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Unbound: Ethics, Law, Sustainability, and the New Space Race

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Abstract:

We are witnessing a new space race. A half century after the last Moon landing, and after a decade during which the United States could not launch its own astronauts to Earth orbit, there is new energy in the space activity. China has huge ambitions to rival or eclipse America as the major space power, and other countries are developing space programs. However, perhaps the greatest excitement attaches to the entrepreneurs who are trying to create a new business model for space travel based initially on tourism, and eventually, on colonizing the Moon and Mars and harvesting resources from asteroids. This paper presents a snapshot of the new space race and the rich men behind it, and it looks at some of the ethical and legal issues raised by this activity. The methodology is to consider the stated ambitions of the men leading private space companies, compare and contrast the space endeavor with earlier episodes of exploration and transportation innovation, review the regulatory environment for outer space, and consider two divergent scenarios for the future. Opinions are divided on whether commercial space flight is an expensive indulgence or potentially a way to find sustainability solutions for our life on Earth. It is concluded that the new space race can be characterized as unbounded: in ambition, in terms of laws and regulations, and in terms of ethical constraints on the activity.

Keywords: commercial space industry, space law, space ethics, space debris, sustainability.

1. Introduction

The exploits of billionaires traveling into space have been prominent in the news in the past year. In the United States, space travel seemed to be moribund, with a decade since the Space Shuttle was retired and nearly fifty years since Americans last set foot on the Moon. Spurred by rapid growth in the private space industry, this article looks at space exploration through the lens of ethics and the law. The research question framed is: What are the legal and ethical bounds on future exploration? To study this

question, the methodology first involves judging the words of the space pioneers themselves. Then a series of analogies are made between space travel, civil aviation, the Internet, and earlier episodes of human exploration. The limitations imposed by the laws of physics are then considered. Next, the nascent fields of space ethics and space law are reviewed, with the problem posed by space debris and the opportunity afforded by ownership of space resources used as examples. Finally, to highlight the bifurcation of possibilities, two future scenarios are outlined. In the utopian version, space exploration and moving off-Earth are ways to increase the sustainability of human existence. In the dystopian version, a thought experiment reveals the degree to which the regulatory, ethical, and legal framework of space exploration is unbounded. The conclusion is that a fascinating cultural and sociological experiment is currently underway.

2. Space Boom

Until recently space travel was difficult, dangerous, expensive, and the exclusive domain of wealthy governments. But private space companies are forging a novel economic model for space travel, based on tourism, recreation, and eventually, the harvesting of resources off-Earth. There are over two dozen space companies with ambitious plans. SpaceX and Blue Origins, companies headed by the two richest people in the world, are leading the charge.

In 2017, for the first time since Sputnik launched the Space Age in 1957, there were more commercial launches into Earth orbit than launches by governments [67]. Over the past decade, the price into Earth orbit has dropped from \$10,000 per kilo to \$1000 per kilo. Innovation and competition should drop that to \$100 per kilo in fifteen years. That would deliver a trip to space for less than the cost of a three-week cruise, opening up space travel to a mass market.

What we are witnessing is analogous to the pioneering era of civil aviation. Back in the 1930's, flying in commercial airplanes was dangerous, expensive, and only for the elite. Now, it is safer than driving, cheap, and easy enough that over 4 billion people flew last year. Space travel is destined to become routine. But the analogy with civil aviation is not perfect. Commercial jets offer a relatively quick way to cross a continent or ocean. Billions of people each year use air travel for business, recreation, and to visit friends and family. Space travel is not about getting from A to B more efficiently. It is about taking people into an alien environment for tourism or pure adventure. There may come a time when spaceships regularly ply routes to the Moon and Mars, but it is decades in the future.

Also, the regulation of spaceflight is playing out differently from civil aviation. Aviation industry leaders knew that government action to improve safety standards was needed for the industry to grow. The Air Commerce Act was passed in 1926, and the Federal Aviation Act in 1958, leading to the formation of the Federal Aviation Administration [11]. Air travel is now amazingly safe, with a fatality rate of three per trillion kilometers traveled. Compare that to car fatalities, which are almost a thousand times higher per kilometer traveled [1]. The U.S. government has kept a light hand on the rudder of the growing commercial space industry. Congress passed a law in 2004 that granted the private sector a “learning period” free of regulation. That period was extended three times and currently expires in October 2023 [16]. There are regulations and safety rules, but people who participate in commercial spaceflight do so through “informed consent,” meaning they know they are doing something that could easily kill them. A legal argument has been made that the transfer of liability from commercial space operators to their customers was ill-advised [51].

3. The New Space Titans

Who is leading this charge into a zero-gravity future? The most prominent are two idiosyncratic billionaires who, even before they became space titans, have left their mark on the modern world. They

are men of unbounded ambition. To give an unfiltered view of their aspirations in space, this section quotes them directly.

Even allowing for hyperbole and his thirst for media attention, Elon Musk is one of the most eccentric and dynamic people in the world of business. He was born in South Africa, and after getting degrees in physics and economics, he dropped out of graduate school at Stanford after two days to launch an Internet startup. He joined the board of Tesla in 2004, and has steered that company from a minnow, with sales of 2,500 cars in 2008, to the world's largest electric car company, with over a million sold by 2020 [20]. Tesla's success has played a big part in nudging traditional car builders to make electric vehicles and so advance us towards a future based on renewable energy.

Musk founded SpaceX in 2002, using \$100 million of his early fortune, and he is the CEO and Chief Engineer of the privately traded company. SpaceX started with three failed launches, but since then has racked up an impressive series of achievements. They were the first private company to reach orbit with a liquid-fueled rocket, place a commercial satellite in orbit, reuse an orbital rocket's first stage, put a spacecraft into a heliocentric orbit, send humans into orbit, and send humans to the International Space Station [35]. Their overall success rate for launches and landing the reusable boosters is above 95%. Although it happened before he was born, Musk was inspired by the Apollo Moon landings: "What actually inspired me to create SpaceX was, I kept expecting that we would continue beyond Apollo 11, that we would have a base on the moon, that we would be sending people to Mars. And that by 2019 probably would be sending people to the moons of Jupiter. And I think actually if you ask most people in 1969, they would have expected that" [39]. Musk was discouraged as he watched NASA founder with the loss of two shuttles and dependence on expensive, expendable rockets. He tried to buy cast-off ICBMs from Russia, but they gouged him on the price. In despair, he decided to go it alone: "I gotta try building a rocket company. I thought this was like almost certain to fail. In fact, I would not let anyone invest in the company in the beginning 'cause it was like, I can't take people's money. This is gonna fail. So I actually funded the whole company in the beginning myself. Not because I thought it would turn out well, but because I thought it would fail" [43].

