Why Does the Universe Seem to be Expanding?

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(This original article can be found here)

At least eleven times, the Bible says that God "stretched out" or "stretches out" the heavens. [See Table below.] For emphasis, important ideas are often repeated in the Bible. While we may have difficulty visualizing this stretching, we can be confident of its significance.

Job 9:8	"[God] stretches out the heavens."
Psalm 104:2	"stretching out heaven like a tent curtain." [see footnote 1]
Isaiah 40:22	"He ... stretches out the heavens like a curtain and spreads them out like a tent"
Isaiah 42:5	"... God the Lord, who created the heavens and stretched them out"
Isaiah 44:24	"I, the Lord, am the maker of all things, stretching out the heavens by Myself"
Isaiah 45:12	"It is I who made the earth and created man upon it. I stretched out the heavens with My hands"
Isaiah 48:13	"Surely My hand founded the earth and My right hand spread out the heavens."
Isaiah 51:13	"the Lord your Maker, Who stretched out the heavens and laid the foundations of the earth"
Jeremiah 10:12	"He has stretched out the heavens"
Jeremiah 51:15	"He stretched out the heavens"
Zechariah 12:1	"the Lord who stretches out the heavens"

The context of each of the above verses deals with creation. Although past and present tenses (stretched and stretches) are expressed in these English translations, Hebrew verbs do not generally convey past, present, or future. Translators must rely on context and other clues to try to determine verb tense.

Even if we knew the intended Hebrew tense, is the stretching from God's perspective or man's? The creation

was completed in six days (Exodus 20:11), suggesting that in God's time the heavens were stretched out during the creation week, perhaps on Day 4. However, in our time, some redshifted light from extreme distances—a consequence of this past stretching—is reaching us now.

The Hebrew word for stretched is *natah*. It does not mean an explosion, a flinging out, or the type of stretching that encounters increasing resistance, as with a spring or rubber band. Natah is more like the effortless reaching out of one's hand.

Expansion: Big Bang or Stretching?

The stretching explanation, proposed here, has similarities and differences with the big bang theory. Both the big bang and stretching explanations describe a very rapid expansion of the universe, beginning soon after time began, when not all laws of physics applied. As one big bang authority states:

In its standard form, the big bang theory maintains that the universe was born about 15 billion years ago from a cosmological singularity—a state in which the temperature and density are infinitely high. Of course, one cannot really speak in physical terms about these quantities as being infinite. ***One usually assumes that the current laws of physics did not apply*** *[during the big bang's rapid expansion]. … One may wonder, What came before? If space-time did not exist then, how could everything appear* ***from nothing****? What arose first: the universe or the laws determining its evolution? Explaining this initial singularity—where and when it all began—still remains the most intractable problem of modern cosmology.*[2] *[emphasis added]*

The stretching explanation, in contrast to the standard big bang theory, does not begin at a singularity, an infinitesimal point.[3] Nor does energy expended in stretching out the heavens come from within the universe or during its first trillionth of a trillionth of a ten-billionth of a second (10-34 second) or less, as with the big bang theory. Energy flowed into the universe as the stretching progressed. According to the big bang theory, stars, galaxies, and black holes began forming after hundreds of millions of years. According to the stretching explanation, these bodies were formed (or began) near the beginning of time—during the creation week. Because matter and starlight occupy space, they were also stretched. You can decide which explanation the following surprising evidence supports.

	Big Bang	**Stretching**
The universe was once much smaller. It began soon after time began and before the laws of physics came into operation. Energy and matter appeared out of nothing.	Yes	Yes
Expansion began at almost a mathematical point.	Yes	No
Expansion energy came from within the universe.	Yes	No
The initial temperature and density of matter was	nearly infinite	finite
The expansion	continues today	was a brief event
All expansion energy was expended	within a tiny fraction (10 to	as the expansion proceeded

	the -34) of a second	
Stars, galaxies, and black holes began forming	after 500,000,000 years, in an expanded universe	before the expansion
When did the expansion occur?	Expansion has been going on ever since the Big Bang	Expansion occured during the creation week.
Why is distant light redshifted?	The more distant the light source, the greater the expansion rate.	The light we see today from very distant objects shows the amount of stretching the light experienced.

