neither identity dominates. Systems here are highly sensitive to constraints—small changes in velocity or binding can flip which identity leads. At equilibrium, mattergy has* ***equal participation of both identities****. Systems in this regime are balanced between structure and expression; small changes in constraints turn identity behaviors toward one dominant or the other.*

Regime: $v \gtrsim 0.866c$ ... *The Energy Dominant Mushmark.*

Partition: *momentum-derived majority, rest-mass minority.*

Physically: *This is where LHC protons, cosmic rays, relativistic jets live. Motion dominates; rest-mass is just the anchor that keeps the identity from dissolving into pure propagation. In the fast regime mattergy is mostly momentum-derived. High-energy beams and collider protons are expressions of motion with only a minority rest-mass* anchor.

<Certainty> <Make Believe> <W/P>

5d. The Great Expansion: *Not a Bang. Not a Boom.* <- ^ ->

We might not be able to fix this. It is so culturally embedded.
We should fix it, though. The phrase "Big Bang" is stitched and confusing.

A bit of history: For quite some time now we've treated the Big Bang as an explosion. Sir Fred Hoyle (poor fellow) coined the term sarcastically. He was a steady-state advocate. He was making fun of that explosive notion. Yet, the term stuck. It is now firmly, culturally embedded. We are now told it was not an explosion, instead an expansion. Explosions do involve expansion as debris is flung outward from the blast site. However, these days this notion of explosion is, by consensus of the honorable scientific community, better served to be described as an expansion. Let's consider ourselves lucky. Sir Hoyle, in a fit of creative bravado, could have easily called it the Big Boom.

Now, the present day: If it was indeed an expansion, why not simply call it that? An expansion is an expansion. A is A. The Big Expansion, yes. That works. We might just go with that. Since we are reclassing this notion, we still have the word – big. We might change that, too. Might we find a better adjective than big? Most certainly we can. The Huge Expansion? The Grand Expansion? The Very First Expansion? All those phrases could work, true.

The best adjective for this is, in my humble opinion, great. We can simply call it that, The Great Expansion. Let's do a poll. Make it a term of the people, for the people, by the people. Wait! It is proper to be wary of people in large groups. A poll might produce a bad answer. We'll cut to the chase. It's now deemed The Great Expansion. That's my vote, anyway.

It was **The Great Expansion.** It should have been always so, never not. But here we are in the 21st century. We all make mistakes. This one is easily fixed.

The Big Bang is now The Great Expansion, a proper truth.

<Certainty> <Make Believe> <Stitch>

5e. *Essential Guess: Wave/Particle Duality.* <- ^ ->

Qualifier: I claim no expertise in quantum mechanics whatsoever. There will be no posting of quantum equations, no elaborate discussions of test results, slit experiments, use of the CERN particle accelerator, none of that. Instead, I will use simple common sense to discuss the nature of waves and particles from a Newtonian perspective.

Concerning Waves and Particles:

Firstly, waves are waves, particles are particles. A is A.
Waves and particles are two different things.

My guess: Waves are the path of **light** unhindered. These are primary. Waves are a continuous flow. **Particles** are **resolution** of hindrance of **waves. Particles,** of course, have **distance** between them. They are discreet, individual objects of **mattergy. Waves** are **waves. Particles** are **particles. Light** travels first as **wave, particles** when the **wave** is **constrained.**

Thought-experiments are helpful. Analogies help, those of experience:

We have a water hose. We are washing a car. We turn on the water and a stream of water exits the hose, rushing toward the car. It is a continuous stream of water until the stream hits the car. That's a constraint, right there. When the stream hits the car, the water splashes. The stream is the wave. The splashes are particles. This is what is meant by: ***wave primary, particle consequence.***

Common sense has us conclude waves travel through a medium, sea waves in water, sound through air. So where is the **medium** for **wave trains?** It is The **Light Sea.** The **wave train** travels **constrained** as **mattergy** favors **resolution, The Light Sea,** the zero-point field, call it what you will. Vacuums of space are never empty. That's **mattergy** therein. Thank you kindly for considering this guess.

The photon is in the box … is it a wave? Or, a particle?
We have to look, don't we? Bullwinkle pulls quantum theory out of a hat.
Darn it! That's Classical Mechanics!!!

<Certainty> <Make Believe> <Stitch> <Paradox>

6. Measures

<- ^ ->

Newtonian Relativity: No observer needed. Measure measures according to context. Proper measure always belongs to the native frame. Cross-frame measure is always distorted to some degree, and greater relative motion produces greater distortion. Distortion applies to the measure, never to the thing measured.

Measure derives as constraints permit. This is geodesic motion.

Constraints — geometric, structural, or relational — do not cause motion. They permit or forbid configurations of mattergy. All relative measures are taken with respect to these constraints. Measure cannot exceed, violate, or invent structure beyond what constraints allow.

Consequence — Motion, interaction, and transformation are expressions of mattergy adjusting within permitted pathways. Measure is local but never isolated: mattergy is some where in space — any where — yet its redistribution is always relational, shaped by the surrounding configuration and by the measured.

Measure takes the path of resolved gradient. This is least action.

Preference: Measure takes the path of resolved gradient. Measure favors the most likely properly true consequence of gradient expression. Systems with internal structure impose admissibility constraints; preferred pathways reduce unresolved gradient while preserving structural invariants. The preferred pathway is the one that most effectively resolves imbalance. Measure prefers balance. Experience before measure, always so, never not.

Closure: Resolution completes the dynamical rules of mattergy. Agency establishes that mattergy moves; resolution determines how it moves. Together, they form the Newtonian generator of physical evolution — and the generator that supports measure.

<Family> <Foot-Long> <IOAT> <Observers>

The Lorentz Transforms: The Native Frame.

Measurement from a state of rest is properly true.

Any measure taken within the context of only the *native frame* is a proper measure. An inch is an inch, a mile a mile, a minute a minute, one Mississippi. Measures of a native frame from outside that frame appear distorted to others.

The Lorentz Transforms: The Non-Native Frames.

Time dilation is distortion of temporal measure.
Length contraction is distortion of spatial measure.
Distortion occurs when measures are taken of a native frame from any non-native frame.
Measure does not affect the native frame.

Experience before measure: we have measure distortion, a proper truth. Measures of time and length in any native frame within that same frame are always spot-on. Outside the native frame, of the native frame?

Again, time dilation and length contraction are distortions of measure.

Experience before measure, always so, never not.

6b. The Axiom of Relativity / Mattergy <- ^ ->

This analysis begins in 1904/1905 with the introduction of the Lorentz Transforms (1904) and Special Relativity (1905). At this stage, the axioms in vogue are the axioms of classic Newtonian Physics, Euclidian Space, and Universal Time. Both Hendrik Lorentz, and Albert Einstein shared this perspective. The invariant that is $(mc^2)^2 + (pc)^2$ arrives at this time.

Space: *Space is every where from any where (Euclidean Space, existence of center).*
Corollary: *Distances and directions go from some where to some where else.*

Time — *Time is every where the same when. (Universal Time).*
Corollary: *The Set of Ages (from the start of The Great Expansion to today).*

"Henceforth, space for itself, and time for itself shall completely reduce to a mere shadow, and only some sort of union of the two shall preserve independence." — Hermann Minkowski, *Cologne lecture, 21 September 1908*
This is the moment the axioms of space and time are breached.

The **Axiom of Relativity** is actually the **Axiom of Mattergy.** SR reveals the invariant. Newtonian Physics recognizes that invariant is axiomatic.

Axiom: *Mattergy matters.* $(mc^2)^2 + (pc)^2$ (The Invariant Agent).
Corollaries: Agency / Resolution.
Geodesic Motion: *Mattergy moves as constraints permit.*
Least Action: *Mattergy follows the path of least unresolved gradient.*

Spacetime — a fusion of space and time; Relativity has no axiom of space and no axiom of time. General Relativity inherits the axioms of Newtonian Physics. Spacetime moves as constraints permit, follows the path of least unresolved gradient. Spacetime is an improper description of mattergy.

Space is space. Time is time. Mattergy is mattergy. A is A. No fusion needed, these are separate, independent things. <Ontology>

. **<Measure> <Family> <Foot-Long> <IOAT> <Observers>**

The Modern Newtonian Framework
The Relativian Field Equations

Energy-Momentum Relation: $E^2 = (mc^2)^2 + (pc)^2$

The Energy-Momentum Relation is the flat-space invariant of Special Relativity, a flat-space theory. Curvature is introduced in 1915, geometry becoming more complex in general, leading to General Relativity as we know it today.

The Field Equations are the foundation of General Relativity describing gravity as the curvature of spacetime caused by mass-energy.

Field Equations: $R_{\mu\nu} - \frac{1}{2} R\, g_{\mu\nu} + \Lambda\, g_{\mu\nu} = \frac{8\pi G}{c^4} T_{\mu\nu}$

$R_{\mu\nu}$ The Ricci Curvature Tensor describes how spacetime curves.

R The Ricci Scalar - The trace of $R_{\mu\nu}$

$g_{\mu\nu}$ The Metric Tensor defines distances and angles in spacetime.

Λ The Cosmological Constant is in the field equations a geometric term that represents a constant curvature of spacetime/

G The Gravitational Constant carried over from Newtonian Physics to set the strength of gravitational interaction.

c The invariant speed of light.

$T_{\mu\nu}$ The Stress-Energy Tensor describes the density and flux of mass, momentum, and energy in spacetime.

In Summary: Curved spacetime tells matter how to move (left side) and matter tells spacetime how to curve (right side). This dynamic interplay explains phenomena from planetary orbits to black holes and the expansion of The Universe.



-

Modern Newtonian Framework

Field Equation — Intuitive Diagram

CORE IDEA

Mattergy is the conserved scalar of change in the universe.

Rest Mass | Momentum-Derived Energy

Mattergy is the actual conserved substrate that has physical agency.

Mattergy moves as constraints permit → Geodesic Motion.

Mattergy follows the path of least unresolved gradient → Principle of Least Action.

1 Mattergy (core conserved substrate)

The conserved scalar of change in the universe.

2 Constraints in space (geometry / measurable intervals)

Space provides the geometric structure.

