

Re: expansion

Source: <http://sci.tech-archive.net/Archive/sci.physics/2009-01/msg01730.html>

- *From:* PD <TheDraperFamily@xxxxxxxx>
 - *Date:* Fri, 30 Jan 2009 05:34:14 -0800 (PST)
-

On Jan 29, 10:40 pm, john280109 <vega...@xxxxxxxxxxxxxxxx> wrote:

On Jan 29, 3:12 pm, PD <TheDraperFam...@xxxxxxxx> wrote:

On Jan 29, 2:52 pm, moro...@xxxxxxxxxxxxxxxxxxxxxxxxxxxx (Michael Moroney)
wrote:

john280109 <vega...@xxxxxxxxxxxxxxxx> writes:

On Jan 29, 11:04 am,
moro...@xxxxxxxxxxxxxxxxxxxxxxxxxxxx
(Michael Moroney)

Use your imagination, John.
I mentioned the balloon
surface since it is
the most common example
of something that is
expanding, with no center
and no edge. A physical
object that everyone has
seen, the balloon.

Now, if the nozzle bothers
you, imagine a perfect
sphere that is
expanding. There is no
center of the surface. There
is no edge of the

Re: expansion

surface. Yet dots on the surface will retreat away from each other, and the speed they retreat from each other is proportional to their distance along the surface.

Now, if you paint spots on your sphere's surface and then expand the sphere, all the spots *do not* distance themselves equally; spots directly opposite each other, i.e. the two axes, will go at the rate of growth of the diameter—points closer than half circumference will separate faster.

Now you're cheating. The balloon surface world is two dimensional, but now you're talking about the third dimension, which doesn't exist for the two dimensional balloon

Re: expansion

surface world.

OK, wait, in order to explain the greater universe, which we assume to be real, you want to equate it with something having no center, and also you want it to have no edge—neither of which conditions has been seen in anything real to my knowledge.

I just gave an example.

Plus, you say there's no edge, but you say it's expanding—expanding with relation to what? Is the whole universe expanding? And if not, then what?

Re: expansion

Take the balloon analogy into another dimension. A 3 dimensional "surface" of a 4 dimensional hypersphere. Now, this is much harder to imagine than the balloon, since it's not easy to think in 4 dimensions, as we humans are confined to 3 dimensions. All "dots" (3D objects instead of 2D paint dots) "painted" on the hypersurface will retreat from each other, at a rate proportional to their distance. Just like we see in our universe! You may mention how you could go all the way around and come back to the starting point. There are speed of light limitations, but I see no reason why one of the extremely distant galaxies we see out there may be our very own Milky Way, or a progenitor, as it existed billions of years ago.

Now you may want to bring up the analogy of moving from the surface of the balloon, through the balloon to the other side – clear across the universe, you may say. Maybe so, but that involves the 4th dimension, which is not accessible to us. "Cheating", just like you talked about leaving the surface of the balloon, going through it to the other side.

Re: expansion

It's still pretty far away, for the perfect sphere with the 2D surface

universe, it's "d" away instead of " $\pi*d/2$ " away.

Now if you get even more imaginative, we can think of pinching a partially inflated balloon so that opposite surfaces touch. Opposite sides of the balloon universe become very close, but still require travel through the extra dimension.

In our 3D surface universe, the "wormholes" of science fiction become possible. I don't think such wormholes have anything to do with black holes, and are probably impossible, since they require access to an extra dimension, as well as "something" "pinching" the whole universe.

Many call time the extra dimension. I consider the extra dimension to be spacelike but inaccessible to us. However, the universe expands at a constant rate in this dimension so it is proportional to time, so time has some of the characteristics of the extra dimension.

Gobbledegook–

Now, if we want to talk about gobbledegook, we can

Re: expansion

start talking about
all the gobbledegook you
post on spin here.

So cruel!!

But listen to your argument. An expanding sphere's surface with dots– only the distance along the surface between the dots is considered– the sphere's surface itself is imagined to be flat.

Humph.

Nowhere in my reply did I use the word "flat". It is not flat.

Over a

very short distance things will appear flat, but over a long distance

there will be noticeable distortion. This is nothing new.

Consider the

Earth. I can draw small squares and triangles just fine. But over a

longer distance, things happen. "Rectangular" Wyoming has a different

length for its northern and southern borders. Even larger, if I use the

Equator, the Prime Meridian and the 90 degree meridian, I have a triangle

with 3 right angles.

And this is remarkable because it demonstrates that you can discover that a space (in this case, a surface is a 2D space) is curved WITHOUT stepping far enough off the surface to see the whole closed space or surmise the center of the earth. It is easy to tell that the surface of the earth is curved with precision measurements ON THE SURFACE.

Now you can ask the same question about the 3 spatial dimensions we live in. If they are curved around some center, that center doesn't live in these 3 dimensions, any more than the center of the earth lives on the curved surface of the earth. Moreover, we don't have to move away from these 3 dimensions to determine (with precision measurements) that these 3 dimensions are curved.

The extrapolation is straightforward:

1. Center of earth not on curved 2D surface of earth => center of

Re: expansion

universe not on curved 3D space of universe.

2. There is no center of expansion on 2D surface of sphere => there is no center of expansion in 3D space of universe.

3. Curvature of 2D measurable ON surface without moving OFF surface => curvature of 3D space measurable IN space without moving OFF 3D space.

A flat sphere's surface. OK, you take away a dimension but it's still a sphere? A flat sphere?

The dimension is still there, but inaccessible. Like we humans live in only 3 dimensions, we cannot access any others.

[snip rest of misplaced attack on "flat"]

All I can say is wow!

The book 'Flatlander' has got people imagining dimensions can be added and subtracted from reality.

Not true.

Reality has 3 dimensions.

The center of a sphere is at the sphere's center.

Dots on a sphere's surface are on a curved surface.

Some of your last statements are just incredible gibberish.

Curved 2D? Sorry, doesn't happen.

I'm sorry, John, you don't think the 2D surface of a sphere is curved?

Wow.

John