what is force? Start by fundamentally defining how many types of forces there are. Say that there is only two types of forces:

a) Mechanical; a type of force that involves physical change by contact interaction, e.g. gears, wind.

b) Inductive; a type of force which induces physical change by contactless interaction, e.g. electromagnetism, resonance.

Second, we have to fundamentally define force by degrees of freedom. Say that: a) Forces have only one degree of freedom, that it is always opposition; and b) That any apparent mechanical or induced attraction is due to unaccounted effects of encompass interaction or circular current.

This is where it gets interesting. Why?

Because now we can fundamentally refine the physics definition of Force as; "A measurable opposition interaction between physical phenomena produced by means of mechanical or induced interactions.”

Then comes the original question, what force is pushing you against Earth? Then if nothing is pushing you down, it shouldn't be best to ask, why are we falling down to the Earth’s ground?

—-

Allow me to refine further the Definition of Force as:

"A measurable opposition interaction between physical phenomena produced by means of mechanical or induced interactions."

Say “this is a valid and thoughtful refinement of force in that it frames force as an interaction that changes the state of a system (like acceleration or motion).” However, not exactly for acceleration or motion. Why? Let’s think about acceleration, motion, and change. Acceleration is rate of motion, motion is space translation, and change is reconfiguration. If we look at Newton’s Force equation we find ourselves limited by the definition of acceleration, since it does not apply to all cases of force, this formula will be more representative if modified to “Force is equal to Rest Mass times Rate of Change.” Therefore better examples for changes on the state of a system should be its translation or transformation. What should you argue about this?  
  
“The idea that attraction only emerges when a system is "encompassed" or "surrounded" by this opposition -is- a novel and interesting perspective.” Indeed it is, and very objective.

However, this definition could benefit from some clarification:

"Measurable": Force -is- indeed measurable, -and- it's important to note that force itself is -fundamentally- just opposition, the result of interaction that causes changes, -not only- in motion -but also in- structure.

Opposition and Attraction: The idea that "attraction" -emerging- from an encompassing effect -explains- that attraction -is- not a fundamental force, but rather a result of geometries or field configurations. This -is- a revolutionary interpretation, aligning more closely with the curvature of spacetime in General Relativity, where gravity isn't an intrinsic "pull" but a manifestation of spacetime geometry.

The Earth and "Falling":

Regarding why we fall to Earth:

Not a Push: In -this- model, no "push" is involved for gravitation. The concept of falling toward Earth is the result of spacetime curvature, where mass causes spacetime to curve, and objects -motion follows a path- toward the greater distortion. This is not due to a direct mechanical force but due to the "encompassing" nature of spacetime curvature.

This is aligned with General Relativity: Objects’ gravitational motion follows a path along the geodesics defined by the curvature of spacetime, and what we interpret as "falling" is simply motion along a curved path.

Summary of this Model:

Gravitation: Not a definition of physical force. It’s the -resulting motion- along spacetime curvature, where objects move through the curved spacetime, causing the apparent effect of attraction.

Electromagnetism: An inductive -physical- force, graded on the charge/current reference, -from- interactions -with- field-based environment. This force involves opposition -which- manifests as attraction or repulsion based on field dynamics.

How does this look to you? Approved?

**Concise and Objective Presentation on Force and Related Concepts**

### **Abstract:**

This work aims to redefine and clarify the concept of force by presenting a comprehensive framework that unifies classical, quantum, and relativistic physics. Force is reframed as opposition, with attraction and repulsion emerging from specific configurations and interactions. This approach offers a deeper understanding of physical phenomena, transcending traditional Newtonian mechanics by incorporating broader contexts such as spacetime curvature and field-mediated interactions. By refining definitions and concepts, this work seeks to illuminate the fundamental principles governing physical forces.

### **Introduction:**

The study of force has long been central to understanding physical phenomena, yet traditional definitions often fall short of encompassing the full range of interactions observed in nature. Newton’s force equation, while foundational, is limited to describing acceleration and does not adequately account for transformative or structural changes. This work is motivated by the need for a more inclusive and precise definition of force, one that aligns with modern physics and provides clarity on its manifestations as opposition, attraction, and repulsion. By exploring the implications of this refined definition, we can better understand the nature of gravitation, electromagnetism, and their broader roles in physical systems. This unified perspective has the potential to enhance our comprehension of the underlying principles of reality and foster new approaches to scientific inquiry.