3 Acceleration distribution (how constraints shape motion)

Constraints distribute acceleration across space.

4 Geodesic Motion (motion through space)

Mattergy follows geodesics through space.

5 Least Action (path of least unresolved gradient)

The physically favored path is the path of least action.

FIELD EQUATION

$$R_{\mu\nu} - \frac{1}{2} R\, g_{\mu\nu} + \Lambda\, g_{\mu\nu} = \frac{8\pi A q}{c^4} T_{\mu\nu}$$

Dim: $Aq = m^3 \cdot kg^{-2} \cdot s^{-2}$.

- $R_{\mu\nu}$ **Ricci Tensor:** geometric bookkeeping for how constraints distribute acceleration.
- R **Ricci Scalar:** scalar summary of total constraint distribution.
- $g_{\mu\nu}$ **Metric Tensor:** the geometric map of measurable intervals in space.
- Λ **Cosmological Constant:** uniform background constraint with units of inverse area.
- Aq **Universal Acceleration Constant:** couples mattergy to observed acceleration.
- c Invariant speed of light.
- $T_{\mu\nu}$ **Stress-Energy Tensor:** density and flux of mass, momentum, and energy in space.

MOTION

Geodesic motion: how mattergy moves through space.

ACTION

Least action: the physically favored path.

Geodesic motion and least action together govern physical systems — from planetary orbits to extreme constraints near black holes.

In summary: the primitive is acceleration rather than gravity.

=

Special and General Relativity

The Lorentz Transforms in Matrix Form

The Lorentz Factor (γ): $\gamma = 1 / \sqrt{(1 - v^2/c^2)}$

Relative Speed Defined: $v = d / t$

c is the speed of light in vacuum.

We map: $\begin{pmatrix} x \\ y \\ z \\ ct \end{pmatrix} \Rightarrow \begin{pmatrix} x' \\ y' \\ z' \\ ct' \end{pmatrix}$



$$x = \gamma(x' - vt')$$
$$y = y'$$
$$z = z'$$
$$ct = \gamma(ct' - \frac{v}{c}x')$$

$$\begin{pmatrix} x \\ y \\ z \\ ct \end{pmatrix} = \begin{pmatrix} \gamma & 0 & 0 & -\gamma\frac{v}{c} \\ 0 & 1 & 0 & 0 \\ 0 & 0 & 1 & 0 \\ -\gamma\frac{v}{c} & 0 & 0 & \gamma \end{pmatrix} \begin{pmatrix} x' \\ y' \\ z' \\ ct' \end{pmatrix}$$

The Minkowski 4D Manifold: (x, y, z, ct).

Privileged Observer

** This transform is inverse.

At rest > native frame >< non-native frame < moving.

** The inverse occurs when the non-native frame's distorted measure is treated as if it were the non-native frame's proper measure.

*

<-^->

The Modern Newtonian Formulas

The Mattergy Wave Equation in Scalar Time

$$\partial^2\Psi/\partial t^2 = c^2\,\nabla^2\Psi$$

$$\Psi\,(x, t) := M\,(x, t)$$

$$M := (mc^2)^2 + (pc)^2$$

Where -- Ψ is Mattergy.

The equation is the propagation law.

t is scalar time, the evolution parameter.

∂ is the partial derivative operator.

∇ is the Euclidean Laplacian in 3-space.

Euclidian 3-space is the domain.

The Newtonian Vector/Scalar Manifold is (x, y, z), t.

c is the invariant propagation speed.

Lorentz symmetry emerges operationally.

Consequence: Mattergy disturbances propagate as spherical waves in Euclidean space. All clocks, rods, signals built from mattergy inherit the same invariant speed. No apparatus can couple to the foliation because all operations obey this law.

Operational Symmetry: Lorentz symmetry emerges at the measurement level from the invariance built into the propagation law itself. This framework is a closed system, not a reinterpretation of GR.It is a closed system with its own primitives, its own invariants, and its own propagation law. Lorentz symmetry emerges operationally, not axiomatically.

.

<Foot-Long> <IOAT> <Observers>

*

<-^->

The Modern Newtonian Framework

Measure Distortion - The Lorentz Transforms
Observed Length Contraction / Time Dilation

The Lorentz Factor (γ): $\gamma = 1 / \sqrt{(1 - v^2/c^2)}$

Relative Speed Defined: $v = d / t$

Hendrik Antoon Lorentz (1904) never invokes spacetime.
Hermann Minkowski (1908) creates spacetime as (x, y, z, ct).
Lorentz compares space - space (vector), time - time (scalar).
The Newtonian Vector/Scalar manifold is (x, y, z), t.

Space Transforms -- x <-> x'.

Forward Spatial (lab --> moving frame): $x' = \gamma (x - v t)$

Inverse Spatial (moving frame --> lab): $x = \gamma (x' + v t')$

Length Contraction (rod measured from lab): $\Delta x = \Delta x' / \gamma$

(Where $\Delta x'$ is length measured in the rest frame of the object.)

Time Transforms -- t <-> t'.

Forward Time (lab --> moving frame): $t' = \gamma (t - v x / c^2)$

Inverse Time (moving frame --> lab): $t = \gamma (t' + v x' / c^2)$

Time Dilation (clock measured from lab): $\Delta t = \gamma \Delta t'$

(Where $\Delta t'$ is time measured in the rest frame of the clock.)

No Privileged Observer

The Lorentz Transforms are symmetric between frames.
At rest > native frame >< non-native frame < moving.
At rest > non-native frame >< native frame < moving.



<Measure> <Family> <Foot-Long> <IOAT> <Observers>

The Modern Newtonian Framework

The Lorentz Transforms in Matrix Form

The Lorentz Factor (γ): $\gamma = 1 / \sqrt{(1 - v^2/c^2)}$

Relative Speed Defined: $v = d / t$ **where v := |v|**

v (|v|) is scalar, not vector, no direction(s) involved.

c is the speed of light in vacuum.

We map: 

$$\begin{pmatrix} x \\ y \\ z \\ t \end{pmatrix} \Leftrightarrow \begin{pmatrix} x' \\ y' \\ z' \\ t' \end{pmatrix}$$

<- this is a role switch,
no inversion involved,
neither frame is privileged.

$$\begin{aligned} x &= \gamma(x' - vt') \\ y &= y' \\ z &= z' \\ t &= \gamma(t' - vx') \end{aligned} \qquad \begin{pmatrix} x \\ y \\ z \\ t \end{pmatrix} = \begin{pmatrix} \gamma & 0 & 0 & -\gamma v \\ 0 & 1 & 0 & 0 \\ 0 & 0 & 1 & 0 \\ -\gamma v & 0 & 0 & \gamma \end{pmatrix} \begin{pmatrix} x' \\ y' \\ z' \\ t' \end{pmatrix}$$

$$\begin{aligned} x' &= \gamma(x - vt) \\ y' &= y \\ z' &= z \\ t' &= \gamma(t - vx) \end{aligned} \qquad \begin{pmatrix} x' \\ y' \\ z' \\ t' \end{pmatrix} = \begin{pmatrix} \gamma & 0 & 0 & -\gamma v \\ 0 & 1 & 0 & 0 \\ 0 & 0 & 1 & 0 \\ -\gamma v & 0 & 0 & \gamma \end{pmatrix} \begin{pmatrix} x \\ y \\ z \\ t \end{pmatrix}$$

The Newtonian Vector/Scalar Manifold: (x, y, z), t.

No Privileged Observer

The Lorentz Transforms are symmetric between frames.

At rest > native frame >< non-native frame < moving.

At rest > non-native frame >< native frame < moving.

6c. Analysis: *The Family Solution.*

<- ^ ->



<Measure> <IOAT> <Observers>

6d. Analysis: *The Foot-Long Solution.*

<- ^ ->

The Modern Newtonian Framework

Setup: Two foot-long subs, Slow Sub & Fast Sub, two Italian Delights with all the fixin's. Both subs are certified one foot long. Slow Sub remains here on Earth, where someone will eat it. Fast Sub travels with Fast Family at near speed of light. Fast Sub will be eaten by the Fast Family. Both subs experience length contraction. Bite by bite, the two subs shrink until the length of each sub reaches zero.

To Prove: Both subs stay a foot long until eaten by hungry humans.

Measured length of each foot-long is one foot long.

Start of Sub]xxxxxxxxxx[Tail End of Sub

One Foot

The Slow Sub

One Foot]xxxxxxxxxxx[



The Fast Sub

One Foot]xxxxxxxxxxx[

Both the Slow Family and the Fast Family eat yummy foot-longs. No relativity needed. A foot is a foot in a native frame. Both families are in their own frames of rest, their native frames. A foot is a foot going fast or slow. No Privileged Observer. Far away, they see each other's Itsie-Bitsy subs. Bon Apetit. It's a sub.

Space is every where from any where.

Time is every where the same when.

Mattergy matters.

It's a foot-long. Every where one foot long.

The Foot-Long Solution: No Privileged Observer.

PS – Relativity is a red herring. The subs are in their native frames the whole time.

<Measure> <IOAT> <Observers>

6e. *The Insight of All Time …* <- ^ ->

Time dilation and length contraction are Distortions of Measure.

The things measured are never changed in any way. **Distortion occurs only when measure is taken from outside the rest frame (native frame) of the thing/event. Measure does not change things or events. Distortion is observed, not existential. Experience before measure, there is indeed measure distortion. This is a proper truth. Measures of time within a native frame are spot-on. Measures of time from outside that frame are distorted *(time dilation*). Measures of length within a native frame are spot-on. Measures of length from outside that frame are distorted (*length contraction*).**

Distortion presupposes a reference that isn't distorted.

The Native Frame: There is no measure distortion relative to myself, in my own native frame. There is no measure distortion relative to yourself, in your own native frame. The Laws of Physics, and thereby experience, are the same for everyone, everywhere, all the time. In every native frame the axiom of space applies, the axiom of time applies, the axiom of mattergy applies. Axioms are axioms. A is A. Axioms apply all the time, for every observer (sic) all the time. Why the (sic)? It's experience before measure. Observers? We don't need no stinkin' observers!

