

# THE FORCES OF MATTER ARE MEMORIES OF SYMMETRY

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[home page \(page 1\)](#)

[home page \(page 2\)](#)

[E-Book](#)

*The charges of matter are the symmetry debts of light. All forces act spontaneously to return matter to its original symmetric energy state, light.*

**Gravity** - *gravity is matter's memory that it once was light.* Gravity has a memory ("location" charge) of the symmetric dispersion of light's energy throughout spacetime, everywhere, simultaneously (light is a-temporal, non-local). Gravity acts to return asymmetric (temporal, local) bound energy to symmetric free energy, as in the conversion of mass to light in our sun and related astrophysical processes, including Hawking's "quantum radiance" of "black holes". Gravity is a form of negative entropy and energy, balancing the positive energy of the universe, and creating, [via the conversion of space into time](#), an alternative entropic drive and domain (time, history) for bound electromagnet energy forms (which unlike light, cannot move at velocity  $c$ , but nevertheless require, for multiple conservation reasons (energy, causality), an entropy drive and domain of their own. Thus history is the entropic domain of matter, the analog of the spatial entropic domain of light; gravity mediates between the two, converting either into the other. The three intrinsic dimensional motions of physics ("velocity  $c$ ", time, gravity) are connected in an entropic triangle.

**Electric Charge** - is matter's memory of its original state as a balanced set of matter/antimatter particles oscillating with its alternative form, light. Particle/antiparticle annihilations confirm this symmetric origin. The attraction between positive and negative electric charges is nature's most basic expression of matter's drive to return to the symmetric energy state of its origin (via matter-antimatter annihilation). Our universe is grossly asymmetric in that it consists almost wholly of matter, lacking any substantial amount of antimatter, at least in the form of baryons. This asymmetry, the basic feature of our Cosmos, requires (in compensation) time, gravitation, and all the other charges and forces of nature. It is also the source of two basic drives in our universe: the "four forces of physics" act not only to return bound energy (matter) to free energy (light), but also to maintain, through time, the absolute value and integrity of their several charges, despite relative motion and the enervation of entropy, because symmetry debts must be paid in full (not in inflated or otherwise devalued currency), in complete satisfaction of [Noether's symmetry-conservation theorem](#). (In the case of the dimensional forces, these considerations extend to the values of the constant "velocity  $c$ " and Einstein's invariant "Interval", serving both energy conservation and causality, resulting in the dimensional warpage seen in both Special and General Relativity. In the case of the invariant electric charge, the analogous protective mechanism is magnetic; in the strong force it is permanent confinement of the quark's partial charges; in the weak force, it is the huge mass of the field vectors (IVBs), which ensure that all elementary particles (within type) are identical.)

**Strong Force** - a baryon's memory that it once was a single, whole particle, a primeval lepton or leptoquark, the heaviest member of the leptonic spectrum. The "color charge" of the strong force (carried by "gluons") acts to keep the 3 quarks of the baryon confined permanently to an *effectively* single particle bearing a whole quantum unit of leptonic electric charge. As the quarks attempt to separate, threatening this apparent unity, the confining force grows stronger; as the quarks crowd together, moving toward the original charge unity, the confining force grows weaker ("asymptotic freedom"). A baryon is derived from a primitive lepton (leptoquark) [fractured into three parts](#) (the quarks) during the "Big Bang" - thus forming the necessary

connection between the leptons and baryons. [The symmetry issue in the strong force color charge](#) is between the *partial* charges of the quarks vs the whole quantum unit charges of the leptons. Quark partial charges cannot be annihilated, or even balanced, by any free particle outside the confines of the baryon (no suitable particle exists).

**[Weak Force](#)** - the massive IVBs (Intermediate Vector Bosons) of the weak force remember the [original electroweak unified force energy state](#) in which elementary leptons and quarks were all energetically equivalent. The IVBs recreate this primitive symmetric energy state (via their large mass-energy) to produce decays (such as the beta decay of neutrons) in which *single* elementary particles are created which are exactly the same as every other elementary particle of their type ever produced - past, present, or future. [The weak force charge is "identity" charge](#), carried in implicit or hidden form by all massive leptons (including leptoquarks and their derived baryons), and carried in explicit form by neutrinos. Neutrinos are "bare" identity charges. Neutrinos are necessary to balance the hidden identity charges of their massive leptonic namesakes. The weak force *symmetry* is the global (universal) uniformity among all elementary particles (within type), enforced locally by the massive IVBs. The great weak force *asymmetry* is the [creation of our "matter-only" universe](#) during the "Big Bang" (probably by the asymmetric weak force decay of electrically neutral leptoquarks). (Leptoquark antineutrinos (which balance proton "number" charge) are "dark matter" candidates.)

**[As with matter, so with us:](#)** We have an instinctual memory of our spiritual nature and unity with the Cosmos - expressed worldwide through religion and all forms of art, and in science through the concept of [Information](#) (of which "charge" is the most significant form, being strictly conserved). [Humans carry information](#) in our atoms, our genes, our brains, and our words, books, libraries, and schools. The most basic physical purpose of information (in its conserved form of charge) is to provide a symmetry-conserving pathway for matter back to light. Life is the rationale for the Cosmos, and consciousness is the rationale for life. We are the universe become aware, awakened to itself.

"...not in entire forgetfulness....  
but trailing clouds of glory do we come  
from God, who is our home...."

Wordsworth: "[Intimations of Immortality from Recollections of Early Childhood](#)" 1802-04  
[home page \(page 1\)](#) [home page \(page 2\)](#) [E-Book](#)