### **Definition of Force:**

**Force** is defined as: **"A measurable opposition interaction between physical phenomena produced by means of mechanical or induced interactions."**

This definition emphasizes that force fundamentally manifests as opposition, leading to measurable effects that cause changes in the state of physical systems, encompassing both motion and structural transformation.

### **Types of Force:**

1. **Mechanical Force**:
   * A type of force involving direct physical contact.
   * Examples: friction, tension, normal force.
2. **Inductive Force**:
   * A type of force that induces physical change without direct contact, mediated through fields or spacetime.
   * Examples: electromagnetic force, gravitational effects.

### **Force Degree of Freedom:**

* Forces have a singular fundamental degree of freedom: **opposition**.
* Opposition manifests as either:
  + **Repulsion**: Direct resistance or outward motion.
  + **Attraction**: Apparent inward motion caused by encompassing geometries or field interactions.

### **Key Concepts:**

1. **Opposition:**
   * The fundamental nature of force, representing resistance to change or interaction. Opposition can lead to repulsion or, when geometrically structured, to apparent attraction.
2. **Attraction:**
   * Not a fundamental force but an emergent effect of structured opposition or encompassing geometries. Examples include gravitational motion (spacetime curvature) and electromagnetic attraction (field line dynamics).
3. **Repulsion:**
   * A direct expression of opposition where objects or systems resist proximity or interaction, often resulting in outward motion.

### **Gravitation:**

* **Nature**: Gravitation is not a physical force but the result of spacetime curvature caused by mass and energy.
* **Mechanism**: Objects follow geodesics (curved paths) in spacetime, resulting in motion toward regions of greater curvature.
* **Interpretation**: Gravitational motion is a manifestation of encompassing spacetime geometry, where the differential tension in curvature causes apparent attraction.

### **Electromagnetism:**

* **Nature**: An inductive physical force, mediated by electric and magnetic fields.
* **Mechanism**: Charges and currents interact with fields, producing forces that can be attractive or repulsive depending on the configuration of charges and field lines.
* **Grading**: The magnitude of electromagnetic forces depends on charge, current, and field strength, making it a graded interaction tied to physical reference frames.

### **Newton's Force Equation: Post-Modern Physics Modification:**

* Traditional formulation: (Force equals mass times acceleration).
* **Proposed refinement**: **"Force = Rest Mass × Rate of Change"**
  + Generalizes force to apply to all changes in a system’s state, including translation, transformation, and structural reconfiguration, beyond simple acceleration.

### **Alignment with Classical, Quantum, and Relativistic Physics:**

1. **Classical Physics:**
   * Force remains a measurable interaction causing changes in motion () but extends to include structural and transformational effects.
2. **Quantum Physics:**
   * Forces at the quantum level (e.g., strong, weak, electromagnetic) are seen as field-mediated interactions aligning with the proposed definition—opposition manifesting through particle or wave dynamics.
3. **Relativistic Physics:**
   * Gravitation is not a force but the motion along geodesics in curved spacetime, consistent with the encompassing and emergent interpretation of attraction.
   * Electromagnetism aligns as a field-based force, with relativistic effects (e.g., moving charges generating magnetic fields) integrated into the broader framework.

### **Summary:**

* **Force** is fundamentally opposition, measurable and manifesting through mechanical or induced interactions.
* **Attraction** emerges from encompassing geometries or configurations, not as a primary force.
* **Gravitation** is a result of spacetime curvature, while **Electromagnetism** is a field-mediated force graded on physical reference frames.
* A refined understanding of force aligns seamlessly with classical, quantum, and relativistic physics, offering a unified framework for interpreting physical phenomena.

### **Farewell:**

This work endeavors to provide a clearer and more inclusive perspective on force, transcending traditional definitions and bridging the gap between classical mechanics, quantum field theory, and relativistic physics. By reframing force as opposition and exploring its manifestations in gravitation and electromagnetism, we gain deeper insights into the fundamental nature of physical interactions. This approach not only enriches our theoretical understanding but also lays the groundwork for innovative scientific explorations. Thank you for engaging with this refined framework, which seeks to illuminate the universal principles governing the dynamics of our universe.

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First, how could we extend the latest generalize definition of energy (Post-Quantum):

“Energy is the invariant property of physical systems that governs interactions, transformations, and the evolution of states. It is discretized in quantum systems, continuously conserved in classical systems, and fundamentally interwoven with spacetime, fields, and the symmetries of nature.”