A minute is a minute in every native frame. Doubt it? Sing 1 Mississippi. Anyone, in that native frame can sing 1 Mississippi. There is no time dilation at all. Anyone, in that native frame can eat a foot-long sub. That foot-long sub remains a foot long because it's a foot-long sub. There is no length contraction at all. To treat measure distortion as experience is to invoke row 4 of the truth table. A false if, a false then, it's true that it is not true. Families age the same. Foot longs remain foot longs. The Insight of All Time. Experience before measure.

<Measure> <Measures Proper> <Family>

6f. *No Privileged Observer: It's Distortion.* <- ^ ->

In every reference frame, the physical laws operate the same way. An observer always measures their own space, time, and mattergy without distortion. A second observer in a different frame reports the same thing about their own measurements.

When two observers compare measurements across frames, each sees the other's measurements as altered. These differences arise only in cross-frame comparison, never within a native frame. The objects and events themselves do not change; only the description changes. Because each observer sees the other as distorted, and neither sees distortion in their own frame, the distortion cannot belong to the objects or events. It belongs to the comparison.

If distortion were an actual physical change, one observer's frame would have to be the correct one — which would create a privileged frame. But no physical theory allows a privileged frame, and no observer experiences distortion in their own frame.

This resolves the twin scenario cleanly: each twin experiences normal time in their own frame. Each sees the other's clock as running differently only when comparing across frames. No one experiences altered time in their own frame. A minute is a minute in every native frame. A length is a length in every native frame.

Therefore, the differences seen between frames are observational, not existential. Remember from that moving frame the Earth flattens (length contraction). It is Earth time that slows (time dilation). It's distortion.

No observer is privileged. None. Both frames carry equal stature.

Measure distortion is GR's Kryptonite.
Q.E.D.

<Measure> <Measures> <Family> <Foot-Long>

7. *Laws and Principles: From then to now.* <- ^ ->

The Axiom of Space: *Space is every where from any where.*
The Axiom of Time: *Time is every where the same when.*
The Axiom of Mattergy: *Mattergy matters.*

Newton's Three Laws of Motion:
Inertia: An object at rest stays at rest. An object in motion stays in motion unless acted upon by an external force.
Acceleration: The force acting on an object is equal to its mass times its acceleration.
Action-Reaction: For every action, there is an equal and opposite reaction.

Relativity is fact, in physics explainable and explorable.

Newtonian Relativity: *Measures relate independent of observation.*

Space & Time: Space is Euclidian, no agency. Time is absolute, uniform, and independent of observed or external conditions, pure magnitude, rank-0 behavior.

Principles of Special Relativity (1905)

Relativity: The laws of physics are the same in all inertial frames of reference.
Constant Speed c: The speed of light, c, in a vacuum, is constant for all observers, regardless of their motion or the motion of the source.

Modern Relativity: Space and time together become spacetime. The Minkowski 4D manifold (x, y, z, ct), creates a model of relative 4D geometries, relative to observers, motion, gravity.

Mass-energy equivalence: $E^2 = (mc^2)^2 + (pc)^2$

General Relativity (1915) Field Equation:

$$G_{\mu\nu} + \Lambda g_{\mu\nu} = \frac{8\pi G}{c^4} T_{\mu\nu}$$

Spacetime curvature:

(Gμν) relates the energy & momentum of matter and radiation **(Tμν).**

Equivalence Principle:

Gravitational fields are locally indistinguishable from accelerating frames.

<Fan> <Real> <Cone> <Sphere>

7a. *Modernizing Classical Mechanics.* <- ^ -> V

When Classical Mechanics (CM) is claimed to be “incomplete” that means some particular equation is missing some modern feature. Relativity is a fact. This is not about that. Each particular equation in the following side-by-side comparison has been properly modernized. We see that in every case, one must only “add in” mass/energy conservation and compatibility with QM to complete, or in proper terms, modernize those previously “incomplete” equations.

Let’s do exactly that.

A_Q is the universal scalar that couples conserved ***mattergy*** to observable acceleration across curvature. This scalar refinement preserves Newton’s geometric scaffolding, replaces stitched terms, and restores experiential clarity. This is acceleration—not gravity. The scalar **A** anchors observable consequence, not stitched attraction. The **Q** is quantum anchored. ***Mattergy*** is the conserved agent of curvature—folding mass and energy into one experiential anchor. ‘**F**’ (Force) is changed to ‘**a**’ (acceleration) and ‘**α**‘ (angular acceleration). Force is stitched. Acceleration is observable. The ‘**m**’ (mass) has been changed to ‘**M**’ (***mattergy***) for mass/energy conservation. ‘**P**’ is for power, of course. There might be a few other terms that sneaked their sneaky selves in.

It's all math. anyway. That’s the easy part, right?

The Modern Newtonian Framework

Mass/Energy to Mattergy: $M \text{ is } (mc^2)^2 + (pc)^2$



	Classic (Incomplete)	Modernized
Gravity to Acceleration:	$F = G\frac{m_1 m_2}{r^2}$	$a = A_Q\frac{M_h M_2}{r^2}$
Centripetal Acceleration:	$F = \frac{mv^2}{r}$	$a = \frac{v^2}{r}$
Hooke's Law:	$F = k\Delta x$	$a = \frac{k\Delta x}{M}$
Friction:	$F = \mu N$	$a = A_Q\frac{\mu N}{M}$
Impulse Momentum:	$F\Delta t = \Delta(mv)$	$a\Delta t = A_Q\frac{\Delta(Mv)}{2M}$
Work-Energy:	$F \cdot d = G\frac{\Delta(mv^2)}{2m}$	$a \cdot d = A_Q\frac{\Delta(Mv)}{2M}$
Power-Energy:	$P = G\frac{\Delta(mv^2)}{2m\Delta t}$	$P = A_Q\frac{\Delta(Mv^2)}{2M\Delta t}$
Torque Angular Momentum:	$r\Delta t = \Delta L$	$\alpha = A_Q\frac{\Delta(Mrv)}{Mr^2}$
Pressure Fluids:	$P = \frac{F}{A} = \frac{mg}{A}$	$\alpha = A_Q\frac{M}{pA}$
Thermal Statistical:	$Q = mc\Delta T$ $E = NkT$	$\alpha = A_Q\frac{\Delta(MkT)}{M}$

7b. Bucket Study: *If Isaac had a ceiling fan…* <- ^ ->

To Demonstrate:

$$a = A_Q \frac{M_1 M_2}{r^2}$$

This scalar law of acceleration applies to both classical and quantum regimes. In this demonstration, we operate within a decohered context—so the expectation values ⟨M⟩ and ⟨r²⟩ collapse to fixed quantities. The formula remains structurally invariant, but its interpretation adapts to regime.

Items needed:

One Ceiling Fan (mounted and operational, with 3, 4, or 5 blades.)
3, 4, or 5 bungee cords, 3' long each, matching the number of fan blades.
1 standard plant hanger that cradles a hanging flowerpot from above.
A two-liter clear milk jug, ½ empty or ½ full depending on your world view.
(Water can be substituted for milk, of course. We only need a viscous fluid.)
(Optional: a remote control for the ceiling fan).

Steps to Take:

Attach bungee cords to fan blades as close to the motor as possible.
Attach the other ends of the bungee cords to the flowerpot hanger.
Place the milk jug with the liquid in the flowerpot holder.
Turn on the fan, slow for a time, medium for a time, then high speed.
Observe what happens to the liquid in the jug.

a → Acceleration (Equivalent to gravity, but this is not that). **The scalar cause of curvature, centripetal acceleration.** **The cause of the liquid curving upward along the jug's walls.**
A_Q → Quantum-aware scalar constant: **Couples conserved mattergy to observable consequence.**
(M_1) → Mass of the liquid (mattergy participant); **Collapses to fixed value in this demo.**
(M_2) → Mass of the rotating system (fan + Earth); **Decohered, treated as classical. (The system that imparts acceleration).**
(r^2) → Radial distance squared from fan axis to jug's center of mass. **This sets the scale of curvature in the rotating system. In quantum regimes, it's an expectation value; in this decohered demo, it collapses to a fixed scalar.**

<Law> <Cone> <Sphere>

7c. Reviving Realism:

<- ^ ->

The Honorable Paul Marmet reintroduces realism by describing and relating the same new knowledge about the reality of length dilation and changing clock rates, as does Einstein. Marmet makes the proper enhancements and additions to Classical Mechanics, while justifying his position on the basis of verified Quantum Mechanics and the principle of conservation of mass/energy, instead of the constancy of light. Marmet provides a rational, realistic description of physical reality, placing Classical Mechanics back on a correct track, such that prediction again matches observation. Within this context, relativity is a redundancy. Quantum Mechanics and Classical Mechanics taken together incorporate and describe *all physical realities* previously attributed to relativity.

Marmet recognizes the difference between **Newton's equations**, *which are always perfectly valid in any and all related frames of reference*, and **Newton's physics**, *which lacks coherency:* there is no place for changes of mass, length, and clock rate. Newton was not aware of the effects on matter due to changes that occur as a result of different gravity potentials, and/or different accelerated states. Newton's physics is NOT compatible with the principle of mass/energy conservation. Marmet adheres to mass/energy conservation and realism by keeping careful track of proper units, by including changes of mass, length, clock rate as required, thereby restoring coherency to Newton's Physics.

In Conclusion, physics is more than a virtual model of reality. Science demands a physical description of Nature coincident with reality. The requirement of realism has profound implications for the application of physics to the real world, and the future growth and survival of Mankind. Euclidian space, thought to be a relic of the past, remains the all-encompassing, most accurate description of space. Time, as constrained by physical reality, contradicts any suggestion, assertion, or conclusion that time can be navigated dimensionally, in any physical sense, whatsoever. Time travel remains the province of fantasy. A remains A, after all.

<Law> <Accel> <Sphere>

7d. Minkowski and the 4D Manifold (x, y, z, ct).

<- ^ ->

Relativity Principle: The laws of physics are the same in all inertial frames.

Constancy of *c*: Light in vacuum always travels at speed c in all inertial frames. This principle does not violate the **axiom** of **space,** nor **time.** In fact, the **relativity principle** supports them. This principle allows **The Newtonian Framework** to co-exist alongside **General Relativity** as descriptions of the fact itself, that relativity is a proper fact, a proper truth. Both systems support it.