He did not fail. In 2020, SpaceX sent astronauts to the International Space Station, the first to get there from American soil in nearly a decade since the grounding of the Space Shuttle. As icing on the cake, NASA let SpaceX use pad 39A at Kennedy Space Center, the fabled site of almost all the Apollo and Space Shuttle launches. Musk respects history: "I can't believe we get to use this pad. An insane honor" [39].

Jeff Bezos was a high-flyer from his early days as a student, a National Merit Scholar and high school valedictorian, and *summa cum laude* graduate of Princeton in computer science and electrical engineering. Few others could have foreseen what lay in the future when he started an online bookstore called Amazon in 1994. But Bezos knew from the start that he wanted it to be the "everything" store. He takes a long view in all his endeavors. He sunk \$42 million into a gargantuan clock being built inside a mountain in Texas; the "Clock of the Long Now" is designed to tell time for 10,000 years [19]. Amazon has over a million employees and some stunning financials—a market capitalization of \$1.6 trillion, and revenues of \$400 billion—numbers that put the company in the top five in the world. Amazon has the largest market share, and near-monopolistic influence, in selling books, providing cloud computing, and streaming video. The company was the subject of a New York Times article that exposed its hypercompetitive, dog-eat-dog workplace culture [27]. Franklin Foer, who did a deep dive into the corporate culture of Amazon, summed up its profound place in the world of commerce, and the power of Bezos himself, this way: "In the end, all that is admirable and fearsome about Amazon converges. Every item can be found on its site, which makes it the greatest shopping experience ever conceived. Every item can be found on its site, which means market power is dangerously concentrated in one company... Bezos' company has become the shared national infrastructure; it shapes the future of the workplace with its robots; it will populate the skies with its drones; its website determines which industries thrive and which fall to the side. His investments in space

travel may remake the heavens. The incapacity of the political system to ponder the problem of his power, let alone check it, guarantees his Long Now. Bezos is fixated on the distance because he knows it belongs to him” [14].

Bezos sells everything to everyone, but he has always dreamed of space. In his high school valedictorian speech, he conjured up a vision of hotels, amusement parks, and human colonies in orbit. He was inspired by the populist vision of moving into space espoused by Gerard K. O’Neil [46]. He has a geeky obsession with Star Trek in all its incarnations, and he has even made his physical appearance converge with that of his fictional hero, Jean Luc Picard. Bezos founded Blue Origin in 2000, and the company has pursued an incremental approach to orbital flight. Incremental and obsessive; the company motto is *Gradatim Ferociter*, Latin for “Step by Step, Ferociously.” Bezos has kept Blue Origin going by selling a billion dollars of his Amazon equity every year. The company has built a space port in West Texas, and it has 3,500 employees, a third of the SpaceX workforce. Bezos stepped down as CEO of Amazon in 2021 to devote himself more fully to his vision of our off-Earth future.

In the financial stratosphere that Bezos and Musk occupy, fortunes can be gained or lost very quickly. Bezos added \$13 billion to his fortune in 15 minutes when Amazon beat fourth quarter earnings estimates in 2019, and Musk lost \$14 billion in four days after a sell-off in tech stocks in 2021. As for their rivalry to exploit and explore space, while it might look like Blue Origin is the plodding tortoise and SpaceX is the speedy hare, both companies have radically altered the economics of space travel with their reusable rockets. In July 2021, Richard Branson trumped both Bezos and Musk by being the first to fly his own rocket into space. Bezos followed just over a week later. They were both suborbital flights, so bragging rights for first tech mogul in orbit are still up for grabs.

Bezos and Musk agree on one thing: the key to bringing down the costs of launches to Earth orbit is reusability. The ruinous economics of NASA’s space ventures boils down to this inefficiency. Here’s Bezos: “Reusability is essential because you can never lower the costs to a sufficient degree if you throw the hardware away. That hardware is just too beautiful. First of all, it’s just painful. You get this great feeling when looking at a piece of aerospace-grade hardware. It’s so beautiful and so precise. To use it once and throw it away is a kind of crime” [2]. Musk makes the point with an analogy: “It would be as though if, in the old days, ships were not reusable. The cost of an ocean voyage would be tremendous. And you’d need to have a second ship towed behind you just for the return journey. So, you can imagine if airplanes were not reusable. Nobody would fly ‘cause each airliner costs a couple hundred million dollars. And people do not wanna pay that for a single journey. So, this is why full and rapid reusability is the holy grail of access to space and is a fundamental step towards it, without which we cannot become a multi-planet species” [39].

Then there is Richard Branson and Virgin Galactic. He is more than an afterthought, but he inevitably finds himself in the wake of the powerful progress being made by SpaceX and Blue Origin. Sir Richard Branson shares some traits with both Elon Musk and Jeff Bezos. The titles of his two autobiographies convey his scurrilous streak: *Losing My Virginity* and *Screw It, Let’s Do It* [3], [4]. Like Musk, he is self-aggrandizing, with a thirst for publicity. He transformed himself, since he suffered from ADHD and dyslexia and was painfully shy as a child. Branson has made cameo appearances in many TV shows and a couple of films. Like Bezos, he started modestly, with a mail order record company he set up at the age of twenty, only to diversify into a plethora of products. At various times you could purchase Virgin brides and Virgin condoms, and you could drink Virgin vodka and Virgin cola. He said he wept when he had to sell Virgin Records to keep his new airline afloat in 1992. Branson launched his space tourism company, called Virgin Galactic, in 2004. His genius move was hiring Burt Rutan, the premier aircraft designer of the past fifty years [69]. Virgin Galactic has had a bumpy road, with three fatalities on the ground and one in flight, and benchmarks reached long after Branson’s predictions. However, the company has taken in nearly \$100 million in deposits for its

suborbital flights featuring six minutes of weightlessness, which will cost \$450,000 Like Musk and Bezos, Branson has invested heavily from his own fortune to ensure its eventual success.

Where does all this entrepreneurial activity leave NASA? It has been argued that the space agency is so risk-averse, and puts such a high value on human life, that it has become incapable of innovating [59]. This is the antithesis of the Elon Musk credo to develop fast and break things. NASA has struggled to replace the Space Shuttle with a new capability to lift heavy payloads into Earth orbit. After limping along for five years, Constellation program was cancelled. Its replacement, the Space Launch System, has cost \$20 billion so far, and it is costing \$2.5 billion per year with no crewed launch yet scheduled. Yet, NASA has started to partner with the private sector with a series of multi-billion-dollar contracts to resupply the International Space Station. Both sides benefit. Companies like SpaceX get the taxpayers to subsidize their substantial development costs, and the near-geriatric space agency learns to be nimbler [45].

4. Analogy with the Internet

If we step back from the churn and tumult of the commercial space race, we can see a historical progression that has four distinct phases. It is useful to make an analogy with a central tool of modern life: the Internet [23, p.76].

