

Time Reversal, Antimatter, Electric Charge, and Consciousness

In the quantum realms bosons are force carriers.¹ The story as presented by present day science does not ascribe forces to the behaviors of conscious beings, but instead tries to preserve a mechanistic perspective. All bosons have integer spin, i.e. 0, 1, or 2 in the case of the unproven graviton. The strong nuclear force boson is the gluon, spin 1, with zero mass. The electromagnetic force boson is the photon, also spin 1 with zero mass. Both bosons travel at the speed of light unless they're interacting with matter. In previous entries on this website and in my book² I have proposed that because these bosons initiate forces between fermions such as quarks, electrons, and composite fermions such as atomic nuclei, they are units of consciousness. Most electromagnetic forces in ordinary matter composed of atoms are created by exchange of virtual photons at the speed of light between the electrons and nuclei themselves. The strong nuclear force that holds nuclei, protons, and neutrons together despite electromagnetic repulsion of the positive charges is created by exchange of virtual gluons at the speed of light. In both cases the boson exchanges are not directly observable to external observers because the bosons do not escape. They are "virtual bosons". However, when processes occur that allow the bosons to escape, they are observable by external observers and they create observable forces.

The Heisenberg Uncertainty Principle predicts that there is uncertainty in time and energy for any boson exchange, and this uncertainty extends into the direction of time itself. This is confirmed in highly accurate quantum electrodynamic calculations in which events going backward must be included to accurately predict quantum realm phenomena such as the magnetic moment of the electron, light scattering of a photon from an electron, and partial reflection of light by a layer of glass.³ The ability of processes in the quantum realms to occur backwards in time is also consistent with special relativity.⁴ From the reference frame of a photon traveling at the speed of light, the photon doesn't know whether it went from A to B or from B to A or forward in time vs backward in time because from its perspective no time elapsed at all. An electron moving backward in time is observable experimentally. When viewed with time moving forwards it appears like a normal electron, *except that it is attracted rather than repelled by normal electrons*. From the perspective of a biological being who lives in a time moving forward reference frame, the time reversal of the electron has changed the charge of the electron

¹ All **bosons** are **gauge bosons**, which simply means that two or more of them can exist in the same place at the same time, unlike fermions. It also means that **gauge bosons** have a spin of 0, 1, or 2.
https://simple.wikipedia.org/wiki/Gauge_boson

² [Benesi, Alan J.](#) (2017) *Theory of Consciousness*, 2017, First Edition Publishing, [ISBN 978-1506-903-89-7](#)

³ [Feynman, Richard](#) (1985). *QED: The Strange Theory of Light and Matter*. Princeton University Press, Chapter 3. [ISBN 978-0-691-12575-6](#)

⁴ [Einstein, Albert](#), (1961). *Relativity: The Special and General Theory*, authorized translation by Robert W. Lawson. Random House Press. [ISBN 0-517-029618](#)

from -1 to +1. It has become a positron, the “sister particle” to the electron, the “anti-particle” of the electron.⁵ Its mass is still exactly the same as that of the “normal” electron and the spin is also still $\frac{1}{2}$. Positrons are produced by the radioactive decay of nuclei such as ^{40}K , ^{11}C , ^{13}N , ^{15}O , and ^{18}F as well as by making two photons collide with each other. Because they are attracted to “normal” negatively charged electrons they collide with them and are annihilated. The collisions produce other particles, usually two observable photons if the collision is at low energy. This is the basis of Positron Emission Tomography.⁶

As stated by Feynman, “This phenomenon is general. Every particle in Nature has an amplitude to move backwards in time, and therefore has an anti-particle. When a particle and its anti-particle collide, they annihilate each other and form other particles. What about photons? Photons look exactly the same in all respects when they travel backwards in time, so they are their own anti-particles”.⁷ The same holds true for gluons that mediate the strong nuclear force. However, anti-particles of fermions such as quarks and anti-particles of composite fermions such as protons and neutrons and nuclei have an opposite electrical charge than their normal particle “sisters”. This all makes sense when you realize that the attractive forces are repulsive when reversed in time, and that repulsive forces are attractive when reversed in time.

Thus, we see that particles in the quantum realms exhibit strange behaviors and that time operates differently in the quantum realms. This is consistent with the observation that processes in the quantum realms occur much faster than in our biological being time realm. The dimensions and time intervals for the quantum space time realms are vastly different than the biological being space time realm: Nuclear diameters are on the order of 1×10^{-15} m. Dividing this by the speed of light ($c = 2.993 \times 10^8$ m sec⁻¹) yields about 3.3×10^{-24} sec, the time for a gluon traveling at the speed of light to traverse the nuclear diameter. If we compare this to the time it takes for a nerve signal to operate in a human, about 1 second, it means that 1 second of “human time” is equivalent to 9.61×10^{15} years in the nuclear quantum realm. This is much more than the age of the universe in human years (supposedly 13.8×10^9 human years). The corresponding values for a photon in the atomic/molecular quantum realm are on the order of 1×10^{-10} m atomic diameter and 3.3×10^{-19} sec for a photon to traverse the atomic diameter. 1 second of human time is equivalent to 9.61×10^{10} years in the atomic/molecular quantum realm, still longer than the age of the universe in human years! The corresponding value for a graviton in the astronomical (non-quantum) space time realm traversing a galaxy at the speed of light is about 1×10^{21} m and 100,000 years. 1 second of human time is equivalent to 3.17×10^{-13} seconds in the astronomical space time realm.

⁵ <https://en.wikipedia.org/wiki/Positron>

⁶ Positron Emission Tomography, https://en.wikipedia.org/wiki/Positron_emission_tomography

⁷ Feynman, Richard (1985). *QED: The Strange Theory of Light and Matter*. Princeton University Press, Ch 3. ISBN 978-0-691-12575-6

Incorporation of the phenomenon of consciousness into this analysis suggests that the quantum space time realms are separate universes where intelligent conscious beings live and give rise to the quantum level forces we observe as biological beings. Because conscious beings in the quantum realms have had so much time to perfect their existences in those realms, it also suggests that they are highly perfected and that the quantum realm universe or universes they create can be called Heaven. The evolution of biological beings further indicates that quantum realm beings build civilizations (us biological beings!!!) so that they may extend their control and understanding to the astronomical space time realm.