The Evidence

Accelerating Expansion. The redshift of distant starlight suggests an expansion. However, a big bang should produce only a decelerating expansion, not the accelerating expansion observed. [See Dark Thoughts] Stretching, completed during the creation week, could have produced the accelerated expansion that is shown by the light that has finally reached Earth from the edge of the visible universe.

Star Formation. Astronomers recognize that the densest gas cloud seen in the universe today could not form stars by any known means, including gravitational collapse, unless that gas was once thousands of times more compact.4 Apparently, stars were formed as, or before, the heavens were stretched out.

Black Holes. A black hole is at the center of at least every nearby galaxy. (Black holes are so massive that nothing can escape their gravity—even light.) Astronomers admit that black holes must have existed very soon after the universe began,5 but the big bang theory says that all matter was spread out uniformly after 300,000 years, before stars formed. That uniformity would prevent gravity from forming galaxies and black holes even over the supposed age of the universe.6 However, stars and black holes could easily have formed or existed soon after the creation of matter and the universe, when the universe was much smaller7 and the heavens had not yet been stretched out. Had this stretching not occurred, all the matter in the universe would have collapsed into a black hole. Life would not exist.

The sizes of black holes at the center of galaxies and the sizes of the central bulges of galaxies are positively correlated with the sizes of galaxies. According to the standard explanation for galaxy formation, this should not be.[8] However, if the matter that formed galaxies and black holes was once inside extremely compact space, the largest galaxies should have the largest black holes and central bulges.

Central Stars. About forty stars are orbiting within a few dozen light-hours of the black hole at the center of our Milky Way Galaxy. Those stars could never have evolved that close to a black hole, which has the mass of 4,000,000 suns. The black hole's gravity would have prevented gas from collapsing to become a star.[9] However, those stars could have formed in a much denser environment,[10] before space was stretched out during the creation week.

Spiral Galaxies. If spiral galaxies formed billions of years ago, their arms should be wrapped more tightly around their centers than they are. Also, nearer galaxies should show much more "wrap" than more distant spiral galaxies. [See Figure 170 on this page] However, if space was recently stretched out, spiral galaxies could appear as they do.

Heavy Elements in Stars. According to the big bang theory, there are three generations of stars, each with increasing amounts of heavy elements. The first generation would have contained only hydrogen and helium. After hundreds of millions of years, second-generation stars would begin forming with heavier elements made inside first-generation stars that later exploded. Although some first-generation stars should still be visible, not one has ever been found.

According to the stretching explanation, stars have always had some heavier chemical elements. Telescopes that can see the farthest back in time see stars, galaxies, and quasars containing these heavier chemical elements.

Stellar Velocities. Stars in the outer parts of spiral galaxies travel much faster than they should based on physical laws. However, if only thousands of years ago those stars were nearer the centers of their galaxies before the heavens were stretched out, they could have had the higher speeds we see. Those speeds would remain even after the heavens were stretched out. (So-called dark matter, which has not been directly measured or detected, would not need to be imagined to explain these velocities.)

Speeding Galaxies. A similar observation can be made about tight clusters of galaxies. Galaxies in clusters are traveling much faster than they should, based on their distances from their clusters' centers of mass.

Distant Galaxies. Massive galaxies and galaxy clusters are now found at such great distances that they must have formed soon after the universe began. The big bang theory cannot explain how such galaxy concentrations could have formed so quickly and so far away.[11] The stretching explanation says that galaxies and galaxy clusters began before the heavens were stretched out, when all matter was relatively confined.

Strings of Galaxies. It is widely recognized that gravity would not pull matter into long strings of hundreds or thousands of galaxies—even if the universe were unbelievably old. Instead, gravity, if acting over enormous time and distances, would form more spherical globs of matter. Yet, long, massive filaments of galaxies have been discovered.[12]

These strings of galaxies can be understood if galaxies were formed when all matter in the universe was initially confined to a much smaller volume. (In that small volume, stars and galaxies formed either by the direct acts of a Creator or by the powerful gravitational forces resulting from so much extremely confined mass.) Then, the heavens were rapidly stretched out. Just as one might pull taffy into long strings, the stretched out heavens might contain long, massive strings of thousands of galaxies. A surprising number appear connected or aligned with other galaxies or quasars, as prominent astronomers have noted. [See Connected Galaxies.]