The first phase belongs to the visionaries and the pioneers. In 1903, Russian scientist Konstantin Tsiolkovsky wrote a book called *Exploration of Outer Space by Means of Rocket Devices* that presented the equation at the heart of rocketry and laid out how to use multi-stage rockets fueled by liquid oxygen and liquid hydrogen to reach Earth orbit. In 1926, the American inventor Robert Goddard launched the world's first liquid-fueled rocket. Although it only traveled for 3 seconds and 180 feet over a frozen cabbage field on his Aunt Effie's farm, it was the precursor to the mighty Saturn V rocket that would carry astronauts to the Moon. The analogous phase of the Internet starts with Claude Shannon's foundational paper on information theory in 1948, and a 1960 paper titled "Man-Computer Symbiosis" by J.C.R. Licklider that envisaged a worldwide computing network and data in the cloud at a time when the few computers that existed were the size of a family house [73].

In the second phase, the nascent activity is incubated by the military-industrial complex. At the end of the Second World War, German aerospace engineer Wernher Von Braun surrendered to American troops and his work on the lethal V2 rocket was redirected into development of ballistic missiles for the U.S. Army at the height of the Cold War. NASA was established in 1958 and to his credit, President Eisenhower resisted the entreaties of his generals to make it a military agency. NASA's charter put it under civilian control, with transparent reporting and budgets allocated by Congress. Von Braun became the first Director of the Marshall Space Flight Center, devoting his considerable talents to the Saturn V rocket and the goal of landing on the Moon. The Internet also began with funding from the U.S. military, under the Department of Defense's Advanced Research Projects Agency (ARPA). ARPANET, the first computer network, was launched in 1969. Email is the killer application of the Internet and it developed around the same time. For nearly a decade, these tools were only available to people in the U.S. military and a few universities and research institutes [40].

The third phase sees the activity move firmly into civilian life, primarily for the purposes of research. NASA's budget peaked at 4.5% of the federal budget in 1967, to achieve the herculean feat of getting to the Moon. Since then, it only briefly exceeded 1% at the peak of Space Shuttle launches. Recently, it has settled to around 0.5% of the federal purse [44]. Post-Apollo, NASA focused on the Space Shuttle and the International Space Station. There were 135 Shuttle launches over 30 years, and although it was partly reusable, two Shuttles were lost catastrophically, and it was an extremely expensive conveyance. The military put payloads on several dozen flights, but eventually grew frustrated by the cost and the delays so made their own arrangements to get to orbit. The Space Station does demonstrate our ability to live and work in space; it has been continuously occupied for over

twenty years. But it has cost over \$150 billion. Neither facility attracted the level of interest from academic and industrial researchers NASA had hoped for. NASA operates in a political landscape that changes with every election cycle, compromising its ability to do long-term, strategic planning. Similarly with the Internet, government investment aimed at supporting research fueled development in the 1980's. The National Science Foundation funded a series of supercomputer centers and the creation of NSFNET, a high-speed successor to ARPANET. University computer scientists developed rules to allow computers to communicate over a network (TCP/IP) and the naming system that is the Internet's version of a phone book (DNS). Tim Berners-Lee, a physicist at CERN, developed the language to share and read documents over the Internet, and a student at the University of Illinois, Marc Andreessen, invented the first web browser [55].

What happens next? With the Internet, by the early 1990's all the tools were in place for seamlessly sending data—text, images, videos—anywhere in the world and displaying them on personal computers. In 1995, NSFNET was decommissioned and restrictions on the use of the Internet for commercial traffic were removed. What followed was an unprecedented surge in economic activity, as culture, commerce and technology were transformed by the Internet. The Internet accounted for 1% of the information flowing through telecommunications networks in 1993, and that grew to 97% in 2007 [18]. With one hiatus after the “dotcom bubble” in 2000, the Internet economy has grown to over \$2 trillion, and two of the four companies with market capitalization above \$1 trillion do their business on the Internet—Google and Amazon [21]. The space industry is booming too. While not at the level of the Internet economy, it is predicted to triple to \$1.4 trillion by the end of the decade [58]. The new players are disrupters in a good sense, creating new business models and questioning premises that have underpinned government investments in space travel.

Where the analogy breaks down is in the way technology scales and how that affects the economics. The growth of the Internet has been driven by exponential increases in information technology to deliver data. The most famous example is Moore's Law, the doubling of the number of transistors in an integrated circuit every two years. Another example is the doubling of telecommunication network bandwidth every 18 months. The world's computing ecosystem is growing exponentially, which supports the delivery of ever-increasing amounts of information over the Internet [7].

5. Tyranny of the Rocket Equation

By contrast with the Internet, space travel is subject to obdurate and immutable laws of physics. Low Earth orbit is only 250 miles, half a day's drive straight up. How hard could it be? Very hard, as shown by the rocket equation Konstantin Tsiolkovsky derived in 1903, an equation that is the foundation of astronautics. He also proposed multi-stage rockets and the use of liquid hydrogen and liquid oxygen for rocket fuel, even though neither was yet available. Inspired by Jules Verne, he thought colonizing space would lead to the perfection of the human species, saying: “The Earth is the cradle of mankind, but mankind cannot stay in the cradle forever” [49].

At first glance, a rocket seems magical. It shudders on the launch pad, billowing smoke and spewing fire, and slowly, majestically, it rises. It is pushing against the launch pad. But then what? How does it continue to rise, and then accelerate, when there's nothing to push against? Rockets are momentum machines. They force gas from combusted fuel out of the nozzle at as fast a speed as possible, making the rocket move in the opposite direction. Isaac Newton worked out the math for this momentum exchange in 1687, and in 1903, Tsiolkovsky applied it to rockets. Let us hear it explained by someone with first-hand experience, Space Shuttle Chief Engineer Don Pettit: “The rocket equation contains three variables. Given any two of these, the third becomes cast in stone. Hoping, wishing, or tantrums cannot alter this result. Although a momentum balance, these variables can be recast as energies. They are energy expenditure against gravity (change in rocket velocity), the energy available

in your rocket propellant (exhaust velocity), and the propellant mass fraction (how much of the rocket mass is fuel)” [48].

The problem with getting a rocket into orbit is that it has to accelerate all its fuel from zero velocity on the launch pad. If you want to lift a heavier payload, you need more fuel. But then you have to accelerate that fuel, so you have to add more fuel, but then you have to accelerate that additional fuel, and on and on it goes. The “tyranny” of the rocket equation is that the final velocity of the rocket increases slowly as you add more and more fuel. Multiple motors don’t help because they just allow you to burn fuel faster at the same exhaust velocity; you don’t need any less fuel. Rockets must burn their fuel at a prodigious rate to create enough exhaust momentum to launch a payload. The Space Shuttle gets through 500,000 gallons of liquid propellant in just eight minutes, 2 million times faster than you burn gas driving around town in your car. Air resistance is another obstacle, particularly at low altitudes, and it is not accounted for in the rocket equation. As a result, rockets end up being mostly fuel, some metal, and a small payload. The gigantic Saturn V rocket that sent astronauts to the Moon was 85% fuel, 13% rocket parts, and just 2% the Moon-bound spacecraft with astronauts inside.