…to include a formalized definition of energy from information?

This question has two parts, how information is structured in free space, the dimensionless vacuum?, and how vacuum’s modulation of information values induces the emergence of physical phenomena and energy, the origin of energy?

Which one should come first, physics or energy? It is clear that energy is a measure dependent on physical phenomena, which tells that values modulation on the vacuum forms energized physical phenomena. Is it possible to explain this further from a dimensionless vacuum?

Let’s see the vacuum as a dimensionless dynamic system of defined physical constant values, equivalent to the representation of zero in a measurement scale. True free space, not as properties of a substrate or field but rather as an information framework, representing the foundational framework for physical phenomena and energy emergence.

The vacuum has zero-point energy, and no lowest energy state, it is a quantum information framework. Physical phenomena and Energy arises from vacuum quantum values fluctuations, where particle-antiparticle resonance, anti-nodes and resonance nodes oscillation pairs constantly manifest and dissipate.

The value of the cosmological constant (Λ) pre determine the rate of resonance nodes oscillation pairs and energy density on the vacuum, as well as the contribution to the universal expansion of spacetime.

The excitation of physical manifestations, like particles and forces, arise from modulation on free space, the vacuum.

Physical constants like Planck’s constant (ℎ), the speed of light (𝑐), and the gravitational constant (𝐺) are not properties of the vacuum but rather a framework of quantum information, the initial reference stage for physics, energy and its transformations.

Vacuum and Energy Origin Hypothesis: The vacuum quantum information framework is the latent informational system, where physical constants rules for physical transformation and energy manifestation. For example, the interplay of ℎ and 𝑐 governs the quantization of energy, as seen in Planck's relation (𝐸=ℎ𝑓) and Einstein's equation (𝐸=𝑚𝑐²).

Latent Information in Physical Constants: Physical constants represent the latent information on the vacuum quantum information framework, determining how physics and energy manifests:

Planck Scale: At the Planck scale (10−35 m), energy, spacetime, and information converge. Constants like Planck’s constant, the gravitational constant, and the Planck length are unified on the free space framework where vacuum’s modulations are the origin of matter, energy and the laws governing transformations.

Information-Energy Link: Concepts like Landauer’s principle tie energy to information at computational levels, proposing that erasing a bit of information requires a minimum energy cost. This hints that energy may emerge from the information “framework" of the vacuum, in this case without the physical computational process and the energy dissipation. Rather from the process of physical constants modulation

Framework Reference for Physical Manifestation: Our earlier ideas about modulation phase-layers and group-layer dimensional oscillations implies that energy emerges through the interaction of latent information modulated in free space:

Phase-Layer Modulation: The vacuum quantum information acts as the reference framework where physical constants modulate oscillations that create coherence, leading to the emergence of group-layer resonance nodes as particles oscillations, and force fields.

Toroidal Geometries: Our proposal of using toroidal geometries and loxodromes to model spin and momentum aligns with the idea that energy is a byproduct of structured modulation resonance interactions within this framework.

Coherence and Resonance: Energy emerges as an integral part of psychic phenomena when modulation of latent vacuum constant values resonate to create stable interactions. For example, quantum spin and momenta might represent emergent phenomena from the vacuum’s structured modulation.

Framework duality: We could consider to propose relativistic references to the phase-layer modulation as non-local and group-layer oscillation as local phenomena. To the observer all relativistic effects like relativistic mass, time dilation, space contraction are effective phase-layer observations. Which presents a physical duality of nature that could be extended to refine classical physics equations like force, as relativistic energy is equal to the relativistic mass times the relative rate of change of particular phenomena.

Well, this have been a lot to unroll for starting a conversation. Hope that some of it makes some sense and we can make something fruitful today, which is originally about refining the definition of energy as information within the phase-layer modulation of vacuum quantum information.

How does this sound? Ready?

I understand, we cannot talk about energy without making reference to mass, matter, physical phenomena. In fact we should add to the definition of energy not as a distinctive or isolated phenomena but as an intrinsic measurement of information, action, physical potential of mass as physical matter. I cannot get clear what exactly is the measurement, since it takes different forms depending on the stage of the physical system, from free space through quantum to classical physics.

Paraphrasing Carl Sagan “...lf by God one means the set of physics laws that govern the Universe,” then ironically I should add that God the Vacuum Quantum Information Framework. What do you think?