

Hubble's Law is Invalid because of Fudged Data

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Abstract

Hubble's law is the presumption that galaxies may be moving away from Earth at velocities proportional to their distance. It is considered the ultimate defining evidence supporting the hypothesis that the universe may be expanding. Unfortunately, Hubble's law is fatally flawed. Edwin Hubble misunderstood the nature of the redshift data upon which his hypothesis was based, made the unwarranted assumption that galaxies are accelerating away from each other, then manipulated data to justify his foregone conclusion. Hubble presumed the star clusters in his alleged data to be from 12 to 68 times farther away than they really are, and in so doing falsified the only evidence supporting expansion theory. In 2014, Eric Lerner and a team of astrophysicists studied the surface brightness (per unit area) of 1,000 near and far galaxies and concluded that galaxies are not moving apart. Hubble's law is invalid. There is zero evidence that the universe may be expanding, and overwhelming evidence that it is not.

Key words: *Hubble's Law; Expansion Theory; Universe; Redshift; Galaxies*

Introduction

Hubble's law is the theory that galaxies are moving away from Earth at velocities proportional to their distance [1]. Galaxies are supposedly accelerating away from Earth and the farther they are away, the higher their velocities. The calculations from which Hubble's law is derived indicate a distance-velocity relationship considered to be ultimate definitive evidence supporting the hypothesis that the universe may be expanding.

Because of false assumptions, faulty reasoning, and fudged data, Hubble's law is fatally flawed. Edwin Hubble 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 one's assumption, then using this assumption to prove the conclusion [2].

Redshift is Not Doppler

In 1915, Vesto Slipher observed that light from some spiral nebulae is redshifted and jumped to the conclusion that he was witnessing a light source rapidly moving away from the observer and somehow stretching the wavelength of light

it emits [3]. Slipher also observed that light received from Andromeda was in the blue part of the spectrum and falsely concluded that this galaxy is somehow shrinking the wavelength of its light as it rapidly approaches us.

Slipher did not understand how light attenuates and thought he was witnessing a Doppler effect. In redshift there is an actual increase in wavelength. In Doppler there is only the illusion of change in wavelength. Redshift is attenuation; Doppler is distortion [4].

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 propagate by compression and rarefaction of the elastic medium through which they travel (e.g., air, water, solids) [4]. Because there is no medium in space, there is no Doppler effect.

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

farther away a galaxy is, the more its light is redshifted by the time it gets to us.

In 1927, Edwin Hubble compounded the Slipher mistake by presuming that galaxies are receding from the Milky Way and the farther away they are, the faster they are receding. Hubble estimated presumed radial velocities of 46-star clusters on the speculative assumption that they were traveling on straight line paths from some inexplicable central colossal explosion.[4]

Hubble's Presumptive Errors

In 1929, Edwin Hubble presented data from 24-star clusters he had studied as the foundation for Hubble's law, which theory is considered the ultimate observational basis for expanding universe theory. From these 24 sets of data, Hubble selected five that demonstrated a perfect straight-line relationship between distance and velocity [1].

Hubble demonstrated selection bias by using data only of galaxies from which light was redshifted and overlooking data of galaxies from which light appeared to have been blueshifted (e.g., Andromeda, M86, M90, M98) [5]. By ignoring data from the galaxies he believed were heading towards Earth, Hubble self-disqualified his theory as constituting a law. A law in physics permits no exceptions. Newton's universal law of gravitation, for example, does not permit occasional exceptions whereby some objects fall upwards or repel each other.

In 1912, Henrietta Swan Leavitt discovered a direct relation between the brightness of Cepheid variable stars and the period of their pulsations [5]. This brightness-periodicity relationship indicates at what stage each Cepheid may be at in its unique life cycle and tells us absolutely nothing about where said star may be located. Hubble misinterpreted the Cepheid brightness-periodicity relationship to his advantage. By presuming that the universe had begun from some inexplicable central explosion, Hubble jumped to the unwarranted conclusion that the brightness of a Cepheid star is a function of its distance away from Earth [6].

Hubble also falsely assumed that all galaxies are approximately the same size. This simplification caused him to overestimate the distance of small galaxies and underestimate the distance of large

ones [5].

Hubble further falsely assumed that the dimness of a galaxy is a function of its motion away, i.e., that as a galaxy retreats, its brightness diminishes [6]. This is another example of circular reasoning, i.e., including one's conclusion in the assumption, then using this assumption to prove the conclusion.

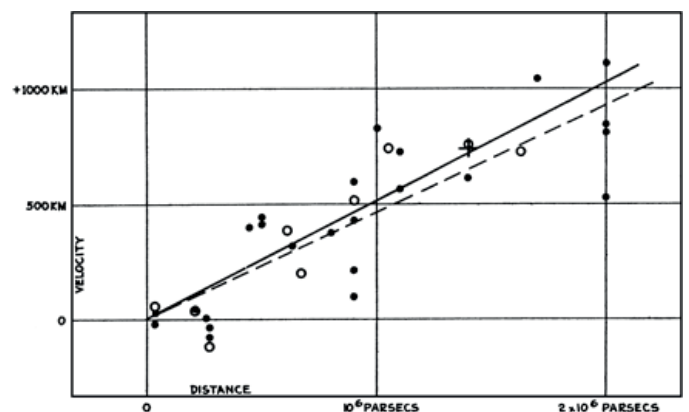
Hubble's Data Distortions

The following table summarizes the estimates from which Edwin Hubble in 1929 concluded that galaxies are receding from the Milky Way at a velocity proportional to their distance [1]. Entries in the *Distance-EH* column indicate the distances that Hubble estimated, based on his multiple false assumptions. Entries in the *Presumed Velocity* column indicate the velocities that Hubble inferred from his measures of redshift (falsely presuming redshift to be a Doppler effect).