In this context, the gains made by SpaceX with mostly reusable rockets are impressive. The progression from Falcon 1 in 2010 to Falcon Heavy in 2020, lowering the cost from \$10,000 per kilogram to \$1000 per kilogram, is a halving of the cost every three years. These companies have achieved many efficiencies, but they are still working within the limitations of rocket physics. They are also limited by the use of chemical energy since rockets work the same way now that they did fifty years ago, by combusting fuel and an oxidizer. Hydrogen burning with oxygen is the most energetic combination available for rockets. Chemistry is unable to give us any more energy. However, getting unbound from the Earth is the hard part. It takes a similar amount of energy to go from Earth orbit to Mars or anywhere else in the Solar System.

6. The Problem of Space Junk

We can see the outlines of a shining vision of a new frontier. Routine visits to Earth orbit are within reach. The Moon and Mars beckon. This is just the time when we should take a breath, pause, and consider the ethics of space exploration. We have the technology that can liberate us from the Earth’s gravity and enable a new realm of commerce and exploration. Will this activity also be for the benefit of humanity and the planet? The answer to this question remains to be determined, but the legal, ethical, and moral framework for space travel is coming into view.

Here are some of the legitimate criticisms about our ventures off-Earth that should be addressed. Space travel is an expensive side show that we can ill afford given problems on the home planet. The new commercial activity is just billionaires with fancy boy toys driven by their egos. We should spend our energy and money taking better care of the terrestrial environment. Space travel will only ever be for the rich, so it will exacerbate existing inequities. Humans have no right to exploit resources in space. Expanding our footprint beyond Earth will just replay the colonial and acquisitive history of the Western world in a new arena. There is so little law and regulation that applies to space that bad actors and unethical companies will face no constraints on their behavior.

Unfortunately, there is already one example where inattention and sloppy practices are creating headaches for future space explorers. Space junk is orbital debris—the detritus of our activity in space. Chunks of metal that no longer serve a useful purpose include non-functional spacecraft, abandoned launch vehicles, cast-off materials from space missions, and fragmentation debris. There are 23,000 pieces of debris larger than a softball orbiting the Earth, tracked by the Defense Department’s space surveillance network [15]. Estimated of smaller sizes are half a million the size of a marble or larger and 100 million a millimeter or larger. The problem is that they are all moving at extremely high speeds, up to 17,500 mph, and even a tiny fleck of paint can damage a spacecraft at that speed. In the past, Space Shuttle windows had to be replaced because of damage from paint flecks. It makes for quite

a mental image—nuts and bolts hurtling through space ten times faster than a bullet. About once a year, astronauts on the International Space Station must huddle in the sheltered central hub of the facility after a warning that debris is in the vicinity [15].

The problem is getting worse. As more satellites and spacecraft are launched and more obsolete hardware accumulates in orbit, the probability of collisions increases. In 2007, the Chinese intentionally destroyed one of their old weather satellites, adding 3,500 bits of large, trackable debris and many more small bits of debris to low Earth orbit. In 2009, a defunct Russian spacecraft slammed into an Iridium satellite, contributing 2,300 new hunks of large space junk and many more small chunks. Commercial space companies like SpaceX are planning to launch tens of thousands of satellites in the next decade to facilitate wireless Internet in parts of the world that currently have no coverage. Even before these plans were announced, it was predicted that large collisions could cause cascading collisions, exponentially increasing the number and density of small pieces, and potentially rendering low Earth orbit completely unusable. This dire scenario has is called the Kessler syndrome [28]. We are facing a slow-motion catastrophe, not like the 2013 movie *Gravity*, where the opening scene showed low Earth orbit rapidly filling up with debris after a missile strike. Brian Weeden of the Secure World Foundation says: “In the movie *Gravity*, orbital debris was portrayed as sort of a nuclear chain reaction. The reality is the opposite. It's like climate change, a long, relatively slow accumulation of stuff over decades or longer that results in a really big negative impact down the road” [33]. The problem has an ominous overtone because space is the fifth domain of war, alongside land, sea, air, and cyberspace. World powers are arming themselves to take out each other's satellites, offensively or defensively. It is going to get increasingly difficult for a country to tell why their satellite went down or fell silent. Was it a collision with debris, space “weather,” or a hostile action?

There is no international treaty governing space debris. A United Nations committee published voluntary guidelines in 2007. Mitigation strategies do exist, but governments have dragged their feet. Large satellites are now built with mechanisms for de-orbiting, and some are in low enough orbits that drag in the thin upper atmosphere does the job in five to ten years. Technologies under consideration include lasers, nets, magnets, and harpoons. In 2019, the European Space Agency awarded the first contract for space clean-up. However, the mission, called *ClearSpace-1*, will not launch until 2025. Earth orbit is a new “tragedy of the commons,” where we ruin something because we all profit from exploiting it and cannot exclude others from doing the same. We have overgrazed public lands, overfished the oceans, and polluted the atmosphere, and we're in danger of ruining the envelope of space above our heads [30].

7. Space Ethics

“If you are expecting space ethics to tell you that space exploration is the greatest thing ever, and that we should plunge ahead at all deliberate speed, then you may be in for a disappointment. You are also in for a disappointment if you are expecting space ethics to validate calls to renounce space exploration and to accept our terrestrial horizons.” So wrote James Schwartz and Tony Mulligan, philosophers who specialize in the ethics of space exploration and space policy [54]. How we deal with space debris is a test case, but there will be many decisions to make as we explore the “new frontier.” Space is a blank slate. We can write our own future there, and hopefully avoid the mistakes that tarnish the legacy of civilizations on Earth. Over a hundred astronomers co-signed a white paper submitted to the Planetary Science and Astrobiology Decadal Survey, the guiding document for funding research in the 2020's in these two fields. They argued: “It is crucial that the planetary science community, with community input, take the opportunity before un-crewed and crewed exploration of other worlds to think ecologically—and seek to equitably address the consequences of our presence on these other worlds” [65]. The private space companies are moving quickly, so there is some urgency to develop this new field, as framed by this thoughtful recent commentary: “Space ethics must embrace stewardship of the

space environment, the human rights of those endeavoring to extend civilization into space, the rule of law, and how the benefits of space can broadly benefit humanity while particularly motivating and rewarding those who risk, dare, invent, and invest” [56].

