

Mistaking Redshift for Doppler is a Fundamental Astrophysical Error

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Abstract

In 1915, astronomer Vesto Slipher observed that light from some spiral nebulae is redshifted and falsely presumed he was witnessing a light source rapidly moving away from the observer and somehow stretching the wavelength of light it emits. Slipher did not understand how light attenuates and mistakenly believed he was witnessing a Doppler effect, a phenomenon that cannot exist in space. No theory can be valid if it is based on a false assumption. Thus, all theories that depend on the Doppler-redshift mistake are invalid. These include big bang theory, expansion theory, Hubble's law, dark matter theory, and dark energy theory. Knowing that redshift is attenuation enables us to estimate how far visible light can travel before dropping out of sight. This is an idea that would never occur to anyone who mistakenly believes that redshift is Doppler.

Key words: Redshift; Big Bang; Hubble's Law; Expansion Theory; Dark Matter; Dark Energy

Introduction

In 1915, astronomer Vesto Slipher observed that light from some spiral nebulae is redshifted and falsely presumed he was witnessing a light source rapidly moving away from the observer and somehow stretching the wavelength of light it emits [1]. Slipher did not understand how light attenuates and mistakenly believed he was witnessing a Doppler effect [2].

Redshift and Doppler are two fundamentally different phenomena. In redshift there is an actual increase in wavelength. In Doppler, there is only the illusion of a change in wavelength. Redshift is attenuation whereas Doppler is distortion [2].

Light waves are transverse (i.e., oscillate perpendicular to their path) and do not require any medium through which to travel. Sound waves are longitudinal (i.e., vibrate parallel to their path) and can only propagate by compression and rarefaction of the medium through which they travel (e.g., air, water, solids). Because there is no medium in space, there is no Doppler effect.

No theory can be valid if it is based on a false assumption. Thus, all theories that depend on the Doppler-redshift mistake are invalid. These include big bang theory, expansion theory, Hubble's law, dark matter theory, and dark energy theory.

Redshift is Attenuation

Over extreme distances, light attenuates according to the following equation $c = \lambda f$

where c = speed of light; λ = wavelength of light; and f = frequency of light wave [2].

The farther light travels, the greater the degree to which its frequency slowly diminishes as its wavelength correspondingly increases. We observe this phenomenon as a *redshift*, i.e., the tendency of visible light to drop toward the red end of the spectrum. The farther away a galaxy is, the more its light shifts toward the red end of the spectrum.

If a distant source emits light in the middle of the spectrum, it can be in the red end of the spectrum by the time we receive it. If, however, that source emits light in the blue end of the spectrum, it will

have redshifted but could still be in the blue range by the time we receive it. There is no such thing as a “blueshift” whereby wavelengths shorten and frequency increases. All light is redshifted. Light cannot behave in any other way [2].

Because the surface temperature of the Sun is 5,000 °C, it emits light in the yellow range of the spectrum. A star with a surface temperature of 12,000 °C emits light in the blue end of the spectrum, and one with a surface temperature of 3,000 °C emits light in the red end of the spectrum. If Star *X* at a temperature of 7,000 °C and Star *Y* at 12,000 °C are the same distance from Earth, we could simultaneously be receiving light from *X* in the red end of the spectrum and light from *Y* in the blue end of the spectrum. The temptation is to conclude that light from *X* is redshifted and light from *Y* is blueshifted, but that would be a mistake. The light from both *X* and *Y* is being attenuated (redshifted) at the same rate. It is only because light from *Y* started out at a much higher frequency that it has not yet dropped into the red range of the spectrum.

Light from the following nebulae in the 700 to 5,000 light-year range is predominantly blue at source: Helix NGC7293, Iris NGC7023, and Swan’s Crescent NGC6888. Supernovae SN1885A and SN1986J (in Andromeda), SN1994D and SN2007bi (in Virgo), and SN1987A (in the large Magellan Cloud) emit intense blue and violet light that by the time it reaches us has been redshifted from its very high frequency at source but still appears to us to be in the blue range of the spectrum [2].

