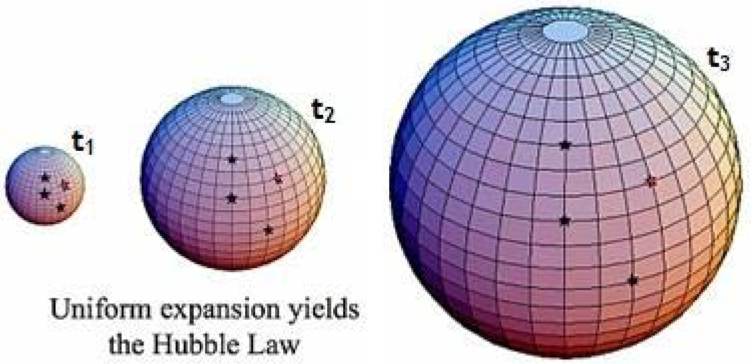
What would happen if you run the deflation time and hit its "limit" at time zero "outside" the universe? What's out there? Read about *physical theology* at p. 12 in *Über Die Gravitationsfeldrelativitätstheorie*. The physical world is *retarded light* + photons in 4+**0**-D spacetime: read my note about the Platonic world along **W** here.

To understand the so-called evolution equation, check out the diagram here and

Andrei Petrut, December 31, 2019
https://www.quora.com/Can-we-travel-at-the-speed-of-light/answer/Andrei-Petrut-2

"Everything travels through spacetime at the speed of light. (...) Note that I said **spacetime**. (...) We all move at the total speed of light, **c**, through spacetime, with the speed spread between space and time. We can't go faster than light through space. *And we neither can go faster nor slower than light through spacetime*. It's the constant speed of everything in the fabric of spacetime."

In physical cosmology (Wikipedia), the age of the universe is presented with *clopen* interval [AB), 13.799 ± 0.021 billion years: A = 0, whereas B grows indefinitely. Namely, [0, ... , t_1, t_2, t_3, ...), as depicted in the drawing below.



However, the creation of the Universe at time zero, [AB] = 0, is **non**-event, which does not belong to the spacetime manifold of the *surface* of the balloon. It is at the center of the balloon, outside the inflating 4D surface of the balloon above.

Ditto to the other "limit" [AB] = ∞, corresponding to infinite universe: it does not belong to spacetime manifold either. We face a bundle of two unphysical Platonic states of the entire Universe as ONE, [AB] = 0 and [AB] = ∞, which are "outside" their *physicalized* projections or "shadows" inside balloon's 4D surface, as Plato suggested many centuries ago.

The solution of this non-trivial problem of spacetime topology is *Zenon manifold*: read pp. 14-15 in *Spacetime Engineering* at this http URL, available also at my website chakalov.net.

D. Chakalov
31 March 2019
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Expansion of the universe

https://en.wikipedia.org/wiki/Expansion_of_the_universe

The expansion of the universe is the increase of the distance between two distant parts of the universe with time.[1] It is an intrinsic expansion whereby the scale of space itself changes. The universe does not expand "into" anything and does not require space to exist "outside" it. Technically, neither space nor objects in space move. Instead it is the metric governing the size and geometry of spacetime itself that ***changes in scale*** (read pp. 11-14 in synopsis.pdf – D.C.).

The universe is expanding faster than light. What would happen if you went faster than the universe and went "outside" the universe? What's out there?

https://www.quora.com/The-universe-is-expanding-faster-than-light-What-would-happen-if-you-went-faster-than-the-universe-and-went-outside-the-universe-What-s-out-there

Viktor T. Toth, July 19, 2018

The universe is not expanding faster than light. The expansion is not measured by a speed.

It is measured by the Hubble parameter, which has the units of speed divided by distance. It is approximately 70 km/s/Mpc. That means that two galaxies that are one megaparsec (Mpc, about 3.09 million light years) apart are receding from each other at a rate of roughly 70 kilometers per second on average. So two galaxies that are 1,000 Mpc apart recede from each other at 70,000 km/s. And two galaxies that are, say, 10,000 Mpc apart recede from each other at 700,000 km/s, which is more than twice the speed of light. Now if you could move faster than the speed of light, that means that over time, you could catch up with distant galaxies that are beyond our cosmological event horizon and are moving away from us faster than light.

Cool. So what. You are still in an infinite universe with no boundary and no "outside". Say, you moved 1,000 times the speed of light. That means that eventually, you might catch up with galaxies that are nearly 4.3 trillion parsecs from here, moving away from us at almost a thousand times the speed of light. And (at least in the context of the standard theory) you'd still find yourself in a universe that looks, by and large, the same as it does here: expanding, peppered with galaxies, each containing billions of stars.

Note: Since Viktor T. Toth favors "infinite universe", let me quote from Wikipedia: "Mathematically, the question of whether the universe is infinite or finite is referred to as boundedness. An infinite universe (unbounded metric space) means that there are points *arbitrarily* far apart: for any distance *d*, there are points that are of a distance at least *d* apart. A finite universe is a bounded metric space, where there is some distance *d* such that all points are within distance *d* of each other. The smallest such *d* is called the diameter of the universe, in which case the universe has a well-defined "volume" or "scale.""

Thus, shortly “after” the big bang, the universe had *diameter* (see above), but now it is “infinite”. Strange, isn’t it?

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