$s^2 = (c\,\Delta t)^2 - (\Delta x^2 + \Delta y^2 + \Delta z^2)$ (**s^2** is invariant - the same, regardless of motion.)
The sign of events classifies — timelike, spacelike, or lightlike (on the light cone.)

- **Timelike ($s^2 > 0$)** Time separation dominates. Requires mattergy with rest mass. One event can causally influence the other at or from a distance.

- **Spacelike ($s^2 < 0$)** Space separation dominates. Elsewhere -- events. No causal connection possible -- light needs to travel faster than c to connect them.

- **Lightlike ($s^2 = 0$)** Exactly on the light cone. Events connected by a light signal. Only the momentum term **(pc)^2** reaches this edge.

Minkowski Spacetime Structure: A pseudo-Euclidean **4D** space **(x, y, z, t)** ...

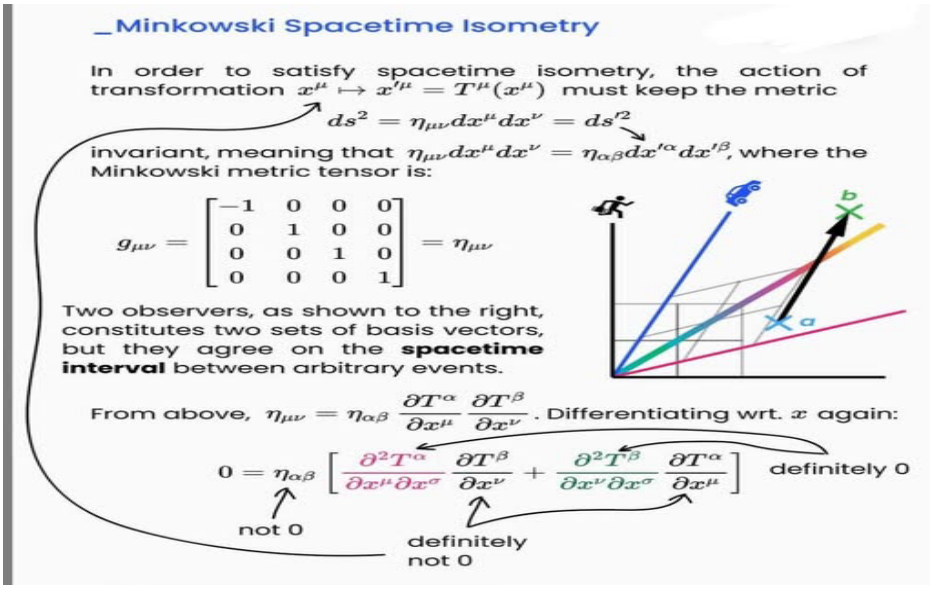
Interval Formula: $s^2 = (c\,\Delta t)^2 - (\Delta x^2 + \Delta y^2 + \Delta z^2$ *(the Minkowski metric)*

* *(the Minkowski norm squared)*.

Invariance: All observers, regardless of motion, agree on the value of s^2.

Light Cone: Events that lie on the cone are reachable by **light.**

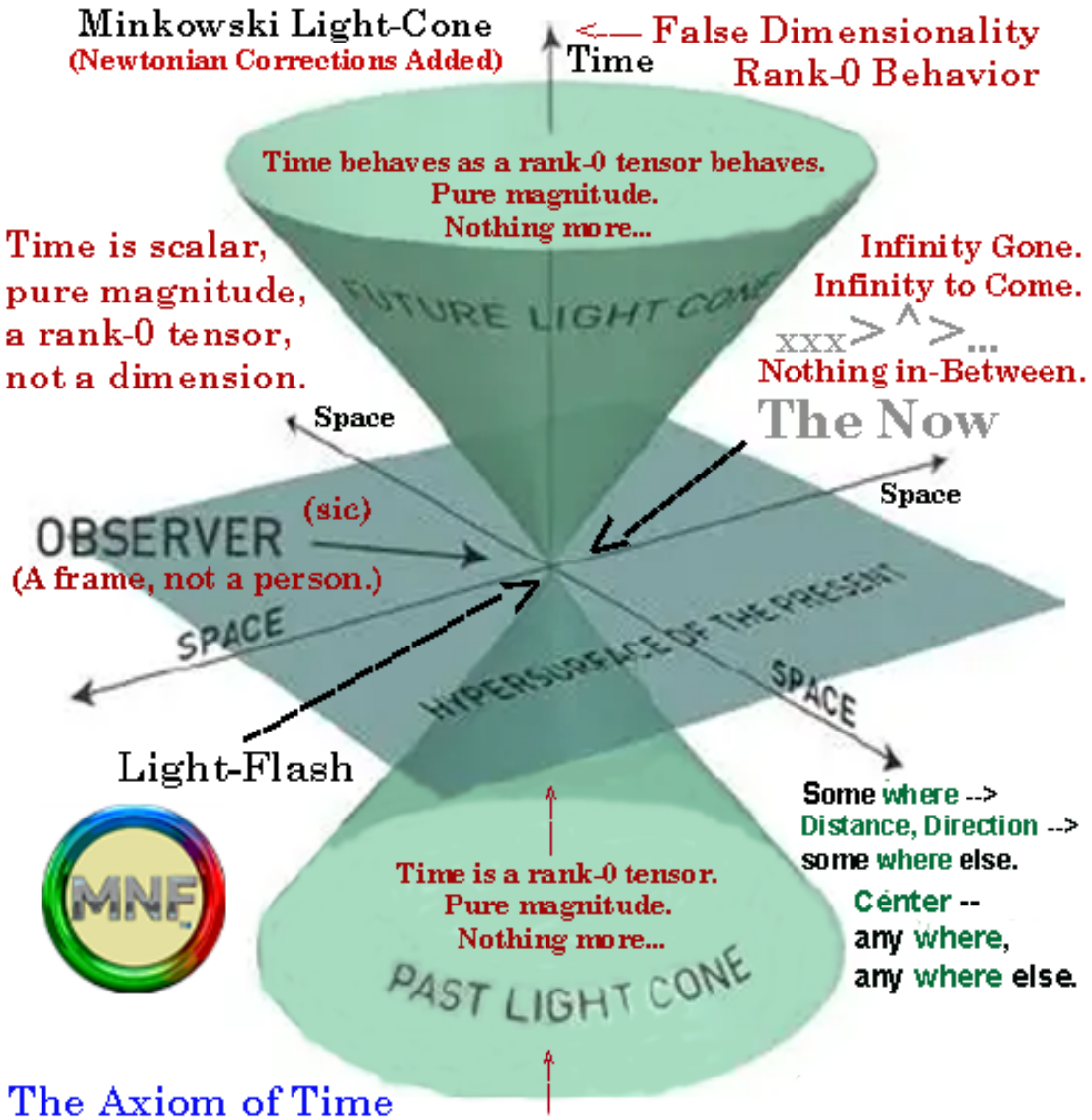
Timelike events ($s^2 > 0$) are inside cone. **Spacelike** events ($s^2 < 0$) outside cone.



Category Error: Minkowski spacetime treats time—a scalar magnitude of change—as if it were a geometric dimension, and treats space—a passive extension—as if it possessed geometric agency. The mathematics is effective; the premise is false. This places “spacetime” in The Set of Make Believe: a floating abstraction built by reclassifying experience to fit a metric.

Ontological Correction: Time is scalar, measuring ordered change; space is extension, lacking agency. Light’s invariance is a behavior within space and time, not a law above them. By elevating light’s worldlines to define geometry, the construction overwrites the experiential identities of space and time and inverts the hierarchy: coordinates are treated as primary, experience as derivative.

Downstream Consequence: Spacetime, as a 4D pseudo-Euclidean manifold, is mathematically predictive but ontologically incoherent. The light-cone is a consequence of emission, not a property of inertial frames; only the portion of mattergy reaches its edge, while the $(mc^2)^2$ portion cannot. Once time is treated as a dimension and space as a geometric substrate, the ontology is inverted and the description of behavior drifts from reality: the axioms of space and time falsify the premise, not the other way around.



The Axiom of Time
is embedded in all time spans.

Space is every where from any where.
Time is every where the same when.

Time spans are measures of time as experienced,
measured as durations of a chosen unit-measure.
Time spans only exist as abstraction:
. The Past => durations of remembered history,
. The Future => durations of time yet to be.
On-going time spans are part history, part yet to be.