The field of space ethics is young and still evolving. An early conference on the subject was hosted by UNESCO in 2004 [70]. But it is finally getting scholarly attention [34], and it is clear what its role might be in this “new frontier” [53]. It should identify principles for arriving at rational compromises between the different stakeholders in space. For example, should the Moon and Mars be protected in the same way national parks are, or should companies be able to use their land and resources without constraint [5]? Space ethics is not for or against space exploration. It is a tool for identifying and critiquing assumptions that space advocates and space skeptics often fail to realize they are making. Not only can space ethics help us figure what is worth doing in space, it can help us figure out the best way to do those things. For example, if a goal of space resource exploitation is to improve human well-being, which methods achieve that goal with the least collateral damage to the space environment? The ethical arguments have to anticipate rapidly evolving technologies, since it is clear that space companies and those wanting to travel in space are likely to be early adopters of cutting-edge capabilities soon after they leave the research lab. Complex issues will be raised by the use of artificial intelligence in space [60], and the harsh space environment is likely to spur the use of genetic engineering and methods for human enhancement [63].

Finally, space provides valuable perspective. Until now, activity in space has been dominated by American technocrats with a Western, Caucasian lineage. America’s space program has often displayed echoes of the 19th century doctrine of manifest destiny, as seen in the pronouncements of a succession of presidents. John Kennedy talked about sailing on a new sea, Lyndon Johnson of space pioneers bound for a glorious New World, George Bush elder and younger compared space missions to Columbus’s voyage and Lewis and Clark’s expedition respectively, and Donald Trump referred explicitly to America’s manifest destiny in the stars [32]. The rhetoric often has religious overtones [62]. American exceptionalism in space makes many people uneasy because it harks back to the colonial past, with its severe mistreatment of indigenous people and Africans [39]. It would be a failure of the imagination not to use the vast arena of space to imagine a different and better world. As we embark on multi-generational projects in space, we should aspire to represent the whole of humanity, examining a broad spectrum of human cultures and value systems. The practitioners of space ethics are primarily academic philosophers.

For those who question the entire enterprise, space is not purely an expensive indulgence. If the satellites that whirl over our heads were to suddenly disappear, modern life would grind to a halt and there would be an economic catastrophe. We would lose all global communications and media, GPS systems, weather forecasting, and the monitoring of critical resources like crops and water. Retreating fully to the Earth is not an option.

At this early stage of the endeavor, space is a blank canvas on which we are painting our dreams and hopes and aspirations. Strikingly diverse visions are on display. The journalist Adam Mann summed it up in an article on how we might treat other planets: “Space still exists mainly in our imaginations, and we all imagine it differently. At one extreme, there’s the apocalyptic vision painted by Elon Musk, who wants to back up civilization on Mars in case of a catastrophe on our world. A more optimistic view comes from the “Star Trek” franchise, which has shown humanity coming together in the spirit of science and exploration to discover strange new worlds” [37].

As for the relevance of these experiments for the rest of us stuck on Earth, the prime directive of space colonists will be the efficient use of resources. Water, air, clothes, building materials—everything must be conserved and recycled. Social cohesion will also be essential to survive in such unforgiving environments. The lessons of the first space colonists could help us live more parsimoniously on Earth.

8. Earth Resources and Mining Asteroids

We are using the resources of the planet at an unsustainable rate. A graphic example of this is “Earth Overshoot Day,” the day in the year when human demand for ecological resources exceeds what the planet can regenerate in a year [8]. In 2021, this day was July 29th. Put another way, in 2021 we used 1.75 Earth’s worth of biological resources. The depletion of hydrocarbon resources—coal, oil, gas—is not necessarily bad if that helps accelerate a shift to renewable energy sources. In addition, crucial ingredients of the modern technological world—metals and rare earth minerals—are being used at a rapid rate [29]. When we use fossil fuels, we are drawing down reserves of formerly living creatures deposited underground over a span of hundreds of millions of years. With heavy elements, we are drawing down resources created in the cores of stars before the Earth formed. Until we can master fusion, heavy elements are also non-renewable.

However, it does not follow that we are about to “fall off a cliff” in accessibility of these vital ingredients of modern life. A Saudi oil minister once said: “The Stone Age did not end for lack of stone, and the Oil Age will end long before we run out of oil” [66]. As the known reserves of any resource are depleted basic laws of supply and demand kick in. Prices will rise and that can cause previously marginal or unknown reserves to be put into production. Substitution and recycling can ease the demand, and technology and lifestyle changes may mean that future society’s needs are very different from today’s. To take a couple of historical examples, flint was highly prized for arrowheads during the Stone Age, but the mining of flint has since stopped, and salt was very valuable to the Romans, but its importance to the world economy has since declined. Predictions about the exhaustion or peak production of resources have usually been wrong [41].

Another thread of the new space race is asteroid mining. In principle, asteroids offer an almost unlimited supply of metals and minerals that have finite supplies on Earth. So far, we have only taken baby steps to mine asteroids. Three missions have returned samples to Earth. OSIRIS-Rex is bringing back the most material, about 60 grams. The goal of that mission is scientific research, which is just as well, since the net cost of \$19 billion per kilogram would not make for a good economic model.

Estimates of the value of asteroid resources generate eye-popping numbers. A carefully selected near-Earth asteroid five hundred meters across contains about \$2 trillion worth of precious metals and \$3 trillion worth of rare earth minerals [36]. Metals like gold and platinum are central to the electronics industry, and the 17 rare earth elements near the bottom of the periodic table are essential in cell phones, car batteries, TV and computer displays, high powered magnets, and a plethora of industrial and high-tech gadgets [22]. All these heavy, iron-loving elements sunk to the Earth’s core during its molten youth over four billion years ago, leaving them rare in the crust. A subsequent hail of asteroids dusted the crust with heavy elements, and those are the deposits we mine today. If we bring asteroid material back to Earth, we will be using technology to augment what nature provided eons ago.

Another type of asteroid contains large amounts of water. There are a thousand water-rich asteroids relatively near the Earth, and the two dozen largest each hold 10,000 Olympic swimming pools worth of water [50]. Water does not have high value on Earth, but it is essential in space to drink, hydrate food, and act as a radiation shield. Water can be split into hydrogen and oxygen, with both contributing to rocket fuel and oxygen being available to breathe. Water is heavy and it costs \$10,000 to get a kilo into Earth orbit, so harvesting it in space is very attractive.

In 2013, Martin Elvis estimated the number of potential mining targets with current technology. He accounted for the number within reach of today’s rockets, the feasibility of mining them, and whether or not they would yield a profit. He calculated that 10 metal-rich asteroids and 18 water-rich asteroids were within our grasp [9]. He guesses that advances made by SpaceX over the past decade will increase those numbers by a factor of ten. The best nearby target is Anteros, a 2-kilometer-wide asteroid named after the Greek god who avenged unrequited love. Anteros approaches within 25 times the Earth-Moon distance and it has an estimated metal and mineral value of a whopping \$5.6 trillion

[74]. But the most seductive target is Psyche. Named after the Greek goddess of the soul, Psyche is 220 kilometers across and 370 million kilometers away in the asteroid belt. Images from the Hubble Space Telescope show it is made almost purely of metals, with a market value of \$10,00 quadrillion, or 100,000 times the world's economy [25].

