Reassessing Redshift

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Abstract

The universe's inferred expansion is based almost entirely on cosmological redshift. If it's found that it does not originate from space's stretching then the big bang would of course become unworkable. If it's found that other red/blue shift sources also emanate from galaxies then it'd be virtually impossible to know how much shift to attribute to each. So the big bang would again become untenable. If it turns out that the speed of light is not constant but varies everywhere then the entire concept of cosmological redshift collapses, taking along with it the big bang. If any one of these undermining conditions is true, we're forced to concede the fallacy of universal expansion, which returns us back to the very beginning. We're left wondering what it is exactly that causes a galaxy's redshift. Viable, practical, readily apparent alternates do exist. But they only become evident by recognizing the ever-decreasing density of a galaxy's gravity field.

Keywords: cosmological redshift, blueshift, big bang, universal expansion, space's stretching

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Discussion

By any objective measure, the big bang's rationale is much more tenuous than most of its ardent detractors even realize. It has many fundamental contradictions that are impossible to resolve that in the end make it totally unfeasible. The most egregious have to do with basic geometry, like its ill-conceived two-dimensionality, which few seem willing to confront. It, along with others, are much more invalidating than any of its numerous redshift discrepancies. But that's a whole different discussion. Those interested can find it at [A] & [B].

Cosmological redshift is the theory that light waves from distant objects like galaxies and quasars are shifted toward the red end of the electromagnetic spectrum. They're believed to lengthen over time/distance because of space's stretching from its ongoing expansion instigated by the big bang. The more redshifted the light, the farther away its source [1]. This is widely accepted as true despite its speculative nature, lack of empirical evidence, and faulty logic.

One of its obvious deficiencies is that it doesn't provide an explanation for the relatively small but significant number of blueshifted galaxies. Space's contraction between us and blueshifted galaxies when it's supposed to be expanding is a nullifying inconsistency.

So the Doppler effect, which was the original explanation for the big bang's redshifted galaxies, is redeployed to explain away the conflict [2]. Nearby blueshifted galaxies are assumed to be moving toward us when gravity's "attraction" is stronger than space's expansion [3]. But that's all that can be known.

When two or more red or blue shift sources emanate from a single galaxy, it's impossible to ever know how much shift to allocate to each. Multiple red or blue shifts either compound or cancel each other out [4]. So all that can be discerned is the shift that's being observed. It can't even be known if the other actually exists, much less its proportionality.

How much redshift belongs to space's stretching and how much blueshift belongs to a line-of-sight vector of some unknowable gravitational motion will always be in question. For instance, a galaxy with a closing velocity blueshift recorded at z= -0.001 could hypothetically be the product of space's stretching with a recessional velocity redshift of z= 0.002 plus a closing velocity from gravitational motion with a blueshift of z= -0.003, which has never been observed. Any combination of red and blue shift could work as long as their compounding equaled the recorded blueshift.

For a galaxy with a redshift recorded at z=1.0, it could hypothetically be the product of space's stretching with a redshift of z=1.001 that's compounded with a closing velocity from gravitational motion with a blueshift of z= -0.001. When multiple red and blue shift sources are presumed, they could be any value and we could never know what they are. It's impossible to ever distinguish what their true standalone values might be. They cannot be perceived individually. So they could literally be any magnitude or any combination of magnitudes, which completely undermines the big bang.

Another of its conceptual flaw is that if it's accepted that a Doppler blueshift exists for galaxies with a closing velocity from gravitation, which is subtracted from the redshift from space's stretching, then those galaxies with a recessional velocity from gravitation in the opposite direction would have to also exist. So their Doppler redshift would have to be added to the redshift from space's stretching. This would create another disqualifying inconsistency.

But that Doppler redshift would always be imperceptible. Those galaxies would be manifesting two compounding but indefinite redshift sources that we could never perceive or even know existed. So accurately determining universal expansion again becomes impossible, and the big bang again becomes untenable.

But there's even more. By reinstating the Doppler effect, a fourth red/blue shift source is invoked. The original cosmological redshift from recessional velocity from universal expansion becomes applicable again. It has to work in conjunction with the redshift from space's stretching.

Even though they are two completely different conditions, it's accepted that they manifest exactly the same. But how can that be when one supposedly shifts while the other stretches? Apparently, the Doppler effect not only shifts the location of absorption/emission lines but also stretches them, the same as space's presumed expansion would.

Despite their similar effect, they can't be redundant. They're different conditions. If a closing velocity's Doppler blueshift is subtractive from stretching's redshift then a recessional velocity's Doppler redshift has to be additive regardless of whether it originates from gravitational motion or universal expansion. So what we end up with is double the redshift. That doesn't work.

The Doppler effect is a factual phenomenon. Space's stretching is theoretical. It may not exist. Big bang advocates might want to consider abandoning stretching altogether and return solely to the Doppler effect from universal expansion.

But space itself also doesn't actually exist. It's not something. Like "time," space is not an inherent property of the universe. By definition, it's the nothingness between objects. So there's nothing there to be stretching or expanding. Nor is there anything there that can curve two-dimensionally as a nonexistent plane of inconceivable, four-dimensional "space-time" that somehow dents underneath massive bodies to facilitate their "attraction." There's only radiant electromagnetic energy, the fundamental constituent of the universe that expresses as an infinitely vast, universal field.

So what the big bang theory is left with is multiple red/blue shift sources that are either unknowable and/or indeterminate, and/or conflicting, and/or compounding, and/or redundant. And it only takes one other of these sources to make it impossible to accurately parse out how much red or blue shift belongs to each. The universe's rate of expansion can't be logically inferred. It can't even be rationally deduced whether or not it's expanding. The big bang is decisively unworkable.

Even beyond that, the concept of cosmological redshift and its reciprocal relativistic distances are rooted in light's (presumed) invariance [5]. But that constancy is conceptually impossible. It only works theoretically, only in the one dimension of linear motion and only in one direction at a time. This is embodied in the Lorentz transformation [6]. And it's recognized by Einstein [7].

In our real, three-dimensional (nontheoretical) universe, light's necessary contraction in the forward direction, that maintains its invariance when its source is subjectively decided to be in motion, will always be in conflict with its noncontracted condition to the sides and its necessary expanded condition to the rear. Its velocity can only compound with the motions of its source, just as all of the Michelson-Morley and Sagnac type experiments explicitly demonstrate [8]. (See **Figure 1: LIGHT'S COMPOUNDED VELOCITY**, next page. All diagrams have been adapted from *The Reality of Relativity* [C].)

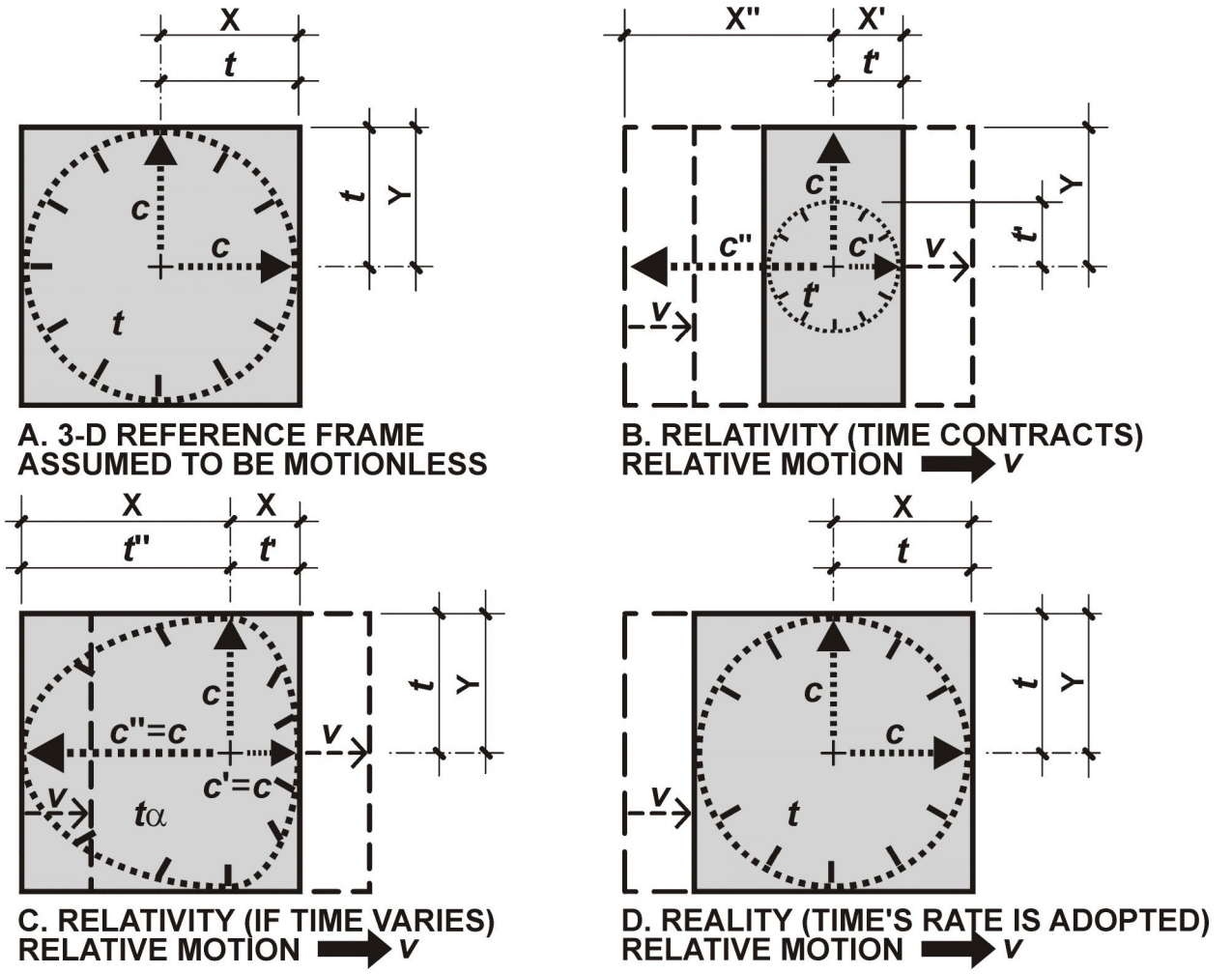


Fig. 1: LIGHT'S COMPOUNDED VELOCITY

Diagram **A** represents a three-dimensional, cubical reference frame of any size shown two-dimensionally. It's assumed to be motionless. Light's velocity, ***c***, and time, ***t***, represented by the clock-like circle, and distance **X** & **Y** all remain proportional. **X** & **Y** are equal.