Axioms: <Space> <Mattergy> <Time> <The Set of Ages>

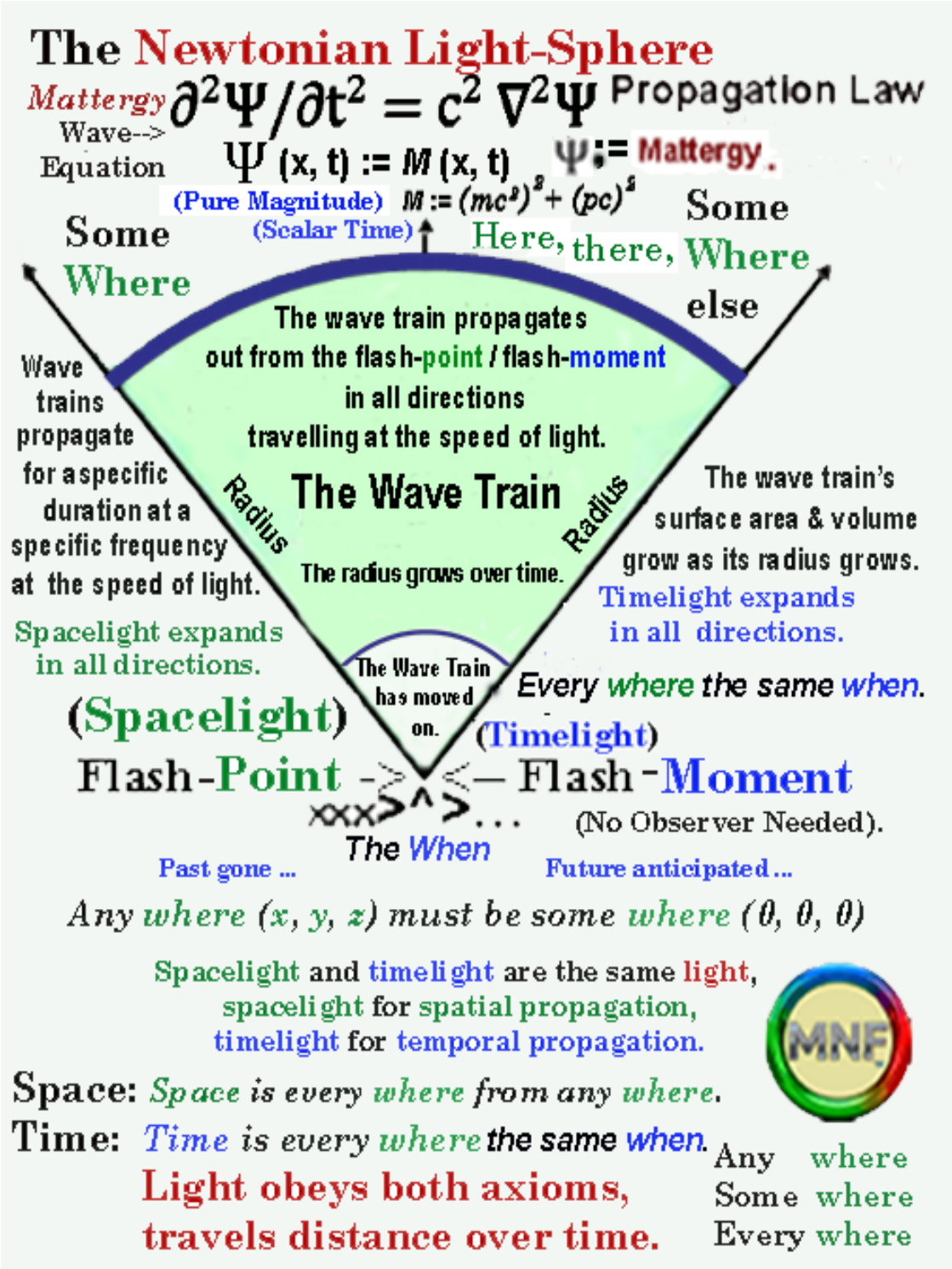
7e. The Newtonian Vector/Scalar Manifold (x, y, z), t. <- ^ ->

Axiom of Space: *Space is every where from any where.*
Axiom of Time: *Time is every where the same when.*
Common referents: *Any where / Every where.*
Unique Identities: *space ≠ time. A is A. B is B.* *(two separate things.)*

The **Newtonian Perspective** reframes the standard **light-cone** as **properly** a **light-sphere.** The **light-flash** becomes a **flash-point (space)** AND a **flash-moment (time),** the very same event. That event occurs at a **Euclidian center (0, 0, 0),** has two measurable aspects, measures of **time (the flash-moment/timelight)** and measures of **space (the flash-point/spacelight).**

The light-sphere begins as a new wave train, at some when in time, some where in space. All light-spans are abstractions. Light travels distance, **and** lives duration. Light obeys both the axiom of space and the axiom of time. These first flash-moments / flash-points begin wave trains. The distance aspect is a measure of real space (Euclidean space), yet as the flash-point is only observed in the now, one must abstract the distance via measure, as that distance is derived from the ever-expanding light using the constant speed of c and the elapsed time spent moving through space. The duration aspect is a timespan — entirely abstraction. The duration grows (a scalar) as the wave train moves away from the flash-moment. All durations are members of The Set of Ages.

Axioms: <Space> <Mattergy> <Time> <The Set of Ages>



Axioms: <Space> <Mattergy> <Time> <The Set of Ages>

Modern Newtonian Framework

The Friedmann Cosmic Sphere

Expansion Rate Equation

$$(\dot{a} / a)^2 = Aq\,\rho + C$$

C: Expansion Floor Constant

$(\dot{a} / a)^2$: >==^==< Expansion Rate

Aq: Universal Acceleration Constant

ρ: Density

a is the scale factor.

$\dot{a}$ is the rate of change.

Expansion Acceleration Equation

$$\ddot{a} / a = -\tfrac{1}{2}\,Aq\,(p + 3p / c^2)$$

$\ddot{a} / a$: >=^=< Acceleration Rate

Aq: Universal Acceleration Constant

p: Pressure

c^2: Speed of Light Squared

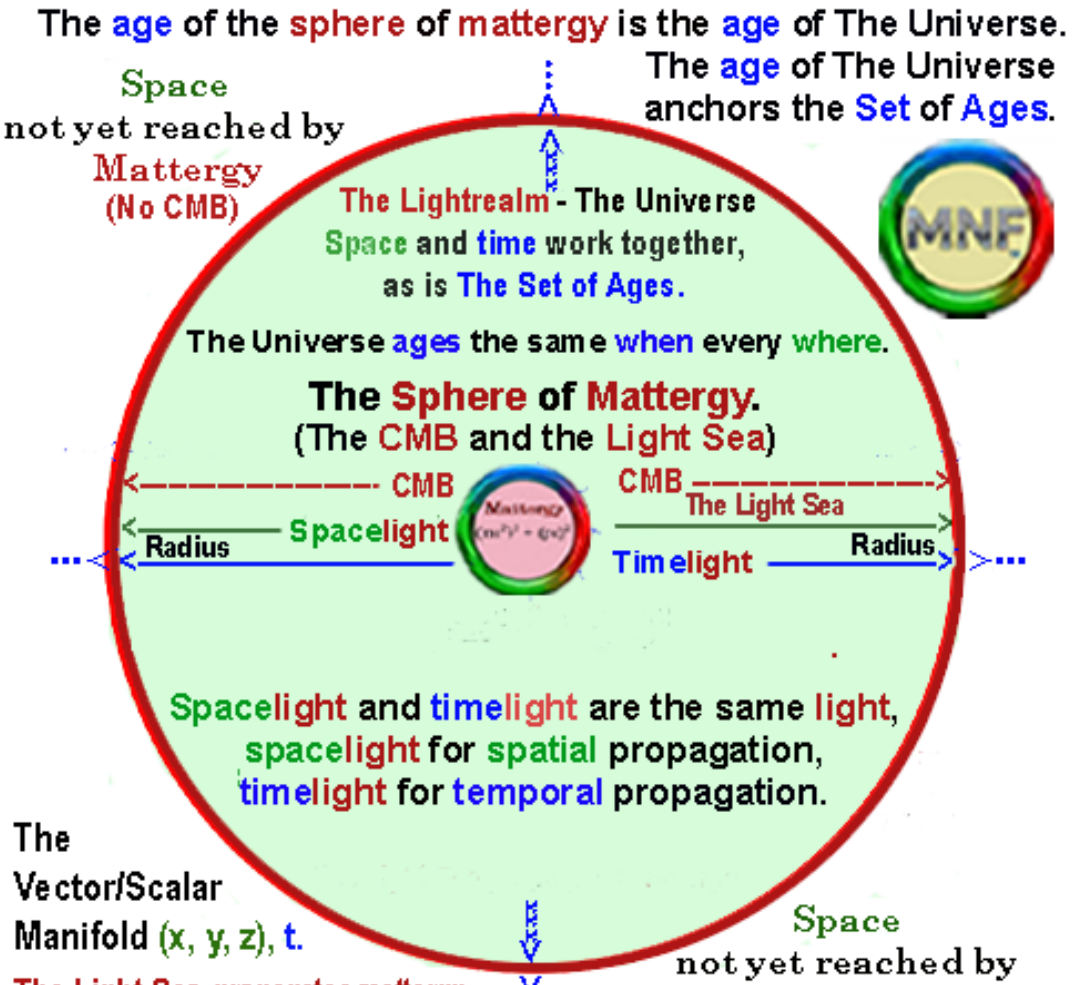
a is the scale factor.

$\ddot{a}$ is the rate of change.

The Friedmann equations are crucial to modern cosmology. They build comoving distance from a sphere in expanding Euclidean space.

No direction is privileged. The geometry must be spherically symmetric. The equations run backward in scalar time toward the Great Expansion and forward in scalar time to age and size the Universe.

Scalar time runs backward toward the Great Expansion –
Today >> Yesterday >> back 13.8 billion years >> at the GE.
Forward from the GE >> Yesterday >> Today >> Tomorrow >> ...



Space is every **where** from any **where**.
Time is every **where** the same **when**.
When is the **duration** with **no duration** - **xxx>^>...**
Mattergy := $(mc^2)^2 + (pc)^2$. **Mattergy matters.**
Mattergy moves as **constraints** permit,
follows the path of least unresolved **gradient**.

[<When>](#) [<Law>](#) [<Accel>](#) [<Fan>](#) [<Real>](#) [<Cone>](#) [<Ontology>](#)

Axioms: [<Space>](#) [<Mattergy>](#) [<Time>](#) [<The Set of Ages>](#)

8. The Lightrealm: *Keeper of The Light.* <- ^ ->

The Light Sea: *Carrier of The Light.* <Opening Remark>

*The accepted **scientific standard** for **light** is herein acknowledged and assumed. **Light** is considered to encompass the entire electromagnetic spectrum. The **active agent** of **Lightrealm** is **The Light Sea.** While conventional physics often refers to the **"fabric of space,"** such terminology implies a **2D** surface. Seas are volumetrically **3D,** as is **The Light Sea,** it's **3D**.*

Light is light. A is A.

- **Light** moves at constant speed ***c***. In all directions, in everything related, ***c*** is constant. The constant **c** holds across all phenomena, instruments, and observers.

***Light** is arriving right now, the **light** we see and feel. The past is history. We live in the now. We anticipate future. Light obeys the axiom of space, and the axiom of time, both, always so, never not.*

Time and space have 2 common referents concerning measures.

The Lightrealm and Light Sea have the same common referents:

Any where: **Center (0, 0, 0),** the place where measure occurs. **Every where:** Possible **distances** and **directions** for measures.

What matters: The things measured whatever they may be, however measured.

The ***Light Sea*** is **mattergy being mattergy, A being A,** that which is the ***lightrealm***. ***Mattergy matters.*** *Measure that. Experience before measure. It's* ***experience.***

It is said, in the absence of mattergy space is Euclidian, i. e. Flat.
Well, duh! That's because space is every where from any where.
Hey, Space! Let Mattergy do it.

