

The Concept Relation Unites Relativity and Quantum

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In this paper I reduce the number of concepts dealing with physical reality, trying to find the simplicity that unites relativity and quantum, in order to find a radically different starting-point, with the purpose of starting a discussion which might lead to new ideas about how to understand the Universe.

The equations below look too complex and are far from the simplicity the Universe rely on, and they are without any beauty. It is some sort of mixture of all existing theories, which makes one dizzy looking at it. This model of equations is often used to describe what we know today:

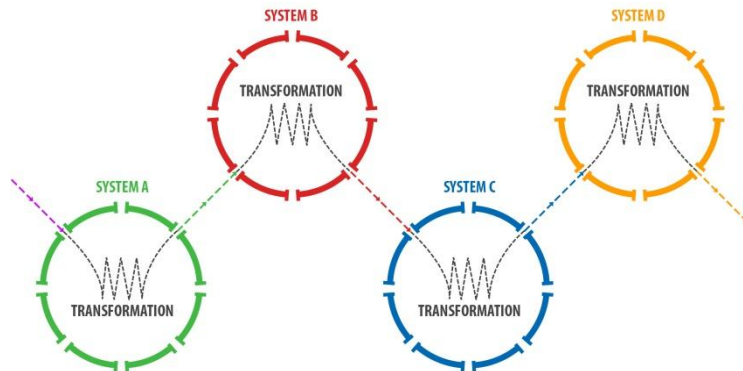
In order to provide simplicity, we will start off by examining two models of physical reality.

$$W = \int_{k < \Lambda} [Dg][DA][D\psi][D\Phi] \exp \left\{ i \int d^4x \sqrt{-g} \left[\frac{m_p^2}{2} R - \frac{1}{4} F_{\mu\nu}^a F^{\alpha\mu\nu} + i \bar{\psi}^i \gamma^\mu D_\mu \psi^i + \left(\bar{\psi}_L^i V_{ij} \Phi \psi_R^j + \text{h.c.} \right) - |D_\mu \Phi|^2 - V(\Phi) \right] \right\}$$

quantum mechanics
spacetime
gravity

other forces
matter
Higgs

The next model is based on the equation, $X = aRb$, where R stands for relations.



The systems A, B, C, and D represent planets, suns and galaxies; or molecules forming a transport system between cells in the human body; or flows of elementary particles between atoms; or proton flows between molecules; or flows from Galaxies to Suns to Planets to Species etc.

Based on this postulate - *nothing exists in isolation, i.e. everything exists in relations* –in combination with 1 and 2 above, the principle is

$$X = aRb.$$

The concept relation relates to reality by showing that there are relations between all parts in the Universe, aRb , where:

Between all systems and between all parts of any system, **S**, there is a continuous flow of packages p_{1-n} , i.e. $R = p_{1-n}$. The formula will be this

$$S = ap_{1-n}b$$

- 1) a, b, c ... are any system, subsystem, unit or part in any field of the Universe; e.g. suns, planets, moons, galaxies, quarks, leptons, hadrons, mesons, baryons, nuclei, atoms and molecules.
- 2) The relation R is a flow (wave) of packages, p_{1-n} , between a, b, c ... in any field of the Universe.

Manifestations of the flow of packages are gravitation, energy, interaction, dark energy, dark matter and force.



Based on $X = aRb$ and $S = ap_{1-n}b$ any system is and can be described as complex flows. We might call them wave functions since a wave function is a flow of masses.

A wave consists of masses which stand in relation with systems. From system *a* wave of masses moves to system *b*.

This is valid for all masses in the Universe, e.g. galaxies, planets, suns, moons, atoms and elementary particles.

The Theory of Relations¹ unites the equations of force, energy, relativity and quantum

Requirement for a complete theory:

Every concept has to represent the physical reality directly and concretely.

Postulate:

Nothing exists in isolation, i.e. everything exists in relations.