Diagram **B** shows relativity's interpretation for the reference frame when it's subjectively decided to have relative motion. Light's speed, ***c***, is assumed invariant. For it to remain fixed in the direction of motion with velocity ***v***, it has to contract by velocity ***v*** to ***c'***, while time and distance are required to contract correspondingly to ***t'*** and **X'**. ***c'*** then in the direction of motion remains 186,000mi/s for those in the reference frame.

The problem is, without motion in the perpendicular direction and opposite motion to the rear, ***c*** in the perpendicular along with the distance **Y** don't contract. While ***c*** and **X** to the rear expand to ***c"*** (***c***+***v***) and **X"**. All remain in conflict with one another. And when ***c'*** is 186,000mi/s due to ***t'*** & **X'** 's contraction then ***c*** and ***c"*** exceed 186,000mi/s by ***v*** and 2***v***.

The only way to resolve the conflict is to have time vary in all directions at once, as portrayed in **C**. ***c'*** and ***c"*** would then both equal ***c*** with the reference frame compressing to ***t'*** & **X'** in the forward direction while expanding to the rear to ***t"*** & **X"**. But it's conceptually impossible for a single reference frame to have multiple or an infinite number of rates of time, one in every direction, that is if time actually existed. It doesn't. We adopt its rate by selecting objects with periodic motion to use as reference. Its factual nonexistence preemptively subverts the whole notion of invariance as well.

D depicts reality. It's conceptually impossible for light's velocity to remain fixed in our real, three-dimensional environment. Light simply compounds with all relative motion. It cannot not compound. An observer outside the reference frame will always record ***c*** +/- all relative motions, ***v***. While observers within it will always record ***c*** as 186,000mi/s regardless of any velocity, ***v***.

Light's velocity not only compounds with motion, its speed is also variable, just as Einstein (contradictorily) contends: "the velocity of propagation of light varies with position [in gravitational fields] [9]." But it's conceptually impossible for light's velocity to be both fixed and variable [D].

After recognizing the invalidating contradiction, he rationalized that its invariance is still feasible, but only outside of gravity fields or if they're disregarded altogether [10]. Both of which are also conceptually impossible. There is no outside of a gravity field. And they can't be ignored. They're always present, except theoretically in the abstract.

Gravity fields extend indefinitely. And every physical body, particle or galaxy, has its own self-gravity [D], even the entire universe, that is if you believe it's finite. So no place exists where light's velocity can be fixed. It's variable everywhere.

Einstein realized that, "as a consequence of this [potential finding that would have to also include its variability from its factual compounding], the special theory of relativity and with it the whole theory of relativity would be laid in the dust [11]." Without the possibility of a fixed velocity for light, cosmological redshift's entire theory is upended and left in shambles. It becomes meaningless. This is crucial. This single fact alone is enough by itself to completely destroy the big bang. It has no validity whatsoever.

No longer artificially restricted by light's presumed but impossible constancy, this leaves red/blue shift wide open for interpretation. It could be caused by anything. And if it originates from a Doppler shift, it could literally be any magnitude. Faster-than-light recessional or closing velocity would not only be possible, but it'd be the norm. Conceptually, all relative motion has to exceed the speed of light for outside observers. So universal expansion would again become at best nothing more than an unfounded, contradictory, subjective speculation.

Note that Einstein recognizes that, "the whole theory of relativity," becomes invalid with light's factual variability. Relativity includes the big bang. Its "finite and yet unbounded" two-dimensionality is how it (theoretically) remains uniform while retaining its finiteness. If all of relativity is invalid, the big bang has to be as well.

Depending on how it's qualified, gravitational redshift is a credible redshift source. It's theorized that as light leaves a high-mass object, like a galaxy or quasar, it loses energy, which presumably increases its wavelength, shifting it toward the red [12]. It's not generally considered evidence of the big bang's failure. It's believed that it coexists with the redshift from space's stretching. But if they do, it'd have the same undermining effect. With multiple redshift sources, universal expansion cannot be determined and the big bang again becomes untenable.

Most astronomers would argue that they're somewhat successful at differentiating gravitational and cosmological redshift. They statistically compare the redshift's consistency based on adopted criteria like inferred distance, size, mass, and local environment. But all they're really doing is unconsciously rationalizing their observations and assigning redshift values that conform to the big bang narrative that they've been conditioned to believe is fact. Rather than accepting a contradictory observation at face value for what it is, they seek out and find or manufacture whatever excuses are necessary to explain it away.

Einstein's version of gravitational redshift is indefensible. Its incoherence makes it difficult to explain, difficult to follow, and just as difficult to believe. Many just outright refuse to accept it, believing instead that there must be some kind of misinterpretation. There isn't.

He contends that the relativistic effect of light's invariance slows time's rate at the surface of a rotating body. And because an atom's spectral lines can be regarded as a clock, their slower rate of time shifts them toward the red. And because rotation creates centrifugal gravity and centrifugal gravity is the same as real, mass-created gravity due to his "principle of equivalence," then those objects with higher, mass-created gravity will have higher redshifts [13].

Ponder that logic chain for a moment. A massive body's rotation gives it a slower rate of time that redshifts its light proportionally to its centrifugal-created gravity, which is equivalent to its natural, mass-created gravity. So all high-mass objects must have high redshifts.

To begin with, time does not actually exist. As previously mentioned, just like with space, it is not an inherent property of the universe. Time is something we create by selecting objects with periodic motion to use as a reference. So it can't change with (subjectively decided) relative motion or as the values of the variables of an equation vary to enforce light's (presumed) invariance.

And even if it did exist, which it doesn't, it wouldn't be slowing or dilating or enlarging or expanding or lengthening with (subjectively decided) motion. It'd have to contract correspondingly to light's contracted velocity and length's contracted distance in the direction of motion to preserve light's theoretical invariance. A contracted rate of time is a smaller, faster running rate of time. For the same number of time units to occur over a contracted distance, it has to run faster.

But even if time did contract correspondingly in the direction of motion, it would still conflict with its noncontracted rate in the perpendicular direction and expanded rate to the rear. It can't be different in every direction at once, as depicted in **C.** of **Fig. 1**. So again light's invariance is conceptually impossible.

And remember, Einstein also contradictorily contends that relativistic effects, time dilation and length contraction due to light's invariance, can't work in a gravity field. That's where light's speed is variable. Relativistic effects can only work theoretically: outside of gravity fields where light's velocity can be assumed to be fixed or when gravity fields are disregarded altogether [14].

But as previously covered, there is no place where gravity fields don't exist. So light's velocity is variable everywhere. So special relativity again doesn't work. And it especially doesn't work in the gravity fields of massive bodies. So Einstein's version of gravitational redshift is not at all viable.

Another issue: where exactly on the body's surface would time's rate be supposedly slowing? A body's rate of rotation varies from its most at its equator to zero at its poles. So time's rate would be varying everywhere over the entire body regardless of its rate of rotation, which is conceptually impossible. Every reference frame can only have one rate of time, which Einstein knows [15].

Also, rotation does not create gravity. Rotation's centrifugal reaction acts outward two-dimensionally from its axis as it disperses objects while its strength increases with distance. Real, mass-created gravity, on the other hand, acts inward three-dimensionally as it coalesces/condenses objects while its strength outwardly diminishes with distance. They are not at all the same. This is covered extensively with referenced quotes on pages 33-40 in [16].

Einstein recognizes and continues to argue that, "If [gravitational redshift] does not exist, then the general theory of relativity will be untenable [17]." But what he doesn't realize is that his assertion sets up an existential dilemma. The big bang and general relativity can't coexist. Any decision about gravitational redshift's viability invalidates one or the other.

If it's decided that gravitational redshift is real/feasible, we have multiple redshift sources that render the big bang untenable. But general relativity is preserved. If it's decided that gravitational redshift is not real, the big bang survives. But we lose general relativity. In the end, though, it makes no difference what's decided. Neither work.

Gravitational time dilation could be considered a possible source of redshift on its own, that is if time actually existed. It's where time's rate is presumed to run slower closer to a massive body. And that slower rate theoretically redshifts light's frequency. But finding an explanation is a challenge. It used to be reasoned that gravitational time dilation could result from either special or general relativity.