Table 1: Edwin Hubble's Presumptions of Distances and Velocities

Cluster Galaxy	Distance-EH (ly)	Presumed Velocity ⁴ (km/s)	Ratio (Velocity/Distance)
Virgo	78	1,200	15.4
Ursa Major	1,000	15,000	15.0
Corona	1,400	22,000	15.7
Borealis			
Bootes	2,500	39,000	15.6
Hydra	3,960	61,000	15.4
Average			15.4

The results in the "Ratio" column above are the five points that Hubble posted on a graph to create a remarkably tight straight-line relationship between the distance of a galaxy and how fast it is supposedly moving away.



Graph: Relation between distance and radial velocity among extra-galactic nebulae

Something is seriously wrong with Hubble's estimates of distance. If we substitute modern estimates of distance in the *Distance-Modern* column below, a very different picture emerges. Data in the *Distance-Hubble* column are the figures published by Edwin Hubble in his seminal 1929 paper [6]. Data in the *Distance-Modern* column are sourced from the Hipparcos Catalogue of 188 218 [7, 8].

Table 2: Modern Estimates of Distance Compared to Edwin Hubble's Presumptions

Brightest Star	Dis- tance- Modern (ly)	Distance- Hubble (ly)	Error Factor
Spica (Virgo) ⁶	262	78	(-3.4x)
Alioth (Ursa Major) ⁷	81	1,000	12x
Alphecca (Corona Borealis) ⁸	75	1,400	19x
Arcturus (Bootes) ⁹	37	2,500	68x
Alphard (Hydra) ¹⁰	180	3,960	22x

Edwin Hubble thus estimated Virgo to be about 3.4 times closer than it really is, and the other star clusters to be from 12 to 68 times further away than they really are. If Hubble had used realistic estimates of distance, there would have been no straight line on his graph, only random points indicating a zero correlation between distance and presumed velocity. Hubble apparently manipulated data to produce the results he wanted.

Either galaxies are moving apart, or they are not. The definitive theory which suggests that the distances between galaxies are increasing is fatally flawed. Therefore, we must presume that galaxies are in the same positions relative to each other that they have always been in. This burden of proof is the same as required in a court of law. The Hubble hypothesis that galaxies are moving apart cannot be substantiated; therefore, we must presume that they are not moving apart.

Hubble's so-called *law* is thus a mathematical diversion that bears no relation to reality. Redshift is not Doppler. Galaxies are not retreating from the Milky Way. If galaxies are not in retreat, then their imagined velocity of retreat cannot be increasing

[6].

The Universe is Not Expanding

We now have direct evidence that the universe is not expanding. Edwin Hubble's estimates of velocity did not include measurements of surface brightness (i.e., brightness per unit area) of galaxies. Such measurements tell a very different story.

In 1930, Richard Tolman devised a surface brightness test to determine whether the universe is static or expanding. Tolman's test compares the surface brightness of galaxies to their degree of redshift (measured as z). Tolman believed redshift to be the degree of reduction in energy (i.e., attenuation) of each photon [7].

In a static universe, the light received from an object drops in proportion to the square of its distance, and the apparent area of the object also drops in proportion to the square of its distance. Thus, the surface brightness (light received per surface area) is constant, independent of distance. In an expanding universe, the surface brightness would decrease with the fourth power of $(1 + z)$.

For 95 years, mainstream astrophysicists have never checked the validity of their assumptions by means of the Tolman test. They accept on blind faith the Slipper error of mistaking redshift for Doppler.

In 2014, Eric Lerner and a team of astrophysicists applied the Tolman test by measuring the surface brightness (per unit area) of over 1,000 near and far galaxies. If galaxies had been moving away from each other, they would appear fainter the farther away they get, i.e., their surface brightness would diminish. Lerner's team, however, found that in every case surface brightness remains constant regardless of distance. If any far distant galaxy had been in motion away from us, its surface brightness would have been much less than that of nearby galaxies, a phenomenon that has never been observed [7]. Thus, there is zero tangible evidence that galaxies are moving apart and overwhelming evidence that they are not. The universe is an infinite expanse, and as such cannot have any boundaries that are expanding. Infinity cannot become any larger than it already is [7, 8].

Conclusions

Hubble's law, the presumption that galaxies are moving apart at velocities proportional to their distance from us, is considered the ultimate defining evidence supporting the hypothesis that the universe may be expanding. Unfortunately, Hubble's law is invalid. Galaxies are not moving apart. There is zero evidence that the universe may be expanding.

Edwin Hubble misunderstood the nature of the redshift data upon which his hypothesis was based, made the unwarranted assumption that galaxies are accelerating away from each other, then manipulated distance data to justify his foregone conclusion. He committed the logical error of circular reasoning, i.e., including the conclusion in the assumption, then using the assumption to prove the conclusion. He further erred by fudging data, which was the only way he could have proven his foregone conclusion.

Hubble presumed the star clusters in his alleged data to be from 12 to 68 times farther away than they really are, and in so doing falsified the only data supporting expansion theory. If he had used realistic estimates of distance, there would have been no straight line on his graph, only random points indicating a zero correlation between distance and presumed velocity.

In 2014, Eric Lerner and a team of astrophysicists applied the Tolman test of surface brightness (per unit area) to 1,000 near and far galaxies and concluded that galaxies are not moving apart. There is zero evidence that the universe may be expanding, and overwhelming evidence that it is not.

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