Star Streams. Some stars within our Milky Way Galaxy are moving in paths and with velocities that show they were captured from neighboring dwarf galaxies. The stars in each stream also have common chemical characteristics. Most of these dwarf galaxies have been completely "consumed" by our galaxy.[13] However, one

of them, Sagittarius, is still visible, but its orbit and its core of tightly packed stars are too far away to be captured by the Milky Way's gravity.[14]

All this can be explained in two ways: (1) before the universe was stretched out, Sagittarius and the consumed dwarfs were formed but much closer to the initial Milky Way Galaxy, or (2) dark matter (if it exists at all) was distributed in unknown ways that helped form these dwarf galaxies and placed them in different orbits that allowed them to be captured and cannibalized by the Milky Way Galaxy. Obviously, hypothesis (1) is the simpler of the two.

Dwarf Galaxies. Dwarf galaxies are sometimes imbedded in a smoothly rotating disk of hydrogen gas that is much larger than the galaxy itself. The mass (hidden or otherwise) of each dwarf galaxy and its surrounding gas is insufficient to pull the gas into its disk shape,[15] but if this matter was once highly concentrated and then the space it occupied was recently stretched out, all observed characteristics would be explained.

Dwarf Galaxy. A vast hydrogen disk (blue) surrounds the dwarf galaxy UGC 5288 (bright white). This isolated galaxy, 16 million light-years from earth, contains about 100,000 stars and is 1/25 the diameter of our Milky Way Galaxy, which has at least 100,000,000,000 stars. The dwarf's mass is about 30 times too small to gravitationally hold onto the most distant hydrogen gas, so gravity could not have pulled the distant hydrogen gas into its disk. Because the gas is too evenly distributed and rotates so smoothly, it was not expelled from the galaxy or pulled out by a close encounter with another galaxy.

Hydrogen gas would have assumed this shape if space was once more compact and later was stretched out. Before the stretching, gravitational forces would have been much more powerful, thereby producing this smooth rotational pattern. This would have occurred recently, because the gaseous disk has not dispersed into the vacuum of space. (The galaxy is seen in visible light; the hydrogen disk is seen by a fleet of 27 radio telescopes.)

Colliding Galaxies. Some galaxies contain two distinct rotating systems, as if a galaxy rotating one way collided with another rotating the opposite way. Based on the speeds of galaxies we see and their separation distances today, such mergers would take billions of years.

Does this mean that the universe must be billions of years old? No. Before the heavens were stretched out, galaxies would have been closer to each other, resulting in much greater speeds and frequent collisions. Today, galaxies are stretched so far apart that, according to astronomers' calculations, collisions should rarely happen. However, past galactic mergings are surprisingly common.[16]

If some galaxies merged over billions of years, why haven't the different rotations within a merged galaxy homogenized by now? Obviously, the mergings did not happen billions of years ago.[17]

Helium-2 Nebulas. Clouds of glowing, blue gas, called helium-2 nebulas, have been set aglow by something hot enough to strip two electrons from each helium atom. No known star—young or old—is hot enough to do so,[18] but compressed conditions before the heavens were stretched out would do this.

Dark "Science." The big bang theory must invoke unscientific concepts, such as "dark matter" and "dark energy," to try to explain the "stretched out heavens." What is dark matter and dark energy? Even believers in those ideas don't know.[19] [Dark matter, dark energy, and many other scientific problems with the big bang theory are discussed, beginning on page 30.]

Cosmic Microwave Background (CMB). The CMB is often given as evidence for the big bang theory.

Actually, that radiation, when studied closely, is a strong argument against the big bang and evidence for the sudden creation of matter within an immense universe.

Summary

With both the big bang and stretching explanations, it is difficult to imagine time beginning, the sudden presence of matter and energy in a small universe, a brief period when laws of physics did not operate, and space expanding. The big bang theory says that space expanded for a brief fraction of a second from a mathematical point—trillions of billions of times faster than the speed of light today. The stretching theory says that a much smaller universe than we have today was rapidly stretched out, along with the matter and light in that space. Although no scientific explanation can be given for either form of expansion, we can see which explanation fits the observable evidence.

We also can appreciate why at least eleven Bible passages, involving five different writers, mention the "stretched out heavens." Another verse, Psalm 19:1, takes on a new depth of meaning: "The heavens are telling of the glory of God, and their expanse is declaring the work of His hands."