For special relativity, it's been justified by imagining a hypothetical scenario that has an inertial reference frame accelerating from free fall in a gravity field. As it first falls past a higher position then faster as it passes a lower, both arbitrarily set at rest stationary in the gravity field, its rate of time would be slower at the lower position because of time's theoretical dilation with faster relative motion that results from light's (presumed but impossible) invariance.

Because the "principle of equivalence" has acceleration (along with braking and rotation) creating gravity fields that are supposed to be the same as real, mass-created gravity fields, their rate of time is presumed to be equal as well. So a clock in the gravity field at the lower position has to also be running slower than one at the higher position just like the hypothetical clock in the accelerating reference frame [18].

For general relativity, a clock positioned closer to a massive body runs slower because space-time is more curved, which is no explanation [19]. Why would more curvature make time run slower? Both explanations are nonsense for many of the same reasons given for gravitational redshift.

The most rational explanation for why an atomic clock's (not a mechanical clock's) rate of operation changes (not time's rate) is because the density of its ambient field changes, which changes the size/mass of its cesium atoms, which alters their natural frequency that in turn causes the clock to run at a different rate. This change in field density occurs in both electromagnetic and gravity fields simultaneously. They are the same field. The only difference is that an electromagnetic field diffuses outward while a gravity field diffuses inward [E].

For an atomic clock with altitude, it runs faster. Its cesium atoms condense in the ever-decreasing density of the Earth's outward diffusing, electromagnetic field, which increases their natural frequency. They also slightly expand in the ever-increasing density of the Earth's outward condensing gravity field. But because it's so much larger than its electromagnetic field, very little change occurs over the difference in altitude. So the effect of gravity's field is hardly noticed.

For an atomic clock at much greater distances, it's the Earth's, and/or our solar system's, gravity field that governs. The ever-increasing density of their outward condensing gravity field causes the clock's cesium atoms to expand more than its electromagnetic field's ever-decreasing outward diffusing density causes them to contract. This expansion decreases their natural frequency, causing their clock's rate of operation to slow. (See **Figure 2: FIELD'S EFFECT ON ATOMIC CLOCKS**, next page.)

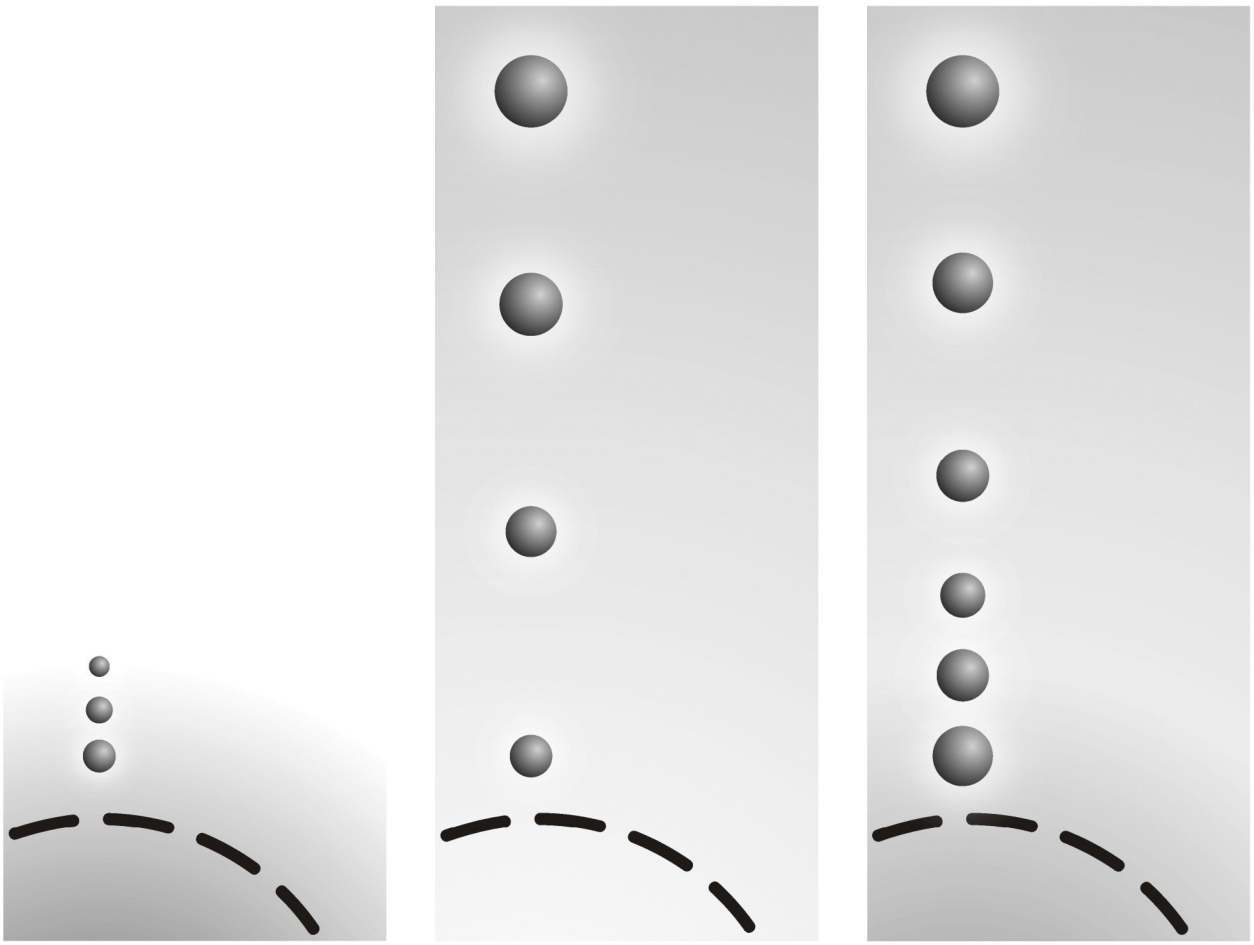


Fig. 2: FIELD'S EFFECT ON ATOMIC CLOCKS

Subatomic particles are not matter per se. They congeal out of the fundamental constituent of the universe, radiant electromagnetic energy, that expresses as an infinitely vast, universal field. Fields are innately indivisible. So particles are just very small, highly condensed, spherical fields that are an inseparable extension of the universal field from which they arose. When the density of the universal field decreases or increases, like when it is expressing as an electromagnetic or gravity field, the size of any object in it, be it a particle or galaxy, has to vary correspondingly.

In diagram **1**, imagine that the Earth, omitted for clarity but represented by the dashed line, is left without a gravity field. Only its magnetic field remains. Its density dissipates from its center out exponentially, as depicted in section by the diffusing background. So all objects, including the cesium atoms of an atomic clock, would have to contract in size correspondingly with altitude, as indicated by the sequence of spheres. This in turn causes their natural frequency to increase, which makes the clock's rate of operation runs faster.

In diagram **2**, now imagine the Earth without its magnetic field but left with only its gravity field. Its density increases with altitude exponentially. So any object, or again the cesium atoms of an atomic clock, would have to expand in size correspondingly as they move farther away, causing their natural frequency to decrease and the clock to run slower.

In **3**, the compounded effect of both fields is portrayed. Objects first contract then slowly begin to enlarge as they move farther away. The gradient in the magnetic field is greater over a shorter distance because of its much smaller size while the gradient is much smaller for the gravity field because of its much larger size, which yields little change over the same distance.

Atomic clocks (not mechanical clocks) are also affected by their motion through electromagnetic/gravity fields. Their cesium atoms are infused with a charge that inherently increases their size/mass, which slows their natural frequency, that in turn causes their clock's rate of operation to slow. This is the real origin of the results from all of the airborne clock experiments that are wrongly attributed to relativistic effects due to light's presumed but impossible fixed velocity.

If relativistic time dilation was actually real, then it too by itself could be construed as a possible source of cosmological redshift, albeit not a very credible one. A galaxy's rotation and/or relative linear motion would theoretically cause its rate of time to slow, which would theoretically cause its light's frequency to shift toward the red.

A more realistic interpretation of motion's effect on redshift would be that a galaxy's tangible, not subjective, movement through and/or rotation in the universe's constituent field of radiant electromagnetic energy naturally imparts a charge to its atoms. This would innately increase their size/mass, which would decrease their natural frequency, that would in turn redshift their light. That's conceivable. But it's not redshifted due to time's dilation.

Light's slower speed in a galaxy's gravity field is another possible, even likely, source of cosmological redshift. Light's velocity does vary in a gravity field. Einstein would certainly (but contradictorily) agree [20]. But it doesn't slow as (nonexistent) space-time's two-dimensional curvature increases. That's impossible. It slows as gravity's field density decreases, which diffuses inward exponentially, spherically, toward the center of massive bodies/particles.

As light radiates from a high-mass source, it would begin its outward journey propagating at its slowest speed where gravity's field density would be at its least. Its speed would continue to increase in the gravity field's increasing density until it encounters an object of higher mass, or a common center of mass for multiple objects, whose gravity's field density would be less. Simple enough. And pretty hard to dispute.

Tired light as an explanation for cosmological redshift is another reasonable alternative to the big bang's stretching space. It theorizes that light loses energy over time/distance due to its consistent interaction with particles during its journey, which produces a redshift. Convention insists that this has been disproved [21]. Others effectively argue that it has not been [22].

