

ASTR 123 Homework 4

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Our views on Cosmology may be vastly different if we lived in the future universe described in *End of Cosmology*. In that universe the only way we would, or could ever, have knowledge about any cosmic structures not contained in our own cluster would be with well-kept records. As the article pointed out, those records may not even be believed by our descendants.

The homogeneity we observe in the universe helps us dispel scientifically damaging principles such as the Anthropic Principle. We believe that we are not special because our current view of the universe encourages us to believe so. But if we could not ever have the possibility of seeing past our own small section of the universe, we might not have any reason to believe we are not extremely special.

If we lived in the time described in the article, we may even not have a way to tell that we are living in an expanding universe. Furthermore, we may lack the means to estimate the age of the universe at all. One of the greatest clues we have to tell that the universe is accelerating is by observing the distant galaxies. Their redshifts tell us that they are moving away as the universe expands. If there is nothing else to observe, we might conclude that we are living in a flat universe. All of this is due to the event horizon presented in the article. As mentioned, a infinite homogeneous universe cannot be static. However, homogeneity must be observable for us to draw this conclusion.

Thus, in the future universe we might not have the Cosmological Principle. It would simply not exist on the grounds that we would have no place to draw supporting

scientific evidence. All evidence in the form of other structures would have passed beyond the event horizon, leaving us with only the Anthropic Principle.

We might not even have any idea of the big bang. The fact that our universe is expanding has allowed us to infer many things about the birth of the universe. As even the cosmic microwave background radiation will have grown undetectably faint over time, it seems as though the future will hold none of the clues for the big bang which pervade the observable universe of today.

For this reason, I think its always important to remember that scientific theories are never true fact, and they are just theories for a reason. Knowledge has changed countless times throughout history, basic grounds for many theories have been proven incorrect, and there really is no way to know things without any proper evidence. There may be many clues about the universe's origins which have already been lost to us in time, and we may never even know of their existence. At that point, does it make a difference to us whether or not they exist or existed at all? The best we can do is attempt to search for new clues in the seeming information void. Anything less would be to succumb to the lazy idea that we are anything but a momentary spec in the cosmic spectrums of time and space.

3. The is following the idea that antimatter behaves almost the same as regular matter.

If we were made of antimatter, would we know it? In this case, would the matter we observe from our antimatter-self perspectives appear the same as the antimatter we observe from our current-self perspective?