

Logical Physical Consequences Corroboration (LPCC)

What makes a solid scientific theory, and why is this crucial for advancing science?

Background

Two very different theories, that predict some of the same observations, will be used to show the large difference between the theories that depend on some of the same evidence to support them. One of the theories is the well-known Relativity Theory, that most scholars know is correct because it not only agrees with widely known phenomena, but has also predicted phenomena that was later confirmed. But most important, it is *believed* to be correct because it has been taught and used successfully for over a century. The other theory, that is not well known, is the Quantum Medium View (QMV or qmv), that has been investigated and developed over the past several decades. The QMV *predicts and explains the physical causes* of all the phenomena that Relativity attributes to relative motion. It also predicts and explains the physical causes of many other important phenomena that Relativity does not predict *and* cannot explain.

The fundamental difference between these two theories is the postulates or premises on which they are based. Relativity Theory is based on assuming that the speed of light through all inertial reference frames is a constant *light speed*, c . (For simplicity, "Relativity Theory" will also be known as the "lsc theory".) Lsc theory cannot explain how the photons in a beam of light can always have the same *observed* speed toward an observer who has a changing speed toward or away from the light source. The QMV is based on the *premise* that the universe contains a quantum medium (qm) **through which** energy quanta (e.g. photons) move with a constant, *absolute* speed, c_a , except when slowed by mass-energy (m-e), (e.g. air, fog, water) through which the photons pass, or by large concentrations of m-e (e.g. Earth, stars, neutron stars) in the radiation's vicinity. The QMV also explains the physical *causes* for the previously inexplicable constant *measured* light speed, c , between a light source and detector that are moving with changing radial speeds.

One of the strongest facts supporting the QMV is that its premises result in *logical, physical and observable* consequences that suggest a powerful scientific concept: "Logical Physical Consequences Corroboration" among theories. When a theory has logical physical consequences that explain a diverse variety of observed *physical phenomena*, it is very unusual. The QMV explains the physical causes of the annual Doppler shifting of starlight, the inertia of all m-e, centrifugal forces, the physical cause of gravity, the precession of planet orbits, the *observed* slowing and foreshortening of all m-e systems (e.g. clocks, spheres) *moving relative to the observer*, and also the illogical (and *previously inexplicable*), observed constant speed of light on which lsc theory is based. It is also very strong evidence that the QMV is sound theory.

The importance of sound scientific theories

A flawed science theory can set our civilization back centuries, and Ptolemy's theory did just that. It was a useful theory that was based on undeniable evidence, but was wrong. Today we have conclusive evidence showing exactly why the measured constant speed of light is an illusion. And this illusion, led to a theory that was very useful, but that also significantly slowed the advancement of science.

The synergism of sound scientific theories

The QMV appears to have total agreement and synergism with classical physics and even a synergism with quantum mechanics where the QMV may explain the inherent unpredictability of quanta. Physics theory based on lsc appears to have neither the agreement nor synergism with other physics theories. The QMV also accounts for the *unexpected*, enormous energy released when huge mass concentrations explode, and it also may account for the anomalous rotations of spiral galaxies.

Logical Physical Consequences Corroboration — its application

Evaluating competing physical models of nature depends on how clearly each theory explains *why* the same measured effects occur. The LPCC method favors models that provide genuine cause-and-effect processes rather than those that rely on parameter adjustments or arbitrary postulates.

A valid model must demonstrate logical continuity from its premises to its results, predictive coherence so that new consequences follow naturally, logically, and with physical self-consistency so that its own derived results never contradict its internal rules.

To apply the LPCC procedure, one determines the *logical and measurable* consequences of a theory's axioms. When the consequences are in agreement with another theory meeting this same requirement, the theories have some synergism and mutual corroboration. And a theory is sounder when it is corroborated by more sound theories.

Applying this procedure to the Quantum Medium View shows that measured constant c , gravitational redshift, and time dilation results emerge naturally from its basic premises without causing paradoxes or spacetime deformation. In contrast, the traditional constant-light-speed framework must assume compensating distortions of time and space to preserve its postulate.

Correlation Theories vs. Physical Causes Theories

The 1887 *null results* of the Michelson-Morley experiments (that were designed to detect the aether that was believed to propagate light energy through space) probably resulted in physicists being more receptive to any plausible reason for the apparent measured constant speed of light through space. Thus, they were interested in the c theory that simply assumed that light moves with a constant measured speed through all reference frames that have a constant velocity through empty space. The logical consequences of this postulate were interesting and agreed with an increasing variety of experimental evidence for over a century. During this time, physicists became increasingly confident that theory based on c is sound theory.

However, there have always been cracks in this theory, starting with the *illogical*, constant c postulate on which c theory is based. And even in 1900 there was solid evidence of Doppler shifting of starlight that refuted the eventual *Law* of c . This simple refutation is explained in the www.qmview.net/QMV-Math.pdf document (where the multiple, *real physical causes* of observed c are also explained in detail).

Mathematics in Science: A Powerful Double-Edged Technology

Mathematics is technology in its most concentrated and enduring form. It allows the human mind to extend its reach far beyond direct experience, building bridges between logic and observation, and connecting ideas that might otherwise remain apart. When used with care and integrity, it can model nature faithfully and reveal relationships that deepen understanding. When used carelessly or to defend assumptions, it can create elegant patterns that appear convincing yet misrepresent reality. Like every technology, mathematics is neutral until intent gives it purpose. Its symbols can clarify truth or conceal error, depending on how carefully their meanings are defined and tested. Yet when guided by integrity, mathematics becomes the most precise and universal language for revealing nature's order.

Science advances when mathematics serves representation rather than persuasion. The worth of a theory is measured not only by how well its formulas fit data, but *also* by how accurately it exposes the underlying causes of the data. Used this way, mathematics becomes the clearest and most reliable instrument we have for exploring and understanding the unknown.

Logic

By making logic itself the referee, the LPCC method encourages cooperation rather than controversy when determining the soundness of a theory. It provides a transparent framework in which any qualified physicist can verify which explanation is more plausible via both careful and thorough logic, observation, and corroboration with other qualified colleagues.