9. Space Law

With stakes this high, the issue of ownership is important. Lassoing an asteroid and mining it for gold sounds like the Wild West. Will there be any sheriffs out there?

The foundation of space law is a set of five treaties and five sets of principles developed by the United Nations through their Committee on the Peaceful Uses of Outer Space [72]. After ten years of negotiations, the Outer Space Treaty became the first “constitution” for outer space in 1967. It was ratified by 99 countries and signed by an additional 27 states. It says that space is the “province of mankind,” and all nations have the freedom to “use” and “explore” outer space, provided it is done in a way to “benefit all mankind.” Some its sweeping and vague terms have never been clearly defined. Specific issues were addressed by three subsequent treaties: a “Rescue Agreement” dealing with the return of astronauts from deep space, a “Liability Convention” to address any damage caused by space objects, and a “Registration Agreement” to keep track of all objects launched into space. The Moon Treaty was finalized in 1979. It declares the Moon as part of the Common Heritage of Mankind, and says that lunar resources should be shared among all nations and those resources are “not subject to national appropriation by claim of sovereignty, by means of use or occupation, or by any other means” [71]. The treaty covers asteroids as well as the Moon, but it is a dead letter since none of the major space-faring powers have signed it.

All these laws assume space is a realm dominated by countries, not by companies, let alone by individual billionaires. As space industrializes, it is obvious the law has gaping gaps—we have seen one of them in the problem of space junk. Another is the issue of who has jurisdiction and how enforcement works when crimes are committed off-Earth [24]. The new space race is essentially unbound by legal and statutory frameworks.

While international space law languishes, countries have been acting to protect their interests and those of their citizens. In November 2015, Barack Obama signed the U.S. Commercial Space Launch Competitiveness Act into law. The law recognizes the right of Americans to own any space resources they harvest, and it encourages commercial exploitation of asteroids [42]. In 2020, Donald Trump went further, signing an executive order that said the U.S. does not view space as a “global commons.” Luxembourg, a tiny European country with outsized ambitions, has passed legislation allowing firms incorporated there to carry out space mining [68]. NASA is trying to balance encouraging entrepreneurial activity with being a good global citizen. The agency's plans for private-public partnerships in space exploration, the Artemis Accords, are seen by some as a power play by Western countries to control space commerce. Before the accords were signed, NASA Administrator Jim Bridenstine tried to sound reassuring, affirming Article II of the Outer Space Treaty, which prohibits national sovereignty over objects in space: “We also believe that, just like in the ocean, you can extract resources from the ocean. But that doesn't mean you own the ocean. You should be able to extract resources from the Moon. Own the resources but not own the Moon” [17].

Not everyone is assuaged. The privatization of space may end up serving the interests of a small number of space capitalists, rather than benefiting humankind as a whole. An extension of capitalism into space might repeat ills we face on Earth: over-exploitation of precious resources, the power of monopolies, and the corruption of crony capitalism. Consider this critique by two social scientists, who contrast an activity they designate NewSpace with the Old Space mode of operations during the Cold War: “Despite its humanistic, universalizing pretensions, NewSpace does not benefit humankind as

such but rather a specific set of wealthy entrepreneurs, many of them originating in Silicon Valley, who strategically deploy humanist tropes to engender enthusiasm for their activities [57].”

The thought of space “cowboys” lassoing asteroids and deliberately bringing them near the Earth might make you nervous. NASA’s rocket scientists, by contrast, are motivated by redirecting asteroids to protect the Earth from potential devastating impacts. Orbital engineering should not be undertaken lightly, and it should definitely be regulated [47].

10. Sustainability and Living Off-Earth

Fewer than 600 people have ever been in Earth orbit, and only twelve have set foot on another world. Eight space tourists spent \$20 million each for a trip. Will space ever be an experience for other than a privileged few? The trajectory of the commercial space industry suggests that space tourism will “take off” in the next few years and suborbital joy rides will become common for wealthy people. We will eventually colonize the Moon and Mars, and routinely live and work in space. The challenge will be to avoid the vision of dystopic science fiction since *The Time Machine* by H.G. Wells, where civilization is starkly divided into the haves and the have-nots, a majority who live on the degraded Earth and a small minority who live in luxury off-Earth [75]. This theme was also played out in the 2013 movie *Elysium*. Although Wells’ novel was set in Victorian England, his themes of inequality and class prejudice pervade modern society. Exploration of space will only have true value to our species if it plays a role in solving our chronic problems of sustainability and environmental degradation.

As a sign of the potential hazards that lie ahead, consider this dystopian scenario. A private space company sets up a base on Mars. It is registered in a country with almost no regulatory oversight. The large amount of construction is done by the citizens of countries with poor records on human rights, and the workers are essentially wage slaves, putting in years under difficult conditions to guarantee their passage home to Earth. Everyone on base has signed a non-disclosure agreement and members of the press are not allowed to visit. The operators of the base pay no taxes, and the profits they earn from mining are repatriated off-shore, beyond the view of any government. This thought experiment does not violate any current law or enforceable regulation. However, there is a more positive scenario.

On Earth, sustainability must focus on the city. Cities occupy just 3% of the land area, but hold 55% of the world’s population, generate 75% of the world’s carbon emission, and use 80% of the world’s energy [10]. Most big cities are sprawling, chaotic labyrinths, choked by traffic and shrouded in smog. There are attempts to retrofit cities with public transit and green technology, supported by the United Nations and the World Bank, but it is an uphill battle. The current exemplar is Copenhagen, which is on track to be the first carbon-neutral capital, in 2025. All public transport is electric, and most trips are taken on bicycles, which greatly outnumber cars. From recycling to roof gardens to efficient heating and cooling, Copenhagen is addressing sustainability on all fronts [61]. During the 20th century, the leading architects Le Corbusier, Frank Lloyd Wright, and Buckminster Fuller designed domed cities, but none were ever built [31]. In the Arabian desert outside Abu Dhabi, the city of Masdar is rising. Intended as a one-square-mile showcase of sustainability for 50,000 people, it is far over its \$20 billion budget, many years behind schedule, and nearly as empty as a ghost town [12].

These projects are far from being self-contained. A closed ecological system would be a habitat that did not rely on any matter or energy exchange outside the system. Very few experiments like this have been attempted. The Institute of Biophysics in Russia built an underground structure for three people in 1965 and ran the project for eight years. The Biosphere 2 experiment in southern Arizona ran for two years from 1991 to 1993. Eight scientists lived in the soaring glass structure, which contained five miniature habitats: a tropical rainforest, a savannah grassland, a mangrove wetland, a coastal fog desert and an ocean with a coral reef. Biosphere 2 attracted a lot of publicity, not all of it favorable. The project was funded by (yet another) eccentric (near) billionaire, Ed Bass. The team did unorthodox

training with Aborigines in the Australian outback, and personal dramas colored the interactions of the occupants. Late in the experiment, carbon dioxide levels fluctuated wildly, some insect populations crashed while others turned into plagues, and the scientists were forced to start eating their emergency supplies. It was suspected that one snuck out and smuggled in energy bars [13].