The light we receive from binary star systems (within distance 8 to 90 ly) regularly alternates between red and blue ranges of the spectrum. Examples of such binary systems include Alpha Centauri, Sirius, Beta Lyrae, 61 Cygni, Procyon, 55 Cancri, and Algol [2]. When these binary stars are at their farthest distance from each other, we experience their light as being in the red range of the spectrum. When each pair of stars is lined up one behind the other, we observe their light as being in the blue range of the spectrum. Lined up stars together generate more intense heat than either one does separately, thus synergistically raising the frequency of emission of their combined light to much higher than either star emits independently

of the other.

A Century of Errors

Unless one knows the frequency of light emitted at source, there is no way to know by how much it has been redshifted by the time it reaches the observer. For over 100 years, astrophysicists have ignored frequency at source. They falsely assume that what they are witnessing are galaxies in motion and mistakenly use redshift to indicate a presumed velocity of motion. This is the logical error of circular reasoning, i.e., including the conclusion in the assumption, then using the assumption to prove the conclusion. If we know the frequency of light at its source, then redshift lets us know how far away that source is. There is nothing else that redshift can tell us.

Hubble’s False Law

In 1927, Edwin Hubble compounded the Slipher error by presuming that galaxies are receding from the Milky Way at an accelerating rate. Hubble’s so-called law is the hypothesis that galaxies are moving away from Earth at velocities proportional to distance [3]. The calculations from which Hubble’s law is derived indicate a distance-velocity relationship that is the only evidence for the hypothesis that the universe may be expanding. Unfortunately, Hubble fudged his data. He assumed that nebulae are accelerating away from each other, then contrived the mathematics to justify his foregone conclusion. This is the logical error of circular reasoning, i.e., including the conclusion in the assumption, then using the assumption to prove the conclusion [4]. The universe is not expanding.

Big Bang Never Happened

In 1931, astronomer Georges LeMaître published the English version of his earlier paper, “A homogeneous Universe of constant mass and growing radius accounting for the radial velocity of extragalactic nebulae [5]. LeMaître initially called his theory the “hypothesis of the primeval atom” and described it as the “cosmic Egg exploding at the moment of creation”, which speculation belongs to the realm of metaphysics rather than physics. Because of its false redshift assumption, cosmic egg theory is an erroneous theory [6]. Yet, it became the foundation of the prevailing belief that the universe began from a “big bang” singularity,

which notion is both logically and scientifically impossible.

Dark Matter is Zero Matter

In 1933, Fred Zwicky inferred the hypothetical existence of “missing mass” (later called *dark matter*) to explain an unknown force of gravitational attraction that appears to be keeping the universe from expanding too quickly [7]. Alleged dark matter cannot be seen by telescopes, nor detected by any other means. Light passes right through dark matter, which neither emits nor absorbs electromagnetic radiation of any kind. Dark matter does not interact with normal matter and does not participate in nuclear fusion. Dark matter has none of the properties of matter nor any properties at all because dark matter does not exist [7]. Dark matter was postulated to be a gravitational force slowing down the alleged rate of expansion of the universe as indicated by Hubble’s falsified mathematics.

Dark Energy is Zero Energy

In 1998, Adam Riess, Saul Perlmutter, and Brian Schmidt claimed to have discovered the existence of hypothetical dark energy, a gravitationally repulsive force believed to oppose the gravitational attraction of dark matter [8]. The gravitational effect of dark matter was supposedly slowing down the alleged expansion rate of the universe. When redshift measurements of supernovae seemed to suggest that the universe was expanding at an accelerating rate, then dark energy was postulated to be an unseen force opposing dark matter, thereby reducing its effects. Redshift, however, is not a measurement of motion. The universe is not expanding [9]. There are no mysterious forces playing tug-of-war with its alleged rate of expansion, no dark matter and no dark energy opposing dark matter.