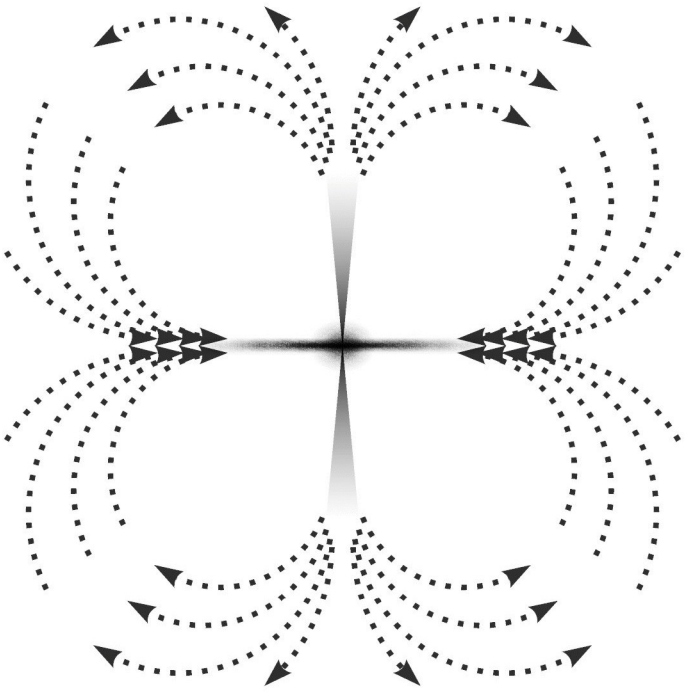
Like the other cited alternatives, tired light also lacks an explanation for blueshifted galaxies. As it is with space's stretching, another theory like the Doppler effect has to be adopted to accommodate the discrepancy. Tired light can work in conjunction with red or blue shifted galaxies from gravitation's Doppler effect. But it would still be altered by some indeterminate amount. And it's likely that more red/blue shift sources, like those already mentioned, would still exist in a nonexpanding universe.

This isn't as difficult a problem for tired light as it is for the big bang. It's not trying to justify universal expansion that's nullified by additional red/blue shift sources. It just attempts to explain redder, more distant objects in a nonfinite universe that's not expanding, which we all know, at least intuitively at some deeper, unconscious level, is the universe's true nature.

Arguably, the most plausible and practical alternative cosmological redshift is the Doppler effect from the recessional velocity of each individual galaxy's continuous infall of ever-coalescing/condensing material. When coupled with our own infall velocity at our own galaxy, this ostensibly appears like every galaxy is receding from every other. Any true relative motion is actually due to their local gravitational interaction with other galaxies, not universal expansion.

A galaxy's continuous infall of material occurs naturally. Gravitation is a runaway process. Its innate coalescing/condensing continues unabated until enough inward pressure builds near a galaxy's center to trigger fusion reactions. This eventually transmutes all of its material back into the radiant energy that it originated from. It's then radiated or ejected back out in energetic, bipolar jets that allow the galaxy to continuously drain away its transmuted material, which enables its never-ending process of perpetual recycling.

This easily explains how each galaxy can exhibit a Doppler redshift from recessional velocity while remaining relatively stationary in a nonexpanding environment. Like all of these redshift alternatives, this too denotes an ageless, infinitely vast, static universe. But this one is different. It's in an extremely dynamic steady-state that's constantly recycling its material. This is not to be confused with Hoyle's expanding steady-state that constantly creates new material to maintain its uniformity [23]. (See **Figure 3: GALACTIC RECYCLING**, **Figure 4: PLANAR VORTEX**, **Figure 5: UNIVERSAL EXPANSION VS. CEASELESS COALESCING**, beginning on the next page.)



SECTION VIEW: TYPICAL SPIRAL GALAXY

Fig. 3: GALACTIC RECYCLING
Galaxy formation and evolution is a continuous but cyclic process. If we examine it by beginning with the merging of any two or more galaxies of any type, their material is jumbled and strewn about as they come together. In due course, gravitation begins to coalesce it in an omnidirectional manner, spherically, back into a single, elliptical galaxy. The remaining asymmetry innately causes it to begin rotating around itself, which forms a burgeoning axis.

Because the resulting centrifugal force is less at the developing poles, it coalesces more readily down the ensuing axis toward its center. While the more central material with faster rotation tends to flatten out perpendicularly. Ultimately, it coalesces into the planar disk of whirlpooling material that defines a fully developed, spiral galaxy, depicted as the central feature in the diagram.

But contrary to established doctrine, its coalescing doesn't stop there. Our current belief is that the material of spirals revolves around a central, supermassive black hole in fixed, circular orbits as if it composed a solid disk, like a phonograph record. This is thought to be caused by some extra, unseen/hidden "dark matter" [24].

It's also held that stars don't comprise the spiral arms of a galaxy's apparent vortex. They pass through them. The arms are fixed, created by standing density waves of some unknown origin. The centrifugal force resulting from a galaxy's rotation is believed to counter any inward migration. Stars only make their way to its central black hole after being displaced from their orbit by another nearby star or galaxy [25].

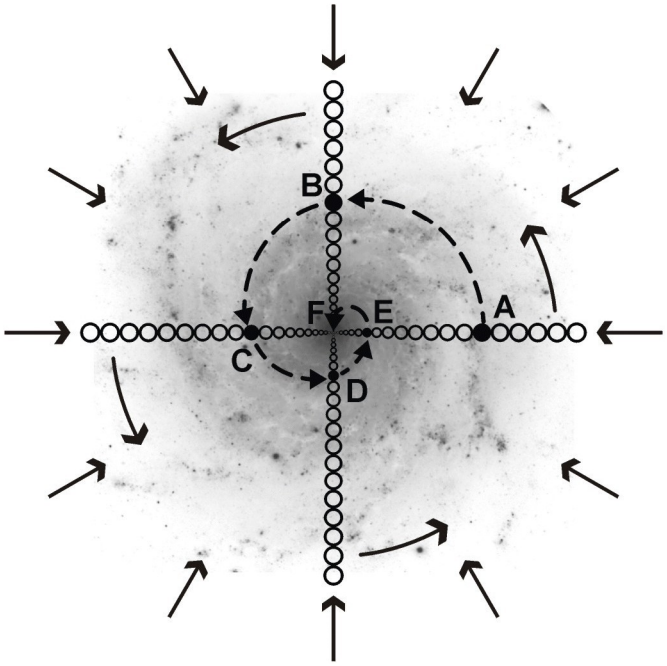
But gravitation is inherently a runaway process. The progression/continuance of its coalescing/condensing is unrestrainable. It's a natural byproduct of the intrinsic exponential condensing of its ever-decreasing field density. This is what facilitates its ever-coalescing material to flatten out into its planar but three-dimensional vortex of ever-infalling material. If it wasn't for its material's ever-increasing contraction in the ever-decreasing density of the galaxy's gravity field, it couldn't continue to coalesce into the flat vortex that comprises the galactic plane.

This is also the source of dark matter's missing mass. It's not recognized that self-gravity's natural coalescing continuously condenses/contracts every galaxy's constant infall of material inward toward their centers exponentially, as portrayed in diagram **1**&**2** of **Fig. 4**, next page. This is why their mass is unexpectedly high.

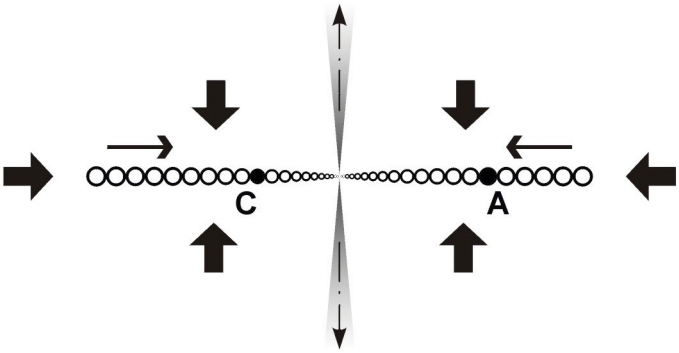
As self-gravity's inward compression increases exponentially near a galaxy's center, it becomes so great that it begins to overcome the innate electrostatic repulsion of its material's particles. This triggers fusion reactions that start converting them back into the radiant energy they originated from.

It's then radiated back out of elliptical or violently ejected back out of mature spirals in huge jets in a bipolar manner, shown in section view as visible. As the radiation slows and cools, it eventually congeals back into ordinary matter. Over time, it begins gravitating back toward its or another nearby galaxy, as implied by the dotted arrows.

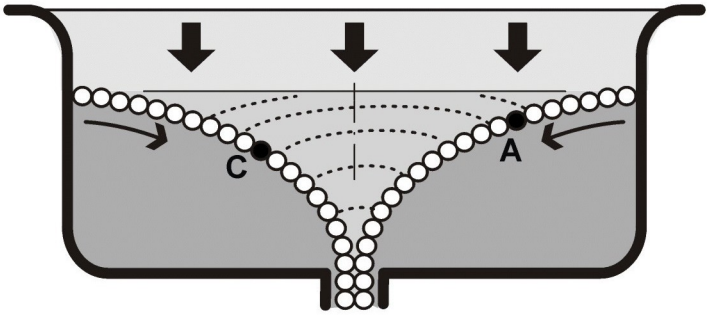
The material of every galaxy is subject to this never-ending process of perpetual recycling, which causes its continual receding from every other galaxy. The Doppler effect from the material's ever-increasing recessional velocity coupled with our own infall velocity at our own galaxy is a real and factual source of cosmological red/blue shift, if not its only true source.



