

Re: Does space expand as a sphere?

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From: Brian Tung (brian_at_isi.edu)

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BluMax wrote:

> *I am still wondering if the space that the objects in the universe
> are moving into is infinite. I mean, why not?*

It's somewhat misleading to say the objects are moving into some space; that suggests that the space was always there, and the objects are just now moving into it. Rather, space is being created continually.

In one way, the balloon analogy may help. If you stick a whole bunch of little paper dots onto a balloon and inflate them, the distance between the dots increases. Does that mean the dots are moving into previously unexplored space? No, it just means that space is being created between the dots.

But in another way, the analogy is imperfect, because the balloon itself is embedded in some three-dimensional space (say, your living room). The universe need not be embedded in a higher-dimensional space. It *might* be, and it may be the image that comes most readily to our minds, but it is not at all necessary to explain our observations. At the present time, the question of what is "outside" cannot be formulated scientifically (that is, in terms of concrete observations that would support it or not, aside from a few tenuous theoretical speculations), so it isn't part of standard cosmological work.

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