Making The Universe A Better Place

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I think it's important to dream big, to be ambitious, to want to make the world a better place. The question is how we can best go about doing this. To answer this, we need both science and ethics. In the process, we get to see an amazing journey from our own lives to the very end of the universe – and a major plot twist.

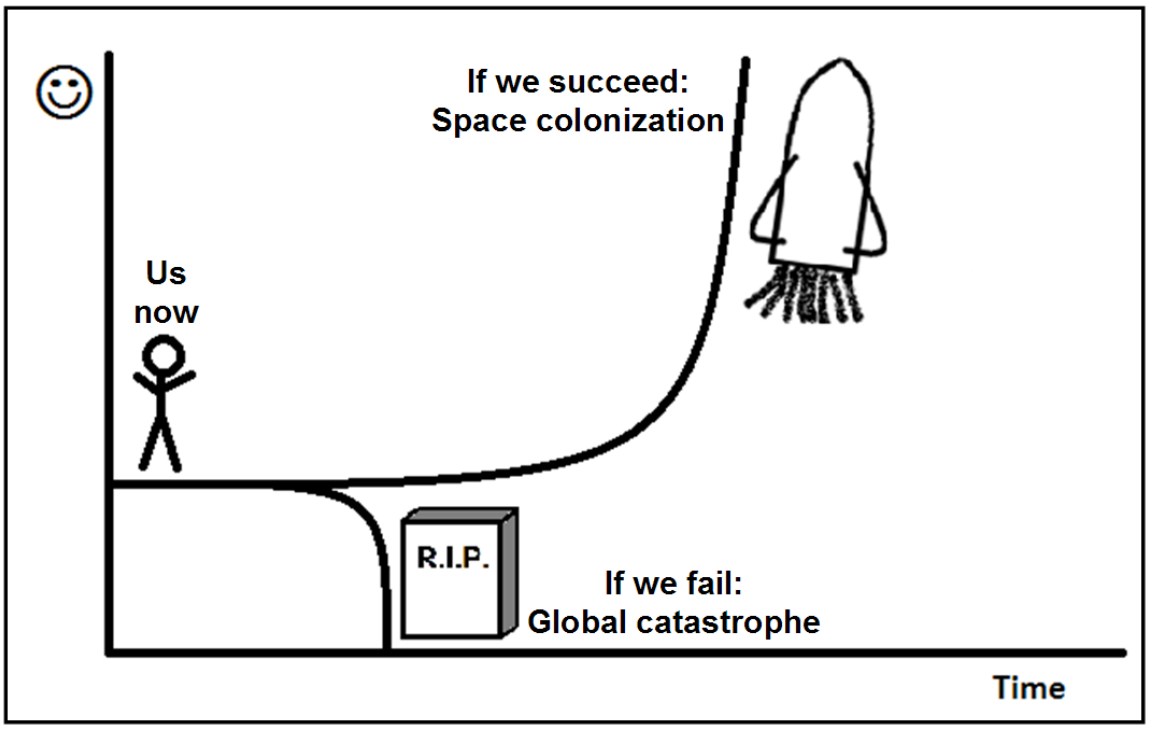
This story's personal for me. As an engineering student in college and grad school, I often wondered about which technologies I should be trying to design. My training left me good at design, but not at making these decisions about what to design. So I started looking elsewhere, and found ethics, which is the study of what is good/bad, right/wrong, and what we should/shouldn't do. It's quite a different field of study from science and engineering, but critically important if we are to make the right decisions about our lives, our work, and the world that we live in.

With ethics, we can answer questions like 'What does it mean to make the world a better place?' There are many ways of answering this question, corresponding with different views about ethics. My own view (which is a fairly common view) is that we make the world a better place by improving quality of life for people around the world, as well as for sentient nonhuman animals. (Don't kick puppies!) In formal terms, the goal is to maximize total quality of life for everyone out there. Those of you with some calculus can imagine maximizing quality of life integrated across space and time.

Here's where the science comes in. If we care about everyone across space and time, then where and when can people live? Well, for starters, in a few billion years, the Sun will become too large and too hot for life on Earth to continue. But maybe our civilization can colonize space. If it can, it could probably survive for much, much longer. The physics here is not well understood. Maybe life would end when the stars stop shining, or as protons decay. We probably can't live without protons! Either way, it's clear that colonizing space creates enormous opportunities for our civilization, and for the quality of life it can enjoy.

To summarize, we may now be at the beginning of a grand journey across the galaxy – and maybe even beyond. Our lives can contribute to something special, something good on literally astronomical scales. It all depends on whether space colonization is possible. Fortunately, we are already making great strides. The Wright brothers' first plane flight was just 110 years ago. Since then we've visited the Moon and most recently started landing rovers on Mars. If we can accomplish all this in a century, just imagine how much we can accomplish in the billions of years we have left on Earth. Likewise if space colonization is possible, then I'd really like to think we'll figure out how.

Now here's the plot twist. A few billion years should be plenty of time to colonize space – as long as nothing really bad happens first. Should some major global catastrophe come along and knock our civilization out, then we'll never have the chance to realize our full potential across the universe. We can't colonize space if we no longer exist. That would, to put it in basic ethics terms, be really, really bad. Here it is in terms of the quality of life integral mentioned above:



Unfortunately, humanity today does face several global threats with the potential to knock us out. You may have heard of some of them: climate change, nuclear war, pandemics, even disruptive new technologies like nanotechnology and artificial intelligence. These threats all have the potential to end global civilization. And they could do it within our lifetime, our soon after. These are the impediments we face to achieving astronomically great things.

Because of these threats, our journey into the universe is facing some great turbulence. The turbulence may even prove fatal. And so as important as it is, the space colonization can wait. We still have a few billion years left for that. Unless we survive our very imminent threats, we'll never have the chance to try. Our role as people alive today is to confront these threats, so that future eras can go on to colonize space.

And with that, we now can begin answering with some specificity just how we can best go about making the world – and indeed the universe – a better place. The question becomes how we can most effectively help avoid civilization-ending global catastrophe. Answering this question requires the best science we can muster to understand the

threats, the best engineering to design solutions, plus whatever else is needed to make it all happen. It is a great challenge.

I believe that all fields of study have important contributions to make to this challenge of preventing global catastrophe. For my part, I actually switched from engineering to a PhD program in geography to be more able to synthesize contributions from across different fields. Stepping away from engineering was difficult for me, but once I adjusted things went well. But while having interdisciplinary abilities is very helpful, you probably don't need such a dramatic shift.

I invite you to consider how your own training and abilities best fit in. For example if you're in microbiology, you could study infectious diseases. If you're in computer science, you could study artificial intelligence. These are some simple possibilities. If you take a closer look at the various global threats, you'll find much more. Some good references are below; many more can be found at the bibliography of my organization, the Global Catastrophic Risk Institute: http://gcrinstitute.org/bibliography. (Please feel free to get in touch with us if you'd like to learn more; my email is seth@gcrinstitute.org.) These great threats demand great response. No less than the fate of the universe is at stake. Are you up for it?

Bibliography

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