1. TOP VIEW: A SPIRAL GALAXY'S PLANAR VORTEX OF INFALLING MATERIAL APPEARS SIMILAR TO A SINK'S FROM THE TOP



2. SECTION VIEW: SELF-GRAVITY'S EVER-DECREASING FIELD DENSITY CONDENSES MATERIAL INWARD EXPONENTIALLY



3. SECTION VIEW: A DRAINING SINK'S VORTEX COULDN'T DEVELOP IF ITS SURFACE DIDN'T CURVE FROM EARTH'S SURFACE GRAVITY

Fig. 4: PLANAR VORTEX

Diagram **1** pictures the vortex of infalling material of any typical, unbarred, spiral galaxy. From the top, it appears the same as a draining sink. The linear array of small circles represents a line of stars. The position **A** is tracked through position **F** at every 90° of rotation to show their constant inward migration along the spiral arms as they also rotate in the whirlpooling vortex of its ever-coalescing/condensing material.

It may take many revolutions before a star at **A** finally reaches the center. The overall effect being a recessional velocity with a Doppler redshift from every other galaxy, indicated by the inward pointing arrows.

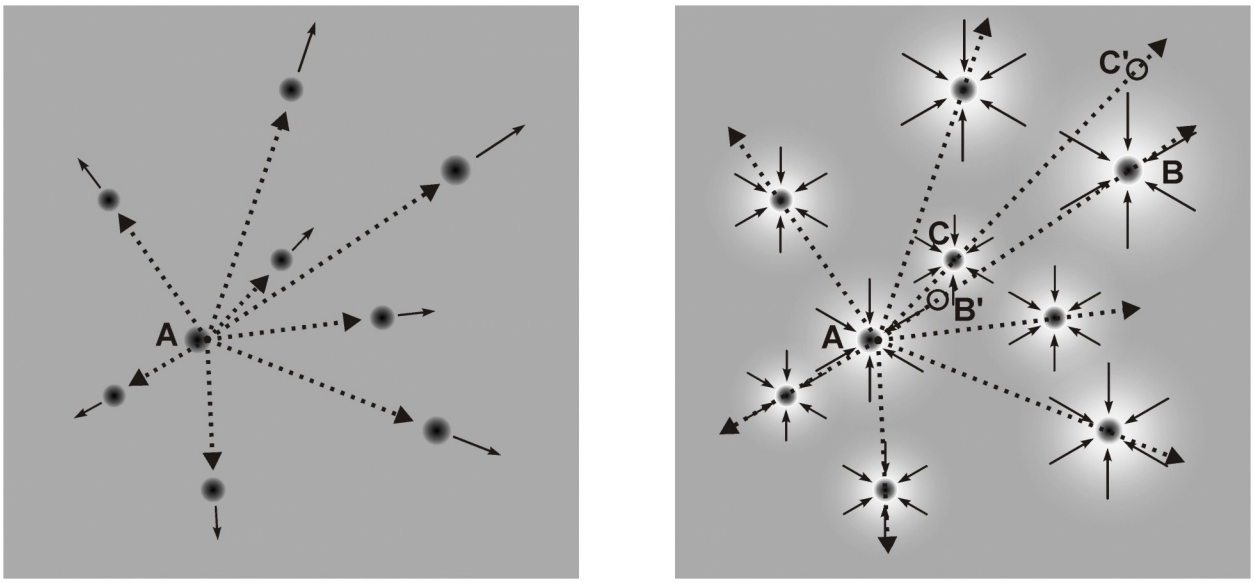
A spiral's planar vortex could not develop nor could it "drain" if its infalling material was not continually compacting/contracting as it coalesced, as portrayed in diagram **2**. Both are accomplished naturally through gravity's inherent runaway coalescing/condensing.

Self-gravity's exponentially decreasing field density presses inward from all sides, as suggested by the heavier arrows, coalescing and condensing/contracting simultaneously. They are inextricably the same process.

As the infalling material nears the galaxy's core, gravity's inward pressure becomes so great that fusion reactions begin collapsing it back into the radiation it originated from. It's then spewed out equally from the top and bottom as high velocity, bipolar jets that act as the spiral's drain, represented as visible.

Diagram **3** conceptually depicts how the size of the water molecules along the two-dimensional surface of a sink's draining vortex remains constant. The vortex necessarily curves downward due to self-gravity's downward-only pressure at the Earth's surface, indicated by the heavier arrows. From above, its vortex appears the same as a galaxy's because of the foreshortened perspective. Both functionally achieve the same necessary result: draining.

(The whirlpool image is a modified black and white negative of NGC 628 taken by the Gemini Observatory - GMOS Team with the Gemini North Telescope on Hawaii's Mauna Kea.)



1. BIG BANG'S IMPOSSIBLE UNIFORM EXPANSION IN THREE DIMENSIONS

2. GRAVITY'S CEASELESS COALESCING/ CONDENSING AT EACH GALAXY

Fig. 5: UNIVERSAL EXPANSION VS. CEASELESS COALESCING

The smooth gray background in diagram **1** portrays the big bang's physically impossible, uniform expansion of three-dimensional (nonextant) space. The dots represent galaxies that are assumed to be moving away equally from every other galaxy because of the universe's two-dimensional curvature that theoretically expresses like the surface of a sphere.

The solid arrows indicate each galaxy's direction of motion from our position at **A**, which in reality would be radial in three dimensions as it appears. Their length corresponds to the galaxy's inferred recessional velocity and redshift that's believed to increase with distance due to space's stretching.

Diagram **2** portrays an infinitely vast, eternal universe in a very dynamic but steady-state condition. Each galaxy is perpetually recycling its own constant infall of ever-coalescing/ condensing material. Their motion is limited to their gravitational interplay while their material is continuously migrating inward, ceaselessly coalescing and condensing because of self-gravity's innate runaway nature. Ultimately, it's collapsed back into radiant energy and radiated or ejected out. In due course, it slows and cools enough to become ordinary matter again that can be gravitationally captured by its or a different nearby galaxy to be recycled.

The dots in **2** also represent galaxies with our location at **A**. The diffusing background at each galaxy depicts in section view their gravity field's exponentially decreasing density. The inward pointing arrows at each galaxy indicate the ceaseless, omnidirectional coalescing/condensing of its infalling material. Their length corresponds to its infall velocity.

That infall velocity, together with our own infall velocity at our own galaxy, produces a recessional velocity. This is a factual source, if not the only source, of each galaxy's redshift. Depending on the type, orientation, and gravitational interaction, the material of a small number of galaxies has a closing velocity that produces a corresponding blueshift.

With redshift no longer an indication of distance, every galaxy can literally be any distance away along its line of sight. A small, compact, massive galaxy with a high redshift that appears to be millions of light-years away, like at **B**, could literally be right next door at **B'** and we'd never know it. Or a galaxy that appears very close with a lower redshift, like at **C**, may actually be a great distance away at **C'**. There's no way of knowing from cosmological redshifts.

Also, because size decreases incrementally in the ever-decreasing density of a gravity field, the galaxy at **B'** that appears millions of light-years away may actually be that far if we were to attempt to travel there.

Regardless of cosmological ideology, if the Doppler effect is real and if gravity is in fact a runaway process, both of which are widely held and difficult to refute, then the resultant redshift from every galaxy's constant infall of ever-coalescing/condensing material has to be accounted for. It cannot be ignored. This again means multiple redshift sources that again invalidate the big bang.

One of its advantages over other alternatives is that it can also produce a blueshift from a Doppler effect. No additional ad hoc theories are necessary. The infalling material for some galaxies under a variety of specific but ordinary circumstances would have a closing velocity. An obvious example would be a pair of spiral galaxies whose outer material would be rotating toward each other.

This is perfectly consistent with observation. Most blueshifted galaxies are, or appear to be, relatively close. Those distant appearing, more compact galaxies with higher redshifts, like a quasar, would have higher mass with higher infall velocities for more of its material that'd give it higher recessional velocities. They inherently lack the necessary or visible conditions that would cause its material to have a closing velocity with our position in our galaxy. (See **Figure 6: RED/BLUE SHIFT FROM A GALAXY'S INFALLING MATERIAL**, next page.)