NASA Misunderstands Redshift

NASA uses redshift as a measure of cosmic distance but falsely presumes that said distance is a function of how far a given galaxy has travelled with respect to the Milky Way since the time of the alleged “big bang” singularity. A typically false conclusion drawn from this presumption is that the Milky Way is heading toward the Leo constellation at the rate of 300 km/s [10].

Rate of Attenuation

Knowing that redshift is attenuation enables us to estimate how far visible light can travel before it drops out of sight. This is an idea that would never occur to anyone who is under the illusion that redshift is Doppler.

Galaxy GN-z11 enables us to estimate rate of attenuation over its distance of 13.39 billion light-years. Light from GN-z11 is dull red, and its frequency is documented by NASA as being in the low red range of the spectrum [9, 10].

Suppose that GN-z11’s frequency at source (f_s) is 590 THz (mid spectrum) and its frequency received (f_{obs}) is 410 THz (low red). This would mean that over 13 Gly, frequency from GN-z11 has dropped by 180 THz. This is equivalent to frequency dropping every billion light-years by 2.75% of the frequency of the previous billion light-years. We can thus express redshift attenuation (**RA**) by the following equation in which distance (**D**) is expressed in incremental units of one billion light-years (Gly):

$$RA = f_{obs} = f_s (0.9725)^D$$

When its frequency drops below 400 THz, light is no longer visible. It continues at the speed of light but as electromagnetic energy that cannot be seen. This would happen for GN-z11 at 14.6 Gly – which means that an observer located 2 Gly from Earth in the opposite direction would not be able to see GN-z11 at all [2].

Unseen Galaxies

At distance 10 Gly, the frequency of light from a sun-like star emitting at 525 THz (yellow range) drops below the visual threshold of 400 THz. Thus, we have no way of knowing how many stars within the outer range of our telescopes may be invisible to us.

The Hubble Space Telescope creates for us a spherical horizon with radius 13.4 Gly. We have no way of knowing how many galaxies there may be at or beyond 15 Gly because their light will have dropped below the visual threshold of 400 THz some 400 million light-years before it reaches us.

It is a convenience of nature that there should be a maximum distance that visible light can travel. If this were not so, the night sky would be ablaze

with a patchwork blanket of light rendering us incapable of distinguishing one celestial object from another. We would never be able to understand the cosmos or our place in it [10].

Conclusions

In 1915, astronomer Vesto Slipher mistook redshift attenuation for Doppler distortion, a phenomenon that cannot exist in space. All theories that depend on this Doppler-redshift mistake are invalid: including big bang theory, expansion theory, Hubble's law, dark matter theory, and dark energy theory. Knowing that redshift is attenuation enables us to estimate how far visible light can travel before dropping out of sight. This is an idea that would never occur to anyone who mistakenly believes that redshift is Doppler.

References

1. Slipher V (1915) Spectrographic observations of nebulae. *Popular Astronomy* 23: 21-24.
2. Rowland D (2020) Redefining redshift as attenuation. *OSP J Phys Astron* 1: 1.
3. Hubble E (1929) A relation between distance and radial velocity among extra-galactic nebulae. *Proceedings of the National Academy of Sciences of the United States of America* 15: 168-173.
4. Rowland D (2020) Hubble's failed law. *J Phys Astron* 8: 200.
5. LeMaître G (1927) A homogenous universe of constant mass and growing radius accounting for the radial velocity of extragalactic nebulae. *Annales Soc.Sci* 47: 49-59.
6. Rowland D (2020) The big bang never happened: a conclusive argument. *J Phys Astron* 8: 193.
7. Rowland D (2020) Dark matter revealed. *J Phys Astron* 8: 196.
8. A Meeting with the Universe. NASA.
9. Telescopes Spy Ultra-Distant Galaxy. NASA.
10. Rowland D (2021) An infinite universe. *OSP J Phys Astron* 2: 1.