

## The Big Rip

In current theory, a “big bang” made our space, and it has expanded ever since, but how can space expand? Big bang theory began with the discovery that all the stars and galaxies are receding from us.

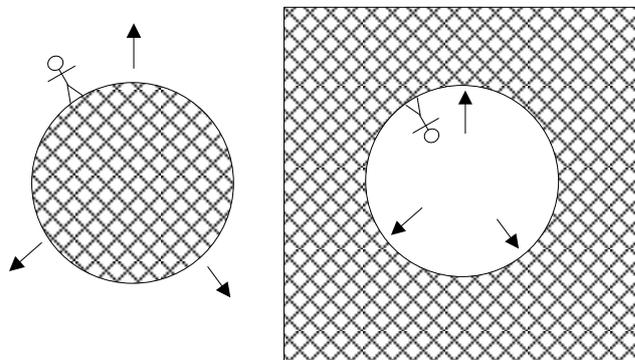


Figure a. The big bang, b. The big rip

So our universe began at a specific point in our time and space. Unless we are the center of the universe, everything began at a point then space expanded, but how can that be? If the universe was a point singularity why didn't it just form a black hole? If it came from a point why isn't the blast result at the edge of the universe not all around us as cosmic background radiation, or TV static? Is the big bang physics or just a creation myth?

In quantum realism, the universe began with a rip not a bang. In the first event a

grid node “broke” into the first light, creating the cataclysm physicists call [inflation](#) and making the free processing of our universe today. The bubble healed the rip by expanding, and the first light to descend into the lower and lower frequencies of today.

A four-dimensional bulk ripping at a point gives a [hypersphere](#) whose inner surface has three dimensions, to carry the vibrations our space carries light. A hypersphere surface, by definition, has no center or edge, so travel in any direction, as on earth, eventually returns to the same place. So radiation first went “out” then wrapped around to end up everywhere. Cosmic back-ground radiation is all around today not far away because it has circled the universe many times. A big bang theory of matter expanding “out” into a pre-existing space makes cosmic background radiation far away. Only if space is the *inner surface* of a 4D grid bubble is it all around, as it is (Figure). Unlike the “singularity” view, this answers questions like:

1. *What is space expanding into?* It is expanding into a surrounding four dimensional bulk.
2. *Where is space expanding?* Everywhere - new grid nodes fill "gaps" that arise everywhere.
3. *Where does the new space come from?* From the bulk around the hyper-bubble.
4. *Are we expanding too?* No, existing matter isn't affected as new space is added.
5. *Was the universe once at a point singularity?* No. It began as a unit photon in a unit volume.

A big bang is an explosion into a pre-existing space, but our first event made space, time and matter. In quantum realism, 3D space is just a surface upon which photons vibrate, time is the cycles of that vibration and the matter we call fundamental is a standing wave vibration.

The Big Rip is section 2.5.1 from Chapter 2 [Simulating Space and Time](#), of the book Quantum Realism by Brian Whitworth, currently under development. The link gives a free early access to the whole chapter. This work is ©Brian Whitworth 2014 but shared under a [Creative Commons Attribution-Noncommercial license](#).