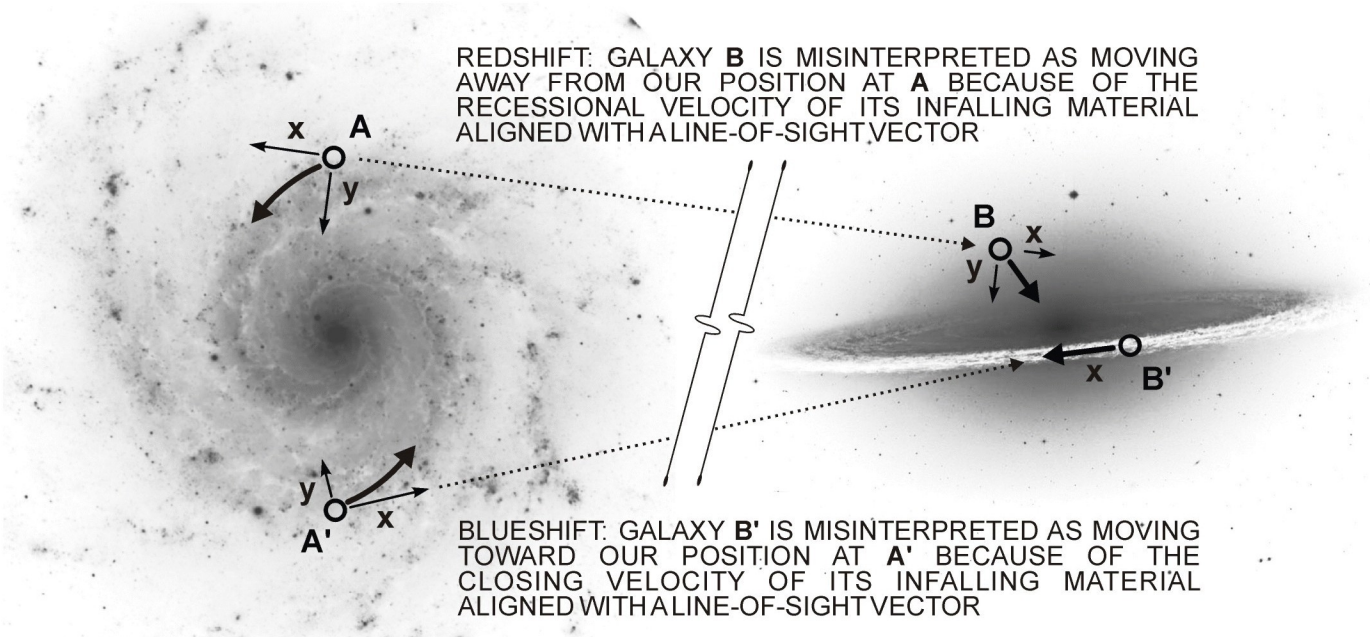


Fig. 6: RED/BLUE SHIFT FROM A GALAXY'S INFALLING MATERIAL

One of the reasons the Doppler effect from each galaxy's continuous infall of ever-coalescing/condensing material is such a reasonable alternative to the redshift from space's stretching is that it can also produce a blueshift. No other theory offers that possibility.

Many factors can contribute to the material's recessional or closing velocity: the type and mass of the galaxy, the location on the galaxy where the shift is recorded, the velocity and angle of its infalling material, the direction and rate of its rotation, its gravitational interplay with our or other galaxies, etc. Ultimately, all that can be known for certain is that there exists a line-of-sight recessional/closing velocity with our galaxy due to its continuous infall, which is either red or blue shifting its light.

If we were located at **A**, we'd be swirling around our galaxy's vortex of infalling material in the direction of the heavier, curved arrow. If we were looking opposite our direction of infall at a galaxy's stars at location **B**, our rotational velocity would yield line-of-sight vectors for all three dimensions, **x**, **y** & **z** of our infall velocity. The **z** vector in the third dimension is omitted for clarity.

For the material at **B**, which could be located in an elliptical galaxy or the central bulge halo of a typical spiral as pictured, it too would have three infall velocity vectors keyed to our line of sight. But we can only perceive the rate of the line-of-sight **x** vector. And even then, we couldn't know how much to allocate to us or the other galaxy's infalling material. All we can be certain of is that **x** at **A** plus **x** at **B** gives us a line-of-sight recessional velocity and a corresponding redshift.

As an example of blueshifting, if we were located at **A'** looking in the direction of our infall at the oncoming material at the edge of another spiral at **B'**, there'd be a closing rate where (-)**x** at **A'** plus (-)**x** at **B'** would yield a line-of-sight closing velocity and a corresponding blueshift in the spectrum of that galaxy's light.

These simple illustrations conceptually represent just two of the countless possibilities for the factual source of red or blue shift from the constant infall of ever-coalescing/condensing material at each galaxy that's perpetually recycled through fusion reactions because of gravity's intrinsic runaway nature in an infinitely vast, ageless universe.

(The whirlpool image also used in other diagrams is a modified black and white negative of galaxy NGC 628 taken by the Gemini Observatory - GMOS Team with the Gemini North Telescope on Hawaii's Mauna Kea. The "Sombrero" image is a modified black & white negative of NGC 4594 taken by NASA/Hubble Heritage Team.)

Another even more decisive advantage is that it resolves a persistent and difficult and disqualifying contradiction for the big bang. Many associated galaxies, even some that share common material, have redshifts that are significantly different. Since redshift is supposed to correspond with distance, this should be impossible. They should be separated by a considerable distance along their line of sight. But they can't be if they're interrelated [26]. Tired light, also an indication of distance, is beset by this same disconfirming predicament, or it would be with a conventional interpretation of distance.

Apart from the apparent fact that determining a galaxy's red/blue shift is as much art as it is science, this invalidating conflict is usually rationalized with additional red/blue shift, again from the Doppler effect. It's attributed to the incompatible galaxy that's inferred to have unique, individual, or "peculiar" motions. But this again creates even more red/blue shift sources that again have no way of being precisely apportioned, which again demonstrates the futility of trying to justify the big bang.

But when red/blue shift originates from the Doppler effect from the recessional velocity of each galaxy's own constant infall of ever-coalescing/condensing material, the problem completely disappears. Distance, in the traditional sense, is a nonissue. Any number or configuration of galaxies can be associated or fully interconnected, even merging, and each can still retain their own individual red or blue shift that's established solely by their unique circumstances in relation to ours. (See **Figure 7: MERGING GALAXIES**, next page.)

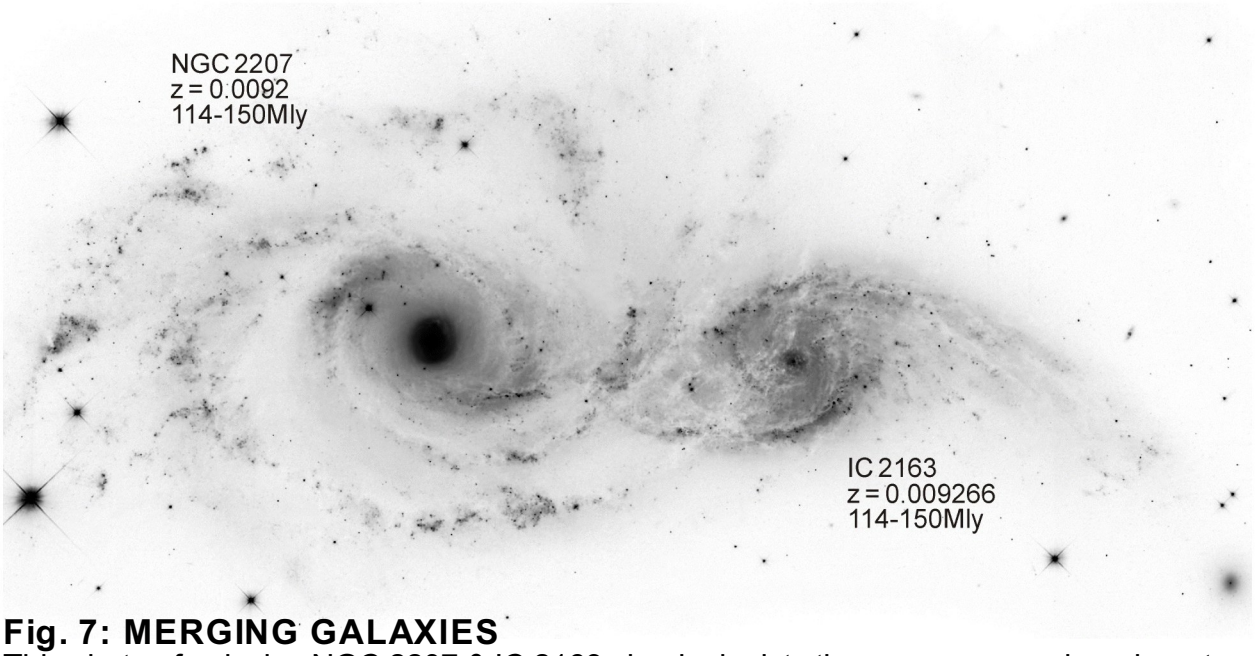


Fig. 7: MERGING GALAXIES

This photo of galaxies NGC 2207 & IC 2163 clearly depicts the common paradox where two (or more) galaxies are interacting, or even merging, but one clearly seems farther away than the other. The smaller, more distant appearing IC 2163 on the right can't have a corresponding higher redshift if it's sharing material with its larger, closer appearing associate.

Establishing a galaxy's redshift involves much guesswork. It's a complicated and subjective process. Astronomers are constantly judging, estimating, making assumptions, and relying on their personal interpretations. Sometimes they even choose different methods, photometry/spectroscopy, when selecting, isolating, and analyzing absorption/emission samples [27][28].

The problem is, it's nearly impossible for them to retain a reasonable degree of objectivity during the process. They're continuously pressured and unduly influenced by groupthink's mandatory big bang narrative that for them has evolved into fact, despite its overt untenability.

Fully invested, they're highly motivated to maintain their common ideology. Any newly identified inconsistency is hurriedly explained away and/or rationalized by whatever means necessary. It's classic confirmation bias. And they're unable to avoid it.