So, what then, is curving? lensing? bending? <- ^ ->

worm-holing? black-holing?
Mattergy does that. And that's why, mattergy matters.

Light isn't matter. It's part of mattergy.

That's why E = pc still bends the flat.

So, for light, this reveals: energy is real even when rest mass is zero.
The source shifts—from "mass at rest" to "momentum in motion."
The constant c^2 declares that energy and mass are interchangeable.
Light, as pure energy, broadcasts *****mass equivalence in motion.*****

The Universe: Space is every where from any where.
The lightrealm and The Light Sea are every where from any where.
The Universe and the lightrealm/Light Sea are equivalencies.

Aspect	**Fabric of Space**	**The Light Sea**
Ontology	*Abstract/Metaphorical*	*Axiomatic/Grounded*
Curvature Source	*Mis-defined Spacetime*	*Mattergy as Bending Agent*
Measurement	*Distorted Measures*	*Measure from Context*
Purpose	*Visual Storytelling*	*Foundational Reclass*
Framework Status	*Analogy in the Abstract*	*Anchored Analogy*

The Nature of Light:
The Lightrealm keeps. The Light Sea carries.

Light is known, well-studied, and its behavior well-understood by scientific consensus. These behaviors give rise to the notion of a Light Sea — an omnipresent, energetic field of a full spectrum of electromagnetic energy and matter, through which space, time, and presence are observed and measured.

Mattergy Is what real is all about. Electro-Magnetic. <- ^ ->
Baryons. Whatever. Mattergy is what we are measuring.

Mattergy is where agency occurs. Mattergy is itself agency occurring. Mattergy is the cause that causes cause. Mattergy behaves as proper of itself, resists acceleration, responds to gravity, causes events pursuant to the nature of that which we measure and study. Mattergy is measured allowing for potential distortions of measure. Energy isn't "other than" matter, instead mattergy moves, changes form, interacts in ways that are in the nature of mattergy. Mattergy matters. A is A.

The Lightrealm, The Light Sea, The Manifestations of Mattergy.

An organized understanding of light that traverses space, marks time, in a variety of potential measures. Light reaches us in The Now, as the arrival of observed spatial conditions like distance and direction from center, or temporal conditions measured from The Now, Light is a medium by which we make measurements. Measurement Dilation arises because light provides relational metrics distorted when motion is observed under relative conditions.

The Set of Ages, the Axiom of Time, in Action.

Reality unfolds through light's arrival in The Now. The Set of Ages captures durations — abstracted spans of time, past history, The Now, and anticipated future. Time travel is disallowed by the axiom of time before we even get started. Timespans are always abstractions. The axiom of time is imbedded in all timespans.

<Parent> <Children> <Root>

8a. *The Light Sea: Carrier of All Things Light.* <- ^ ->

Let's compare these two abstractions:

1) The Fabric of Space
2) The Light Sea

First, foremost, fabrics are 2D, The Light Sea is 3D, space is 3D. Q.E.D.

Let's continue: *We just cooked some burgers on our BBQ grill. I like cheese on my burger (an opinion, yes), so I fetched a "slice" of American cheese. Now, I notice that the 24 slices in the package represent slices from a brick of cheese, the slice being 2D, while the brick is, of course, 3D. If the fabric of space is a slice of something, what is being sliced? Space? Where is this brick (sic) of space? Error 404: Brick of space not found." Error 405: There is no fabric brick either, method fails.*

PS. This works with pickles, too.

And a further analogy: *We see a submarine, The USS Mattergy, travelling through the ocean. The Mattergy is displacing the water around it. The Mattergy is bending the water, curving the water, cutting a hole through the water. Once the Mattergy has passed through a particular portion of water, the water returns to its natural state, smooth, flat, unhindered. Where is the brick then? The water is the brick. The 3D nature of space is retained by abstracting a Light Sea instead of a fabric of space.*

The Light Sea is a far better abstraction than the fabric of space.

Far better? *I think so.*
Submarines displace water like fish swim in the sea.
Always so, never not. ***Agreed?***

<Lightrealm> <Children> <Root>

8b. Parent Concept, Lightrealm: *Anchored/Grounded.* <- ^ ->

***Proper Truth*:** *Proper abstractions have coherent referents.*
Spacetime revisited: *The unmentioned concept –* ***light.***
Albert uses ***light*** *as foundation of* ***space*** *and* ***time****,* ***spacetime.***
Just say so.

Compound abstractions must be built from, and remain faithful to, the nature of the root concepts from which they derive. When a root concept is axiomatic, the axiomatic nature of the root concept must be retained for coherence to persist when taken further, in all later abstractions.

The current accepted scientific standard for light is accepted and assumed.

Light *– the "energy" aspect of mattergy.*

Light is a root concept of all of these new compound abstractions: Lightrealm, The Light Sea, Spacelight, and Timelight.

Lightrealm: Keeper of all that is light (our parent (root) concept.)
The Light Sea: Carrier of all that is light (the agency of the lightrealm.)

<spectrum of mush> <Lightrealm> <Light Sea> <Root>

8c. The children: *Spacelight, Timelight.* <- ^ ->

The lightrealm is the foundational (parent) abstraction that encompasses all that derives from the nature of light. The Lightrealm is not a place, rather an abstraction of conditions that arise from the nature of light as we observe it, measure it, and draw proper truth from those observations. The lightrealm, as the keeper, and The Light Sea as the carrier, give structural cohesion to the child concepts spacelight and timelight. When we see that light is energy, lightrealm becomes the canvas on which energy paints reality.

Spacelight: *a compound abstraction of space related to light.*

The Lightrealm is every where from any where. (Distance, and direction from center).

We observe light traversing space—reaching us from a source, across distance, and along a direction. Spacelight allows the measure of spatial consequence.

Timelight: *a compound abstraction of time related to light.*

xxx>*_____>...

Great Expansion (The age of The Universe, the longest duration) ^ Now

Time is every where the same when.

Though light travels through time, we observe it only in a dimensionless moment we call The Now. A timespan is a magnitude not a flowing dimension. Measures of time derive from the actions of mattergy in space. Timelight allows the measure of temporal consequence.

<Back to Titles> <Ontology>

<Lightrealm> <Light Sea>

8d. The Importance of Root Concepts: <- ^ ->

Spacetime is derived from its root concepts, space, and time.
Spacelight is derived from its root concepts, space, and light.
Timelight is derived from its root concepts, time, and light.

==========

Spacetime and spacelight each have space in common.

Axiom of Space:

Space is every where from any where.

Spacetime must comply with the axiom of space, an axiomatic root concept.
Spacetime violates the axiom of space by granting non-justified properties to space (that space is a source of agency rather than mattergy).

Spacelight must comply with the axiom of space, an axiomatic root concept.
Spacelight obeys the axiom of space to provide center, distance, and direction.

==========

Spacetime and timelight each have time in common.

Axiom of Time:

Time is every where the same when.

Spacetime must comply with the axiom of time, an axiomatic root concept.
Spacetime violates the axiom of time by granting dimension to a magnitude.

Timelight must comply with the axiom of time, an axiomatic root concept.
Timelight obeys the axiom of time. Timespans derive from time-related events.
Observations in and of the now form temporal abstractions we call timespans.

The axiom of time is embedded in all timespans.
It's proper truth. True to experience it is.

Root concept: *Space*.

<- ^ ->

Spacetime must comply with the axiom of space, one of its root concepts.

Space provides center, distance, direction, nothing else.

Spacetime violates the Axiom of Space by claiming spatial attributes (fabrics, 4D magic trampolines). Such attributes are the province of mattergy where proper agency resides.

Root concept: *Time*.

Spacetime must comply with the axiom of time, one of its root concepts.

The Axiom of Time: ***Time is every where the same when.***

The Present Moment is always The Now: xxx>^>...

- Time is the moment of now, not a place in Space.
- Space is irreducible yet revealed through change.
- Time is every where the same when.

Fact: *The measure of time* xxx➔==========➔...
The Now: Infinity in. Infinity out. Nothing in-between xxx>^>...

Time is measured in timespans:

– *A completed timespan* []=======[]

Begin End

Completed Timespans have particular begin, particular end, the Now is irrelevant. The When comes and goes for the life of the span. All timespans are abstractions, completed or otherwise. Timespans go from a when to a later when.

Timespans exist as abstraction. Timespans have length only as abstraction. **Spacetime violates the Axiom of Time when claiming time has length.** Timespans are only abstract lengths. Timespans are magnitudes only.

.

Root concept: *Light*.

<- ^ ->

We honor the accepted, objective description of light.

*** Constant speed c in all directions.**

*** Consistent behavior across all frames of reference.**

*** Arrives now, takes time to propagate.**

*** Dual nature of light, both particle and wave:**

-------- Wave behavior invites abstraction of lightspans.

-------- Particle behavior is not about the span, but the arrival.

-------- In all forms light obeys the Axiom of Time.

The Now: Infinity in. Infinity out. No in-between. xxx>^>...

. -- Light arrives in a moment of now, at the observing location. Past Future

. -- The behavior of light is objectively known.

. -- Light leads to specific observation followed by particular abstraction.

The relationship of time to light (timespans / lightspans.):

Timespans and lightspans describe abstract relationships.

These spans exist only in our heads not in reality.

Both timespans and lightspans are compound abstractions.

Light is used to identify the thing observed with respect to either spacelight, timelight, or both.

Span implies a calculated or assumed length. Neither implies length in ontology.

Both describe relations as observations that connect events.

Light is measured as lightspans:

A completed lightspan []xxxxxxxxxxxxxxxxxxxxxxx[] <- Abstraction

. Begin End

Measures with particular begin, with particular end.

Lightspans are abstraction. Lightspans have length (as abstraction).

Lightspans have abstract length. The temporal aspect of lightspans are magnitudes.

Spacelight expresses the behavior of light as measures of distance and direction. Timelight expresses the behavior of light as measures of duration.