For unforgiving environments like the Moon and Mars, habitats must be sealed and the cost of delivering supplies is prohibitive, so recycling and self-sufficiency are essential. NASA published a book on urban planning in space in 1977 [26]. Currently, a team of architects is working with the European Space Agency on a “Moon Village” concept. It would be an expandable settlement at the rim of the Shackleton Crater near the South Pole, a place with water ice and nearly continuous sunlight. Inflatable domes would be covered by protective shells, constructed by robots and 3D printed using lunar soil. In 2017, an MIT team won the Mars City Design competition. Domes and tree habitats, each housing fifty people, would be connected by a series of tunnels. The team leader elaborated on the forest metaphor for the project: “On Mars, our city will physically and functionally mimic a forest, using local Martian resources such as ice and water, regolith (or soil), and sun to support life. Designing a forest also symbolizes the potential for outward growth as nature spreads across the Martian landscape. Each tree habitat incorporates a branching structural system and an inflated membrane enclosure, anchored by tunneling roots [6].

Closed ecological systems are the key to living off-Earth, but they also they have enormous potential applications at home. If pollution and the destruction of fragile ecosystems continues unchecked, these habitats will be essential for sustaining life on Earth [64]. In the science fiction novel *2312*, Kim Stanley Robinson envisions a future where we have inhabited other planets in the Solar System. We turn our attention to the ravaged Earth and restore and “re-wild” the planet by returning species that have been preserved in off-Earth sanctuaries [52].

If we move off-Earth in large numbers, ethical issues will be prominent. Propagating life raises basic questions: “Should we expand all life or only intelligent life? Who gets to leave Earth and who makes that decision? Should we allow the population beyond Earth grow without limit? Are space colonists subject to terrestrial laws or will they make their own laws? Should we alter biology on other worlds to suit our needs, or only seed life on dead planets, or not alter nature off-Earth at all? Should we seed life in other solar systems? How far can we change while still preserving the human species, and life itself? [38]”

11. Conclusions

The burgeoning commercial space industry is entering uncharted waters. Statements by the billionaires who are leading the effort to launch humans off-Earth reveal unbridled ambition and a fair amount of hubris. Analogies between the evolution of space travel and the evolution of the Internet are useful up to a point, but the analogy with earlier episodes of human exploration on Earth sounds a cautionary note because of its context of colonialism. The only hard bound on the activities of the space entrepreneurs is imposed by the laws of physics. Space law is still in its infancy, and ethicists are scrambling to develop a framework for thinking about how we should operate off-Earth. The optimistic view holds that living in space will teach us how to operate more parsimoniously on the Earth, but dystopian outcomes are not ruled out. For now, we have to trust that the new actors in the space industry will be bound by ethics as they explore the new frontier.

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Exploring Perceptions of Religion and Science among Turkish Academics

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Abstract:

The religiosity of academics has been studied for over a decade. With few exceptions, this research has been conducted on American “elite” scientists, and data from non-Western countries is lacking. Drawing from psychological and sociological literature, the present exploratory study investigates the religiosity of Turkish academics (N = 361) and their perceptions on the relationship between religion and science, and associated variables such as interpretation of the Quran, and belief in evolution and creationism. Moreover, we address criticism directed at previous research by probing for different God concepts among believing academics. Although cultural differences can be identified, the results generally support the idea that academics are less religious with 54% identifying as “less religious” or “not religious,” compared to 24.2% self-identifying as “religious” or “extremely religious.”

Keywords: religion, religiosity, academic, science, Turkey, belief.

1. Introduction

At a time when the topic of atheism was still at the fringes of society, psychologist James Leuba's discovery [57] that the majority of the elite American scientists he surveyed in 1914 and 1916 did not believe in God was shocking [53]. From today's perspective, it may be puzzling that proponents of the secularization thesis (e.g., [32], [57], [91]) thought advancements in scientific knowledge would play a central role in the erosion of religious beliefs in society. Certain aspects of religiosity have declined since the turn of the last century [14], but religious beliefs are still held by the majority of the world's population [45]. Science has not proved to be the antidote to religious thinking as once thought. For elite scientists and other academics however, the picture is typically quite different, and Leuba's groundbreaking research [57] into the religiosity of scientists has seen renewed interest in recent years. Building on the work of Leuba and others (e.g. [4], [29]) we replicate the findings of previous research conducted primarily in the American context and introduce new empirical data on the religiosity¹ of, and perceived conflict between, scientific-evolutionary, and religious thinking of academics (full professors) in Turkey – an under studied country with an important context due to its relationship with secularism [80]. Before introducing the Turkish cultural context of the present research, we proceed by reviewing scholarship on the religiosity of elite scientists and academics in general, differences in religiosity by academic discipline, differences between academics and the public, and factors contributing to these relationships.

2. The Religiosity of Elite Scientists

Rather than inquiries into the religiosity of academics in general, most research has focused only on “elite” or top scientists. This has occurred for two reasons. 1) If elite scientists, holding the best knowledge and thinking skills in society did not believe in God, Leuba reasoned, this was further evidence of the incompatibility of religious beliefs with scientific thinking [57]. While it is generally accepted that the cognitive processes required for scientific thinking contrasts with those required for everyday religiosity [61], [60], this does not suggest any incompatibility in their overall framework *per se* [42]. 2) A more precise justification for focusing on elite scientists has been developed by Ecklund and Park [27]. They argue that elite scientists are more likely to impact the creation and maintenance of knowledge, which contributes to a broader understanding of the dynamics of academia as an institution. While there remain scientists, indeed even elite scientists, who identify as religious and practice their faith (cf. [29]), the primary focus of our introduction is on the overwhelming nonreligiosity of scientists.

That eminent scientists are less religious is supported by a range of studies, the first of which conducted in the early 20th century. Across 3 separate studies of elite American scientists (culled from the 1910 edition of *American Men of Science*) conducted in 1914, 1916, and 1933 [56], [57]. Leuba explored two key aspects of religiosity: belief in immortality and belief in a personal God. In each sample, the majority of the respondents were either atheists or agnostics (58–85%) with a similar pattern for disbelief or doubt in immortality (69% in 1914 and 82% in 1933) except for his 1916 sample (50%) [56], [57]. Leuba's methodology has been criticized by Stark for over inflating nonbelief and doubt due to the wording of his questions focusing on a highly personal concept of God (cf. [85]) – thereby excluding deist, pantheist, and panentheistic notions of God, for example. While we are sympathetic to Stark's critique, that elite scientists are less religious is supported by a variety of evidence in addition to Leuba's original studies.