NGC 2207 and IC 2163's factual merging when they appear to be separated a great distance along their line of sight is fundamentally incompatible with universal expansion. So it's not a stretch that more objective redshifts might exist that may not be as close as these. IC 2163's might actually be much higher as its compactness indicates.

But when the source of cosmological redshift is the Doppler effect from the recessional velocity of each galaxy's own constant infall of ever-coalescing/condensing material, all of this uncertainty vanishes. There is no conflict. Associated galaxies with different red/blue shifts are perfectly normal. Any pair of galaxies can have any red or blue shift and be any distance away from us and any distance from one another while still interacting. Red/blue shift has nothing to do with distance.

In reality, distance is only a function of field density. As gravity's field density decreases exponentially inward toward the center of each galaxy, size decreases incrementally, which in turn increases the center's distance correspondingly in all directions.

NGC 2207 and IC 2163 could literally be merging, just as they appear, while manifesting any red/blue shift. It could also be that their near equal redshifts and explicit interaction/merging are a correct interpretation that at the same time could have them separated by a great distance. There's no way to tell for sure. They may very well be as far apart as their line-of-sight appearance indicates despite their objective closeness.

(This modified black and white negative of galaxies NGC 2207 and IC 2163 was taken by NASA and The Hubble Heritage Team.)

So any high-mass, compact galaxy or quasar that appears distant because of their material's exponential gravitational coalescing/condensing, whose high redshift actually originates from its high infall velocity could literally be any distance away along its line of sight. It could very well be residing right next door just outside our own galaxy and we'd never know it. Only someone positioned outside our galaxy perpendicular to the other's line of sight could judge its conventional distance.

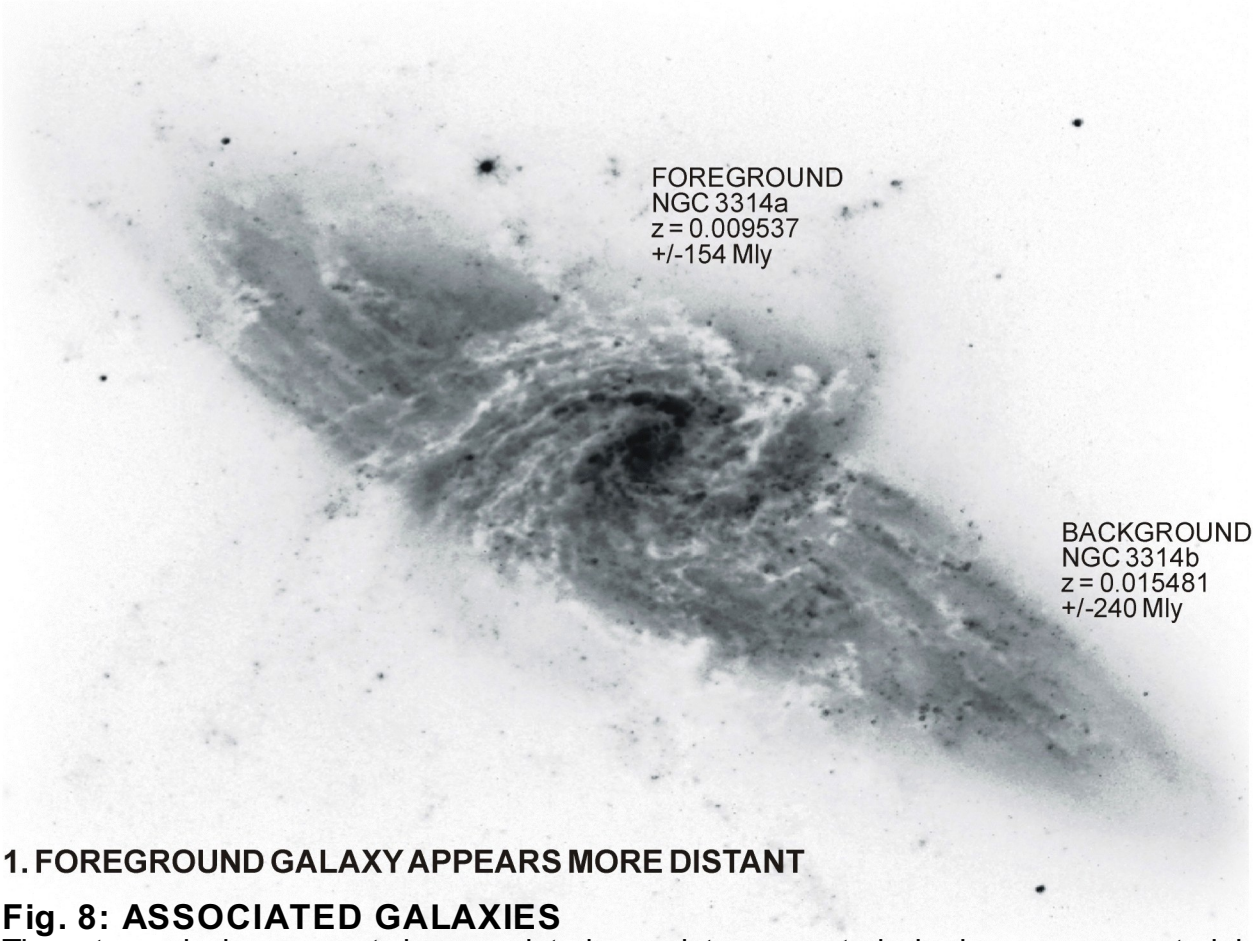
Despite its apparent closeness to our galaxy from the outside observer's perspective, it'd still be just as distant as it appears to us. If we, or even the outside observer, were to attempt to travel to its center, we'd be contacting in unison with its ambient environment's exponential condensing that would be extending our journey exponentially.

And it's doubtful that we'd have any way of ever perceiving our progressive contraction. All our measuring devices would also be contracting in unison. Even light's speed likely slows at a rate that exactly compensates for our continual condensing. Its propagation correspondingly slows as gravity's field density decreases.

These evident circumstances do not necessarily preclude any of the cited alternatives. For tired light, distance is still distance. It doesn't matter how it's conceived/attained. Constant unit size in constant field density or decreasing unit size in a corresponding decreasing field density, it's the same either way.

Gravity's runaway coalescing/condensing exponentially decreases field density that always exponentially decreases size will always create exponentially increasing distance. It likewise always creates exponentially increasing recessional velocity that has an associated Doppler redshift.

So any of these alternatives could still be a viable redshift source for any high-mass, compact galaxy, including those that are closely associated but have notably different redshifts. But it doesn't work for universal expansion. Both its stretching space or Doppler effect rely on a relative line-of-sight distance with a constant unit size. (See **Figure 8: ASSOCIATED GALAXIES**, next page.)



1. FOREGROUND GALAXY APPEARS MORE DISTANT

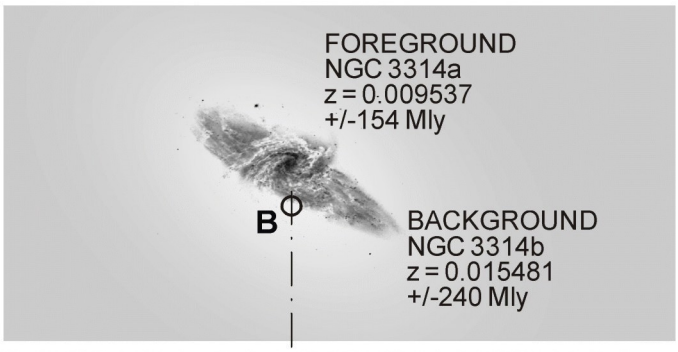
Fig. 8: ASSOCIATED GALAXIES

These two galaxies appear to be associated, even interconnected, sharing common material. But their recorded redshifts indicate they should be about 86Mly apart along their line of sight. What's even more interesting is that the smaller, more condensed, fainter, more distant appearing NGC 3314a is the foreground galaxy with a redshift that's about 64% of its larger, brighter, closer appearing counterpart, as represented in diagram **3** next page [29]. According to the big bang, though, more distant galaxies should have higher redshifts.