<Lightrealm> <Light Sea> <Parent> <Children>

9. Spacetime meets Spacelight, Timelight. <- ^ ->

Spacelight refers to space as it relates to light. (x, y, z), *t.*
Timelight refers to time as it relates to light. *(x, y, z),* ***t.***
Spacetime improperly fuses space and time. (x, y, z, ct)

The Now: xxx>^>... Infinity in. Infinity out. ← We proved it, right there.

Essential fact: *Lightspans are abstractions of history, on-going abstractions related to The Now, and speculative, predictive abstraction of future.* **Mattergy** manifests these abstractions via **spacelight** and **timelight.** ***Light travels through space, and rides on time's observable When with respect to observations of mattergy*.**

Spacelight expresses the behavior of light as measures of lightspans. Timelight expresses the behavior of light as measures of timespans.

(Mattergy always matters. Light is the energy part of mattergy.)

The Newtonian Framework is experience before measure. During the discussion of laws and principles, the Law of Universal Gravitation was improved by the addition of mass/energy conservation and compatibility with Quantum Mechanics. The Newtonian Framework is simply modern Newtonian Physics. That 4th dimension remains its mathematical self. I will mention, though, leave time travel to the movies. It's a trip with nowhere to go.

<Sphere of Mattergy> *<Back to Titles.>* **<Ontology>**

The Newtonian Framework <- ^ -> V

The Newtonian Perspective: *Closing Remarks …*

Let's make a side-by-side comparison:

The Classic/Modern Newtonian Perspective **Objective principles and concerns**	**The Relativistic Perspective** **Observer Dependent, Covariant, Subjective**
Reality exists whether or not we're watching. Laws don't bend. Time ticks the same for all of us.	*Reality flexes with our motion. Laws transform, not break. Time ticks differently on different spaceships.*
Space -> Euclidian, Cartesian Space, flat, fixed, center, distance, direction. Space is space. A is A. **Axiom: Space is every where from any where.**	**Space ->** non-Euclidian … Acquires some aspects of Mattergy (Light), fused with time in a way that obscures agency and consequence. (x, y, z, ct) <- time elevated from rank-0 to rank-1. **Axiom: Implies Euclidian space.**
Time -> a scalar expressed as timespans, durations of the experience of aging, all members of The Set of Ages. Time flows in only one direction. ***The When xxx>^>… the duration with no duration.*** **Axiom: Time is every where the same when.**	**Time ->** The 4th Dimension (sic). Acquires some aspects of Mattergy (Light), active component in spacetime, combines with space in union as the 4D manifold (x, y, z, ct). **Axiom: Implies Universal Time through mention of age.**

•

Mattergy -> The **agent** of **action** and **change,** combines **matter, energy**, allows **mass/energy conservation.** **Light** obeys the **axioms** of **space** and **time.** Laws are laws A is A. **Axiom: Mattergy matters.**	**Matter** (mass) and **Energy** are separate things. The one transforms to the other and vice versa. **Light is the standard by which all things be done.**
Universal Laws - Invariant. Laws of Motion, whatever other valid laws, gravity enhanced as acceleration, standard QM factored in.	**Laws Co-Variant**, Variant Observer Oriented. Those relativist principles and postulates go here, you know the ones **not founded on Newtonian Physics.**
The Lightrealm -> Parent concept, used to derive all **child concepts** surrounding **light.**	**Spacetime, something to do with that. Let them explain it.** The Fabric Wearhouse? Universal Cotton Ball? **They just say spacetime.**
The Light Sea -> Lightrealm the **keeper,** the **Light Sea** the **carrier.** **Mattergy** swims in it. Hey!	**The Fabric of Space ->** Huh? It's made up, it's not that. **It's mattergy.**
Spacelight → Space is space. **Light** is a **consequence within mattergy's self-interaction.** **Light obeys** the axiom of **space.** **Light travels** distance over **time.** **Light** does **not** redefine **space.** **Timelight →** The **Axiom of Time,** always according **The Set of Ages.** **Light** obeys the **axiom of time,** always now, never not.	**Spacetime → The Minkowski 4D manifold**, **space, time, fused together**, shaped by **mass-energy.** **Space** gets stretchy. **Time** acquires curvature. **Light** describes relative motion. **Spacetime** is treated as real, yet a **floating abstraction,** It's **(x, y, z), t,** not **(x, y, z, ct)**. The **4D manifolds disobey** the **axioms** of **space** and **time.**

Final Thought: The Defense Rests

<- ^ ->

Math is Math. Fact is Fact. A is A.

√−1 … √−n This is not real. It is useful fiction, but a fiction nonetheless.

* **i is defined as √−1.**
* **√−n becomes a scaled imaginary value (e.g., √−25 = 5i).**

Complex Numbers:

* Combine real and imaginary parts:
* Used in algebra, calculus, and differential equations.

Applications:

Electrical Engineering:

* AC circuits use complex numbers to model phase shifts.

Quantum Mechanics:

* Wave functions often involve imaginary components.

Signal Processing:

* Fourier transforms rely on complex exponentials.

Control Systems:

* Stability analysis uses poles in the complex plane.

Quantum Mechanics and the Imaginary Unit, Core Equation:

The time-dependent Schrödinger equation and the imaginary unit i:

$$\backslash i\hbar\,(\partial/\partial t)\,\Psi = \hat{H}$$

That i isn't decoration—it's structural. Without it, the wavefunction loses its oscillatory behavior, and quantum evolution collapses into classical drift.

Complex Numbers in QM:

Quantum states are vectors in a complex Hilbert space. Observables are real, but the machinery underneath is complex-valued. Every **√−n** lives here, scaled and scaffolded by **i.**

Yet, *i* is quite imaginary, yes? Math is Math. A is A. <- ^ ->

- **Claim: M-Theory posits 11 dimensions, with 7 compactified into infinitesimal spaces at every point in 4D spacetime.**
- **Compactification Mechanism: These dimensions are "curled" into G_2 manifolds—mathematical structures with no observable volume.**
- **Scalar Consequence: Packing seven spatial dimensions into a dimensionless point is not scalar—it's symbolic fiction.**
- **The Anchored Proper Truth: Observable consequence is the curvature compass. If a dimension cannot be measured, tested, or anchored—it does not exist in scalar reality. It is not a proper truth. Theoretical physics often uses "compactified" or "curled" dimensionful dimensions that evade detection. Shucks. That's not subtlety—it's fiction.**
- **Dimensionless means dimensionless. Zero is Zero. A is A.**

Usage	Meaning	Example
Scalar Proper Truth	A claim holds proper truth by consequence, not stitched metaphor.	"Timespans are scalars" is proper truth.
Scalar Consequence	A statement that ripples through reality, not just math.	"No observable volume = no volume at all."
Scalar Anchor	A pedagogical foothold against euphemism.	"Imaginary numbers are fiction" is scalar anchor.
Scalar Audit	A test for whether a claim is properly real, measurable, and consequence-bearing.	"Seven curled dimensions in a point" fails scalar audit.
Scalar Grammar	The disciplined use of rank, tensor, curvature to describe reality.	Outreach packet glossary entries use scalar grammar.

Compactification? Let's talk that over. <- ^ ->

Compactification is often described spatially, extra dimensions, curled like circles or folded into Calabi–Yau manifolds. This framing misleads. The true consequence lies not in space, but in mattergy. These dimensions ripple through particle identity, symmetry breaking, and interaction strength. Their shape is not measured. It's inferred from the behavior of mattergy in proper space.

Compactification is not a spatial reduction. It's a mattergy encoding. In some simplified models (like early Kaluza–Klein theory), extra dimensions are treated as 1D circles (S^1). They have a center in imaginary space, a proper mathematical convenience, not a proper truth.

Hey! What about the center? Where is that?

Calabi–Yau manifolds and similar compact spaces define their own by their topology and curvature—not by a central point. I asked where. Dimensions can't be measured? Unmeasurable dimensions? Their shape is inferred from mathematical consistency, not physical detection.

- **Isaac says so as well. He says you play a game of imaginary circle.**

Call it, "curled like a circle," it's metaphor. The actual geometry is far more intricate—multi-dimensional, non-Euclidean, and centerless, not so much A is A.

We prefer A be A. Let A be A, always so, never not.

A is not B, always so, simple identity.
B cannot be anything other than B

Math is Math. Fact is Fact. A is A. Thank You.

The Modern Newtonian Framework -- Glossary of Terms <- ^ ->

********** **The Axioms** **********

Axiom of Space: Space is every where from any where.
Corollary:
Distances, directions go from some where to some where else.
Tiny Length **— ιl = ħ² · AQ –** The tiniest length span.

Axiom of Time: Time is every where the same when.
The Set of Ages – Timespans from the first Tiny Time to today.
Tiny Time **— ιt = ħ² · AQ / c –** The tiniest timespan.
The When – The duration with no duration. **xxx>^>...**

Axiom of Mattergy: Mattergy matters.
Mattergy — $(mc^2)^2 + (pc)^2$ – rest mass + momentum-derived energy.
Corollary: Mattergy moves as constraints permit.
Corollary: Mattergy follows the path of least unresolved gradient.

********** **Distinguishing Truth** **********

The Set of Certainty – *All proper truth.*
The Set of Make Believe – *All improper truth.*

********** **The Light Ontology** **********

The Lightrealm – *Keeper of the light.*
The Light Sea – *Carrier of the light.*
Spacelight – *Light that measures distance and direction.*
Timelight – *Light that measures duration.*

*

<- ^ ^ (back to Acceleration)

Aq - The Universal Acceleration Constant.

By Craig M. Seavey
Author of The Modern Newtonian Framework



The Planck scales are dimensional artifacts rather than physical limits. The true minimum and maximum measurable spans of nature are **Tiny Length (ιl), Tiny Time (ιt), Maxi Density (ΩD),** and **Maxi Energy (ΩE)** all derived from the mattergy–acceleration coupling constant **Aq.** We replace **G,** the **Universal Gravitational Constant,** with **Aq**, the **Universal Acceleration Constant.**

Mathematics operates only on scalar quantities. Simple numbers participate in addition, subtraction, multiplication, and division. A scalar must be dimensionally uniform. Mathematics is structurally scalar-dependent. Any constant used in fundamental equations must behave as a scalar.