Basic concepts:

- 1) Mass, i.e. m .
- 2) Wave, i.e. $\Psi(x,t)$.
- 3) Relation, i.e. p_{1-n} = flow of packages.

The equations $F = ma$ and $F = Gm_1m_2/r^2$ have one valid concept – mass. Force, gravitational constant and acceleration are all three not valid. However, r^2 indicates a relation, distance, between two bodies a and b , i.e. m_1 and m_2 , but what is the content of the relation, since relation stands for a flow of packages, i.e. $a p_{1-n} b$?

Then, by intuition, Gm_1m_2/r^2 can be transformed into the equation $X = aRb$. Let m_1 be a , m_2 be b and r^2 be R , where R stands for flows of packages, i.e. p_{1-n} , between m_1 and m_2 .

When simplified the equation is $F = m_1m_2/r^2$. Hence, $m_1m_2/r^2 = a p_{1-n} b$ and the gravitation is $a_1 p_{1-n} b_1$.

The equations $E = mc^2$ and $E = hv$ can be transformed to the equation $X = aRb$:

- 1) L denotes light
- 2) R is the relation between the bodies a and b .
- 3) R consists of flows of packages and denotes p_{1-n} .
- 4) $\Psi(x,t)$ is a wave.
- 5) $L = \text{radiation} = r = \text{wave} = p_{1-n}$.
- 6) $\Psi(x,t) = p_{1-n}$.
- 7) $E = aRb$.
- 8) $E = a p_{1-n} b$.
- 9) $a p_{1-n} b = hv$.
- 10) Now the equation $E = mc^2$ can be transformed into $X = aRb$; since “radiation conveys inertia between the emitting and absorbing bodies”², there is a flow of packages between a and b ; i.e. there is a relation, i.e. $E = aRb$.
- 11) $E = a p_{1-n} b$.
- 12) $E = arb$ equals $E = mc^2 \rightarrow arb = mc^2$
- 13) $E = a(\Psi(x,t) = p_{1-n})b$.

- The theory was first published by Cambridge Scholars Publishing: The Principle of Relations. 2018.
- Einstein’s last sentence in his paper 1905: “Does the inertia of a body depend upon its energy-content?”

The simplified equation $G_{\mu\nu} = T_{\mu\nu}$ can be transformed to $X = aRb$:

- 1) $G_{\mu\nu} \neq T_{\mu\nu}$, i.e. mass and form are one in co-existing; it should be $G_{\mu\nu} T_{\mu\nu}$.
- 2) aRb results in gravitation by flows of packages, i.e. p_{1-n} , between bodies a and b in the Universe.

- 3) Form is the system where mass flows. Hence, the concept “system” replaces the concept “form” or any synonyms, e.g. architecture, design, space and shape.
- 4) Left is RS , i.e. Relation and System, which is aRb .
- 5) From the equation $G_{\mu\nu} = T_{\mu\nu}$ there are two valid concepts, i.e. mass, m , and form, f .
- 6) Then $G_{\mu\nu} T_{\mu\nu}$ is equal to mf , where m can stand for $m_1, m_2, m_3 \dots = p_{1-n}$ and f stands for form which is any system $a_1, b_1, c_1 \dots$
- 7) Now we can translate $G_{\mu\nu} T_{\mu\nu}$ into aRb , i.e. $a_1 p_{1-n} b_1$.

Then, by using the formula $X = aRb$, we can transform the most important equations of force, energy, relativity and quantum into the equation below, which unites force, relativity, quantum and energy with dark matter and dark energy:

$$\mathbf{X} = \mathbf{a}(\Psi(\mathbf{x},t) = \mathbf{p}_{1-n})\mathbf{b}$$

where \mathbf{X} stands for force, gravitation and energy, \mathbf{a} and \mathbf{b} are systems and \mathbf{p}_{1-n} is the flow of packages, i.e.

$$\mathbf{X} = \mathbf{a} \mathbf{p}_{1-n} \mathbf{b}$$

When flows of packages move from one system to another system, gravitation, force and energy occur.