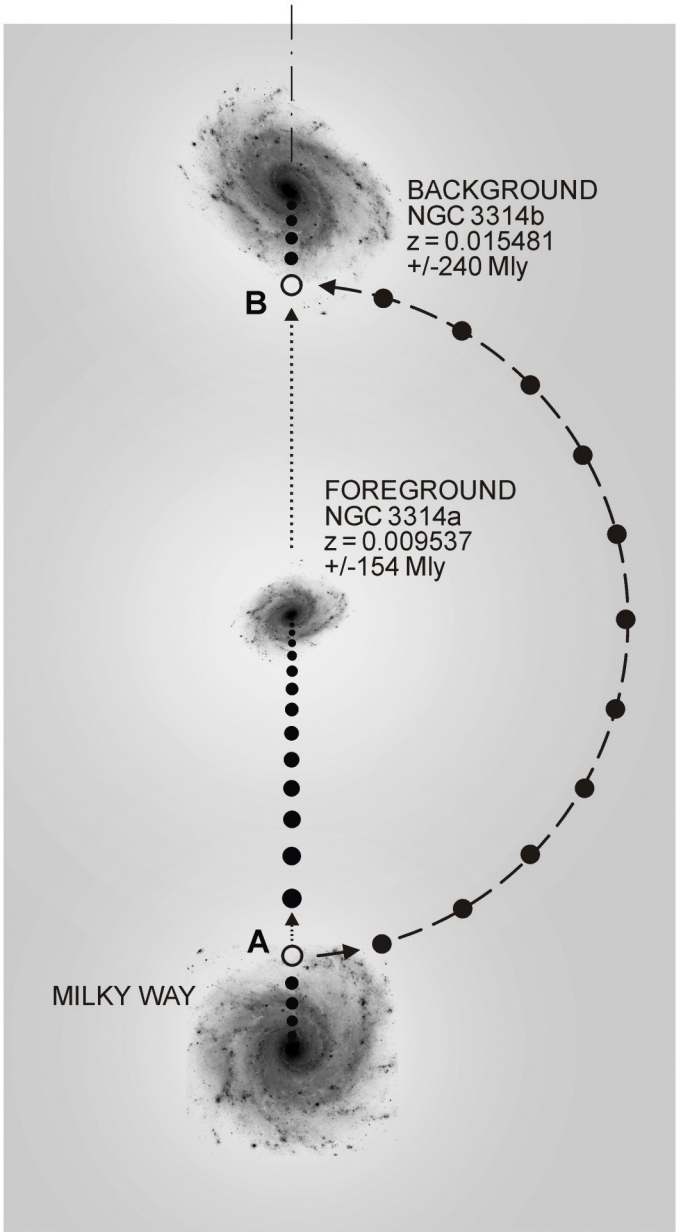
This contradiction is a nonissue in an infinitely vast, eternal, nonexpanding universe that's continually recycling its material through each galaxy. Cosmological redshift is the product of the Doppler effect from the recessional velocity of each galaxy's constant infall of ever-coalescing/condensing material together with our own infall velocity in our own galaxy. It would not be inconsistent for either of these galaxies to have a higher or lower redshift than the other or that their redshifts originated from multiple sources. They have no need to sustain the universe's presumed expansion.

Moreover, it's altogether reasonable that the smaller, foreground NGC 3314a could in fact be farther away than the larger, background NGC 3314b while occupying a position in front of it. Distance is a product of gravity's ever-decreasing field density. It always condenses inward exponentially toward the center of any mass, particle or galaxy, which innately decreases their size while increasing their distance from every other particle or galaxy.

(This modified black and white negative of galaxies NGC 3314a & b was taken by NASA and The Hubble Heritage Team.)



2. NGC 3314a & b FROM MILKY WAY AT A



3. TOP VIEW: MILKY WAY, NGC 3314a & b

ASSOCIATED GALAXIES CONT.

From a line-of-sight view, galaxy NGC 3314a & b appear to be associated, diagram **1** & **2**. But according to their redshifts, the smaller, less bright, more compact, more distant appearing NGC 3314a is actually located about halfway between us and the larger, brighter, closer appearing NGC 3314b, as implied in diagram **3**. This relationship defies big bang orthodoxy.

But it's perfectly consistent with a redshift that originates from the Doppler effect from the recessional velocity of each galaxy's constant infall of ever-coalescing/condensing material. As its smaller size suggests, the foreground NGC 3314a could even be farther away than the background NGC 314b if we were to attempt to travel there.

Distance is a function of an object's/reference frame's contracting size, time's synchronized contracted rate, and light's corresponding contracted velocity in gravity's exponentially decreasing field density, portrayed in section view by the diffusing background. So the distance between and the size of each dot in the sequence from the edge of our galaxy at **A** to NGC 3314a's center remains the same for someone traversing them. Only an outside observer in a different reference frame could perceive their decreasing separation and the traveler's decreasing size.

It's entirely possible that the distance may be shorter and it'd take less time to travel from **A** to the edge of NGC 3314b at **B** by circumventing NGC 3314a altogether, traveling along its perimeter where gravity's field density remains higher, as indicated by the radiused sequence of equally sized and spaced dots.

(The modified photos of galaxies NGC 3314a & b were taken by NASA and The Hubble Heritage Team. The modified photo of galaxy NGC 628 was taken by the Gemini Observatory - GMOS Team with the Gemini North Telescope on Hawaii's Mauna Kea.)

Aside from its simplicity and mundane practicality, the importance of the implications of these factual conditions cannot be overstated. Gravitation's ever-decreasing field density governs a body's size/distance, at all scales, from each individual subatomic particle to each individual galaxy.

The higher a galaxy's mass, the less dense its gravity field, the more condensed its environment, which exponentially decreases its size inward toward its center while exponentially increasing its center's distance from every other galaxy. This in turn creates ever-increasing recessional velocity without universal expansion.

This exotic, totally unorthodox, yet tangible and functional real-world condition cannot be achieved through general relativity's purely theoretical, two-dimensional curving of a nonexistent plane of inconceivable, four-dimensional, nonexistent space-time. Nor can it be obtained through quantum theory's contradictory and elusive, unobservable, massless, exchange particles that in some unknown way convey some kind of metaphysical attraction at the speed of light via waves that somehow pulls bodies together with a force proportional to their mass.

But it is naturally accomplished mechanically through the innate, electrostatic repulsion of any ordinary electromagnetic or gravity field. Their exponential outward diffusion or exponential inward diffusion are intrinsic to basic, three-dimensional, spherical geometry, which is bound to the inverse square law [30].

An electromagnetic field's outward, exponential diffusion repels particles/bodies. Its force diminishes exponentially as they're dispersed. An (electromagnetic) gravity field's inward, exponential diffusion also repels. But its force intensifies inward exponentially as its ever-increasing, inward diffusion pushes particles/bodies together with ever-increasing force, the product of the same elemental, exponential gradient inherent to spherical geometry.

Gravity's inward diffusing field density simultaneously coalesces and condenses. The processes are one and the same. This naturally gives rise to runaway self-gravitation at each galaxy, which intrinsically creates ever-increasing distance that has an ever-increasing recessional velocity with an associated redshift.

Conclusion

The big bang theory itself invokes either directly or indirectly several other red/blue shift theories that to some unknowable degree negate the redshift from space's stretching: blueshift from a Doppler effect for galaxies with a closing velocity due to gravitation, redshift from a Doppler effect for those galaxies with a recessional velocity due to gravitation in the opposite direction, red/blue shift from a Doppler effect for galaxies with "peculiar" motions, and redshift from a Doppler effect for all galaxies from universal expansion, the original explanation for the big bang's cosmological redshift. Any one of these in combination with redshift from space's stretching causes universal expansion to become indeterminate. There's no way of ever knowing how much red or blue shift to allocate to each. So the big bang is altogether untenable.

It's reasonable, even likely, that several other redshift sources could also originate from galaxies. And there may be more that aren't so reasonable. None are dependant on space's stretching or the Doppler effect: gravitational redshift, Einstein's version of gravitational redshift, gravitational time dilation, relativistic time dilation, the charge induced to a galaxy's material from its motion through or rotation in the universe's constituent electromagnetic field, light's innate slower velocity in the decreased density of a galaxy's gravity field, and tired light's energy loss over distance. If any one of these coexists with space's stretching, universal expansion again becomes indeterminate. And again the big bang becomes entirely unworkable.

In our nontheoretical, three-dimensional universe, it's conceptually impossible for light's velocity to remain fixed. It can only compound with the motions of its source while its rate varies in the varying density of electromagnetic/gravity fields.

Light's compounding has always been incorrectly inferred as invariance. Every body/reference frame with relative motion is traveling faster than light for outside observers while it remains constant for those in the reference frame. Anything else is conceptually impossible.

This single fact by itself is devastating for cosmological redshift. All of its other invalidating redshift discrepancies pale by comparison. Having been conceived with light's presumed but impossible invariance as its underlying premise, it becomes meaningless. It completely collapses, which in turn topples the big bang. And there's no ad hoc workaround that can salvage it. Cosmological redshift has to originate from some other source than space's stretching/universal expansion.

By far the most rational alternative is the Doppler shift from the recessional or closing velocity of each galaxy's own ever-increasing infall of ever-coalescing/ condensing material. This occurs naturally. Gravity is inherently a runaway process.

The resultant Doppler shift compounds with our own ever-increasing infall at our own galaxy to produce either a red or blue shift depending on individual circumstances. At least some, if not all, of a galaxy's red/blue shift has to originate from this factual source, which again completely subverts the big bang.

The ever-increasing recessional velocity of the ever-increasing infall of their material causes galaxies to appear like they're racing away from one another. When in reality, they remain relatively stationary. Like all other alternatives, this yields an infinitely vast, ageless universe.

But this one is unique. It's incredibly dynamic. It maintains a constant steady-state by continuously recycling its material back into the radiant energy it originated from through fusion reactions triggered near the center of each galaxy by runaway gravitation's ever-increasing pressure. At its most efficient, mature spirals expel it as high-velocity jets. Over time, it slows, cools, and eventually reconstitutes back into ordinary matter that can start gravitating back to its or another nearby galaxy to begin the process all over again.

Regardless of cosmological redshift's true source(s), our real universe is not and cannot be anything like the big bang we're expected to embrace.

Declarations

The author declares no conflict of interest. The author also certifies that he did not receive any funding, grants, or any type of support from any individual, institution, or organization in the connection with the study or preparation of this work. The author further certifies that he does not have any financial or competing interests in connection with this work or ties of any kind to any individual or organization that might. The author also affirms that no artificial intelligence was used to create the text or images or any other aspect of this work.

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