G does not behave as a scalar though treated as such. The **Universal Law of Gravity** contains two masses, $\boldsymbol{m_1}$and $\boldsymbol{m_2}$**.** Any constant that appears in the law must be compatible with a **two-mass structure**. Although the law contains two masses, $\boldsymbol{G}$ carries only a **single inverse-mass factor**: $[\boldsymbol{G}] = \mathbf{m^3 \cdot kg^{-1} \cdot s^{-2}}$. **G** cancels only one of the two mass terms. The 2nd mass term is not canceled by the structure of $\boldsymbol{G}$. instead canceled by **Frankenstein means** — a stitched-together combination of SI units that carry no ontological meaning.

Aq behaves as a proper scalar. **Aq** carries inherent, uniform, textbook-clean dimensions that arise directly from the mattergy–acceleration coupling:

$$[A_q] = \mathrm{m}^3 \cdot \mathrm{kg}^{-2} \cdot \mathrm{s}^{-2}.$$

Aq carries **kg⁻².** The **Law of Universal Acceleration** couples two mattergy terms directly to acceleration; a two-mass law requires a double inverse mass constant. **Aq** properly matches the two-mass structure of the **acceleration law.** The dimensional structure of **Aq** is uniform and inherent; **Aq** is not a composite product of unrelated units. **Aq** is a single, indivisible scalar quantity whose dimensions are natural to the

coupling itself. **Aq** behaves as a scalar in algebraic operations without producing artifacts

Law of Universal Gravity:

$$F = G\frac{m_1 m_2}{r^2}$$

The gravitational constant ***G*** *was* first obtained experimentally by measuring the tiny attraction between known masses and solving by means of the Law of Universal Gravity.

The modern value of ***G*** is said to be $\boldsymbol{G \approx 6.674 \times 10^{-11}\ \mathrm{m^3 kg^{-1} s^{-2}}}$, a quantity that is notoriously harder to pin down experimentally than $\boldsymbol{\pi}$ is to compute numerically. G is not a scalar. Since ***G*** is not a scalar, the Cavendish experiment is best understood as providing empirical calibration data rather than a fundamental constant. The same data can be used to compute the acceleration constant $\boldsymbol{A_Q}$, which *is* scalar, invariant, and grounded in the full mattergy expression $\boldsymbol{(mc^2)^2 + (pc)^2}$.

The Cavendish result uses only mass, which corresponds to only one component of the mattergy invariant $\boldsymbol{(mc^2)^2 + (pc)^2}$. The acceleration constant $\boldsymbol{A_Q}$ is computed in the exact same way, using the exact same data. In Cavendish's static, low-velocity regime, the energy–momentum term $\boldsymbol{(pc)^2}$ is effectively zero and can be neglected without loss of accuracy. Consequently, the computation produces the same value (or extremely close to the value) attributed to $\boldsymbol{G}$.

Once the full invariant is taken into account**—where $\boldsymbol{(pc)^2}$ becomes significant—** the value of $\boldsymbol{A_Q}$ reduces accordingly. This produces

marked and physically meaningful changes in the values of **Tiny Length, Tiny Time, Maxi Density** and **Maxi Energy.**

Law of Universal Acceleration: $$\mathrm{a} = \mathrm{Aq}\,\frac{M_1 M_2}{r^2}$$

Aq is a primitive scalar constant that defines the coupling between mattergy and acceleration.

Acceleration is: $\frac{\mathbf{m}}{\mathbf{t^2}}$ **... a = Aq (M) → Aq =** $\frac{\frac{\mathbf{m}}{\mathbf{t^2}}}{M}$ **...**

Aq is primitive and not reducible like **G;** the dimensions of **Aq** are fixed entirely by the relation it enforces between mattergy and acceleration:

$$[A_q] = \mathbf{m^3\ kg^{-2}\ s^{-2}}.$$

Conclusion:

G is an empirical constant tied to macroscopic gravitational behavior, not a fundamental coupling. It does not appear in Special Relativity, Quantum Mechanics, or the invariant energy–momentum relation. Although Einstein himself noted that **G** was an unsatisfactory and non-fundamental constant, he retained it in the field equations because no alternative coupling was available at the time.

Aq couples **mattergy** to **acceleration** directly. **Aq** is QM compatible by construction. Replacing **G** with **Aq** removes the dimensional artifacts that produce the traditional Planck scales and yields invariant-defined **minimum** and **maximum** scale constants **Tiny Length (ιl), Tiny Time (ιt), Maxi Density (ΩD),** and **Maxi Energy (ΩE)** without additional assumptions. In the acceleration-based formulation, all dimensional factors cancel cleanly, leaving **Aq** as the sole scalar coupling between two mattergy invariants; this is precisely what makes the Modern Newtonian Framework fundamentally different from Newton's force-based formulation.

The invariant **mattergy** expression $(\mathbf{mc^2})^2 + (\mathbf{pc})^2$ defines the **Tiny** and **Maxi** constants through the acceleration coupling $\mathbf{A_q}$. The traditional Planck constants do not arise from the SR invariant; those constants are dimensional constructs formed only from $\mathbf{G}$, $\hbar$, and $\mathbf{c}$. The contrast shown next demonstrates that replacing $\mathbf{G}$ with $\mathbf{A_q}$ shifts the **minimum** and **maximum** measurable spans from pre-relativistic dimensional artifacts to proper scalars.

Mattergy is invariant. $(mc^2)^2 + (pc)^2$

Minimum Scale



Planck Length $l_p = \sqrt{\frac{\hbar G}{c^3}} \rightarrow G = \frac{c^3}{\hbar} l_p^2$

Planck Time $t_p = \sqrt{\frac{\hbar G}{c^5}} \rightarrow G = \frac{c^5}{\hbar} t_p^2$

Tiny Length $\imath l = \hbar^2 A_q \rightarrow A_q = \frac{\imath l}{\hbar^2}$

Tiny Time $\imath t = \frac{\hbar^2 A_q}{c} \rightarrow A_q = \frac{c\,\imath t}{\hbar^2}$

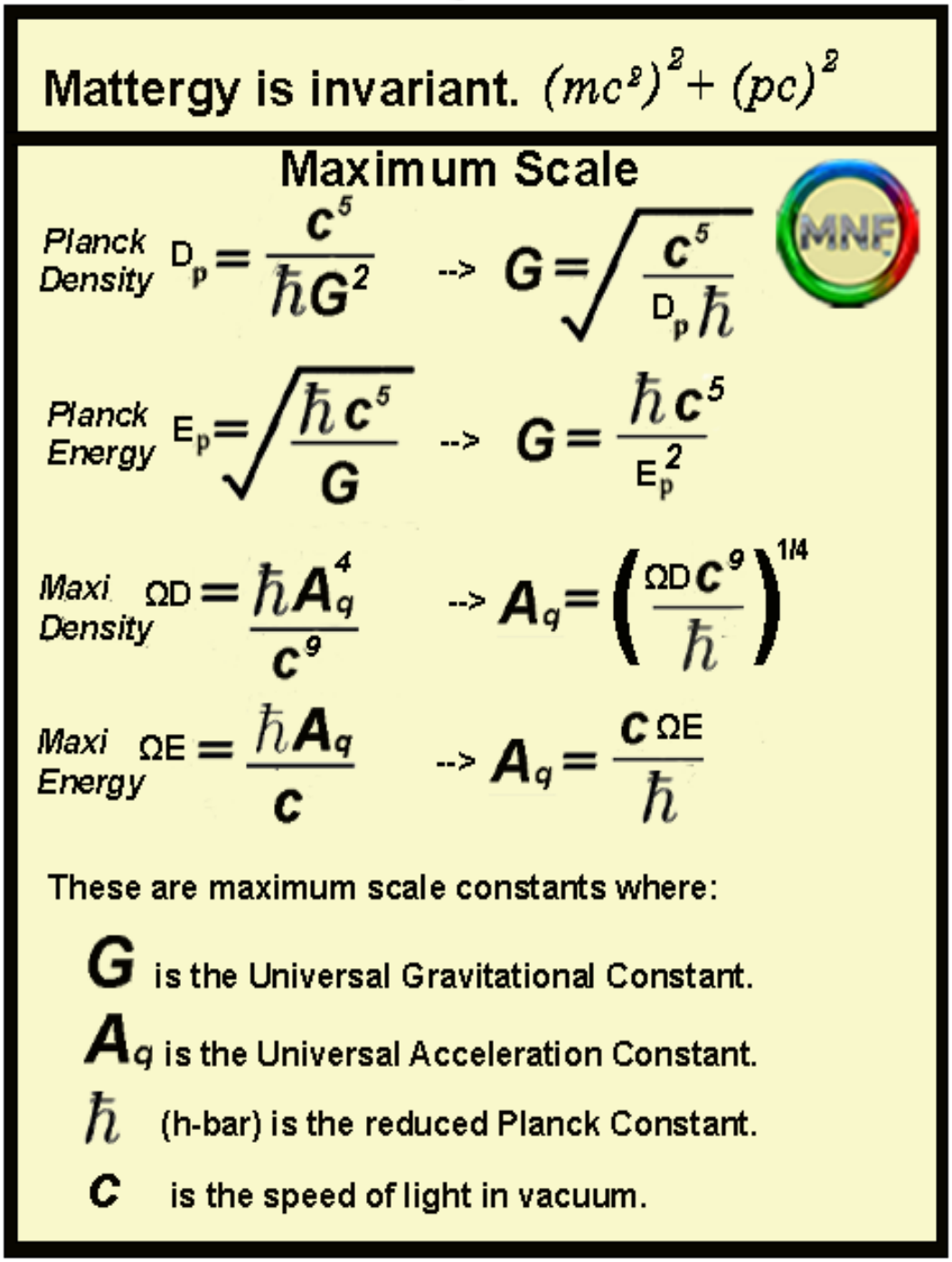
These are minimum scale constants where:

G is the Universal Gravitational Constant.

A_q is the Universal Acceleration Constant.

$\hbar$ (h-bar) is the reduced Planck Constant.

c is the speed of light in vacuum.



For the full experience of modernized Newtonian Physics, see:
The Modern Newtonian Framework @ www.newearthinvest.com

<Back to Titles.>