Space: Our Foremost Frontier

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I. Introduction

A. **Attention Getter**: "We invest far-off places with a certain romance. The appeal, I suspect, has been meticulously crafted by natural selection as an essential element in our survival" (2011, p. xiv). This line of thought, posited by Carl Sagan almost thirty years ago, is echoed throughout history. It reminds us of an imperative: if humanity is to survive, we must start looking up.

B. **Thesis Statement**: NASA should prioritize space exploration and colonization to ensure the survival of the species.

C. **Definition of Key Terms in Proposition**:

1. **Agent of Change**: NASA stands for the National Aeronautics and Space Administration and is the United States agency responsible for civilian spaceflight and research.

2. **Direction of Change**: Current budget proposals must account for sustainable living somewhere other than the planet Earth.

3. **Any equivocal, vague, technical, coined, or new terms**:

Multiplanetary species: a species capable of leaving Earth to live on other planets.

D. **Preview of Argument**:

1. Need: Inherency/Harms/Significance: There is at current no "backup plan" that ensures the survival of humanity in case of a catastrophic event occurring on our planet.

2. Solvency: By becoming a multiplanetary species, we can guarantee our survival in the event of a catastrophic incident.
3. Advantages over Disadvantages: The potential for scientific advancement with discoveries made off-world is insurmountable. The movements we can make by inspiring future generations with this is equally unfathomable.

[The imperative lies not just in what we stand to achieve, but also in what we risk losing.]

II. Body

A. **Statement of Blame/Harms/Significance Stock Issues:** There is at current no "backup plan" in case of a catastrophic event occurring on our planet that ensures the survival of humanity.

1. **Sub-Point**: Be it a slow or a sudden death, humanity does not at current have a solid plan in place to ensure the survival of our species away from this planet. We could watch as our population reaches its carrying capacity, or we could be struck by an errant asteroid tomorrow. The end result is still the same.

    a. **Support/Evidence**: A 2012 report by the United Nations found that Earth's carrying capacity ranges between 8 and 16 billion people, and that our population "is expected to get well into [that range] at around 10 billion by the end of the century" (United Nations, 2012, p. 11).

2. **Sub-Point**: Harms and Significance: What does this look like for us moving forward? In the long run, diminished access to resources. In the short-term? *Boom.*

    a. **Support/Evidence**: Per NASA's Jet Propulsion Laboratory, the asteroid named 2021 SG that passed by us just weeks ago has an average diameter of 68 meters, making it roughly four times the size of the asteroid that lit up Russia's skies in 2013, shattering windows in six different cities. "Over 1,600 people were injured in the blast" (Talbert, 2018), and that rock mostly disintegrated fourteen miles in the air.

[This is the reality we face by metaphorically "putting all of our eggs into one basket." But we can expand.]

B. **Statement of Cure – Why/How Your Idea Provides Solvency:** By becoming a multiplanetary species, we can guarantee the survival of our species in the event of a catastrophic incident.

1. **Sub-Point:** *What happens if we adopt your change?* With proper policy that emphasizes space travel, exploration, and becoming a multiplanetary species, we work to avoid the inevitability of humanity only ever living and dying on Earth.

    a. **Support/Evidence**: Fred Kennedy, a lead contributor to Forbes' aerospace and defense publications, believes that "[e]xpanding, outwardly-focused civilizations are far less likely to turn on themselves, and far more likely to expend their fecundity on growing habitations,

conducting important research and creating wealth for their citizens" (2019).

2. **Sub-Point**: *How does your proposed idea solve both blame and harms?* The creation of policy to set up humanity as a multiplanetary species removes the risk of complete annihilation by natural or manmade causes and opens the door for future advancements of untold degree.

    a. **Support/Evidence**: In his ethics analysis titled "The goodness of being multi-planetary," Dr. Anders Sandberg of the University of Oxford states that, "Threats that would destroy one world would no longer be existential threats. Even civilization-ending disasters would now have somebody to send relief" (2016).

C. **Statement of Cost vs. Benefits Analysis** – *A limitation or challenge to your idea, and why adopting it is still worth it.* There is considerable reason to say we should fix our own home before we consider moving, but these need not be mutually exclusive events. The potential for scientific advancement with discoveries made off-world is insurmountable. The movements we can make by inspiring future generations with this is equally unfathomable.

1. **Sub-Point**: *Challenge/Limitation (usually an opponent view point)* There are those who argue against efforts for becoming a multiplanetary species by citing our treatment of Earth, and how there is no reason to believe we will function differently on another world.

    a. **Support/Evidence**: In a rebuttal to Stephen Hawking's assessment of our need to be a multiplanetary species, Sarah Fecht

with The Earth Institute stated that "we'll still have to solve all the problems that Earth currently faces. Our technologies are just as likely to destroy the environment on other planets" (2017).

2. **Sub-Point**: *Subsidiary Advantage (something extra to gain that outweighs cost)* Perhaps the imperative of being on another planet will allow for technological advancements that solve problems back home. Some of our greatest leaps forward came as a result of the Space Race of the 20th century. Who knows what the next race might yield?

   a. **Support/Evidence**: In a reflection on 20 years of the International Space Station, NASA revealed that advancements such as new water purification systems, methods for combating muscle atrophy and bone loss, and fundamental disease research on diseases like Alzheimer's and Parkinson's have come as a result of the space station (NASA).

3. **Sub-Point**: *Subsidiary Advantage (something extra to gain that outweighs cost)* And of course, inspiration. When we look up at the stars, it's hard not to feel in awe of them and to wonder what adventures they might yield. Becoming a multiplanetary species helps to make that wonder a reality.

(Space is an open road. Space is our foremost frontier.)

III. Conclusion

A. Restate Proposition: We must push for policy that prioritizes space exploration and colonization. We do this not just for ourselves, but for everyone we have ever known, and everyone we will know.

B. Summary of Main Points: We do this to prevent annihilation. We do this so that our first home does not become our only home. And we do this to inspire generations we will never know.

C. Clincher: I believe Carl Sagan put it best when he said "[T]hose other worlds—promising untold opportunities—beckon. Silently, they orbit the Sun, waiting." (2011, pp. xviii-xix).

All work must be your own. Refer to Academic Dishonesty section of syllabus for more information. All evidence/support points, as well as any information not created by you must be both cited in-text via APA format, and attributed orally in your presentation.

Works Cited

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