For example, Roe conducted interviews with 64 top scientists and found the majority were uninterested in religion, and “a few were militantly atheistic” [9, p 110], [74]. In a study of 87 top research scientists conducted by Bello, 40 were either atheist or agnostic and a further 19 reported no religious affiliation [10]. These smaller qualitative studies notwithstanding, quantitative research conducted in the 1950's and 60's has sought to mimic aspects of Leuba's approach [57]. For example, although Vaughan, Smith, and Sjoberg's research did not explore belief in God, among

elite scientists (again sampled from *American Men of Science*), rates of reported denominational membership were 76%, however 38.5% also claimed no religious attendance with an additional 16.8% reporting only once per month [89, p. 524]. Interestingly, 63.9% of their respondents either rejected belief in life after death or were undecided [89, p. 521]. Thus, the discrepancy between reported membership, religious attendance, and even higher rates of agnosticism towards or an outright denial of belief in immortality suggests a “believing in belonging” effect (cf. [21], [22]) could have contributed to the unusually high rates of membership.

The most recent attempts to directly replicate Leuba’s original approach [57] are more conclusive (and instructively, parallel Vaughan et al. immortality findings [89]). For example, Larson and Witham randomly selected 1,000 scientists (roughly 600 responded) from the 1995 issue of *American Men and Women of Science*, finding 60% were atheist or agnostic and 62% either disbelieved or doubted the possibility of human immortality [53]. In an additional study published the following year, they sampled the 517 members of the National Academy of Sciences (roughly 260 responded), finding an overwhelming majority were atheist or agnostic with only 7% professing belief in God and 8% believing in immortality [52]. In an alternative, broader, approach to studying elite scientists, Ecklund and Park sampled from 21 top research universities in the United States (US) [27]. Although belief in immortality was not examined, they found 63.7% of their sample reported being atheist or agnostic, while only 8.8% reported having no doubt’s about God’s existence. Philosophers have not typically been considered “scientists” in many of these studies, and therefore excluded, however among the top 99 philosophy departments in the world, almost 73% of Bourget and Chalmer’s ($N = 1,972$) sample self-identified as atheist [11].

3. The Religiosity of Academics

The evidence in favor of the nonreligiosity of elite scientists is informative, however they are a minority population when compared to the greater number of professional academics in general [64], The Academy’s Dirty Secret 2015). Therefore, the broader college professorship has more opportunities to influence a greater number of students. Indeed, research suggests that peer influences during college contribute to changes in religiosity [8]. Rather than science and elite scientists serving as unique secularizing forces, academia as an institution may contribute to a decline in religiosity. For example, among U.S. adults, 14% of college graduates compared to 6% with a high school education or less identify as a nonbeliever [69]. Moreover, research has identified an inverse correlation between levels of education with religiosity (e.g. [41], [65], [75], [92], [78]), but others have not identified any relationship (e.g. [18], [39], [82]). Far less research has examined the religiosity of university faculty at community colleges and institutions that only grant undergraduate degrees. For example, in their sample of 37,827 faculty members at 2 and 4-year colleges, Lindholm and Astin found that 82% of their respondents had medium to high scores on a measure of spirituality [58]. However, their measure of spirituality contained no references to God or the supernatural, and some nonbelievers do self-identify with nontheistic spirituality (e.g. [15], [70]). In a representative sample of fulltime professors, Gross and Simmons reported that 75% believed in God or a higher power and 23% were atheist or agnostic [36]. When compared to the numerous studies on elite scientists or college students, research into the religiosity of professional academics is an understudied area requiring further investigation.

4. Differences in Religiosity by Discipline

In addition to examining differences in religiosity among elite scientists and professional academics, research has investigated field-specific differences between, and within the natural and social sciences. In his seminal study, for example, Leuba found higher rates of atheism and agnosticism among elite biologists (69.5%) compared with elite physicists (56.1%) [57]. Unfortunately, his research did not survey social scientific disciplines (i.e. the “softer sciences,” such as psychology) for comparison as contemporary studies have done. Using data from over

60,000 American college professors collected in 1969, for example, Stark, Iannaccone, and Finke found academics in disciplines like psychology (33%) and anthropology (29%) were less likely to be religious than those in mathematics (60%) or the physical and life sciences (55%) [84]. Additional studies comparing only psychologists to other academics also support this pattern [36], [55], [73].

Gross and Simmons found academics in disciplines such as accounting, finance, marketing, art, nursing, and economics, for example, were more than twice as likely to report they “know God really exists” and “have no doubts about it” than those in psychology, mechanical engineering, political science, biology, or English. Moreover, 52% of physical and biological scientists were atheist or agnostic compared to 29% of humanities scholars [36]. Nevertheless, other research has found less dissimilarity between these disciplines than identified by Gross and Simmons. For instance, Ecklund and Scheitle found less disparity between the percentage of atheists/agnostics, as well as the absence of religious service attendance, in the natural sciences, (67%; 55.3%) compared to the social scientists (62.2%; 50.3%) [26] (also see [77]). Similar results have also been identified by Lindholm and Astin’s study, finding academics in the social sciences (68.5%) are not too dissimilar compared to those in the biological (71.6%) and physical sciences (71.9%) in their lack of “spirituality” [58]. Moreover, rates of religious practice between social and natural scientists, suggest similar patterns. In both groups, roughly half report never attending, and additional 1/4 to 1/3 report attending religious services only several times a year [27], [26]. In summary, field-specific differences toward nonreligiosity – if not outright nonbelief – are evident among professional academics and tend to be most pronounced in the natural sciences (vs. humanities/social sciences), with psychologists and biologists being the most consistently nonreligious.

5. Documenting More Differences: Academics vs. the Public

Having discussed disparities in the religiosity between different types of academics, and differences across disciplines, we turn to research comparing academics with the general U.S. population. Here too, a trend towards nonreligiosity in general and nonbelief in specific not only persists but increases substantially. For example, using data from the 1998 General Social Survey, Ecklund finds 51.8% of scientists identify as a “religious none” compared to 14.2% of the general population [29]. Moreover, even when academics do identify with a specific denomination, they typically report this as a “liberal” or “progressive” variant (e.g. [29], [27], [36], [89]. Moreover, scientists (1.5%) are more than 9 times less likely to be evangelical/fundamentalists than their rates among the general public (13.6%; [29]). According to the Pew Research Center Public Opinion on Religion and Science in the United States poll, scientists drawn from the prestigious American Association for the Advancement of Science (41%) are almost ten-times more likely to be nonbelievers than the general population (4%) [66]. When comparing rates of religious attendance between scientists and the general population, they are more than twice as likely to never attend, and only 18% attend one or more times a month compared to 46% of the public [29, p. 37]. Although the above differences are most pronounced for elite scientists (the focus of most of the extent research), professional academics as a whole, and individuals with advanced degrees are less religious than the general population [36], [41], [65], [84]. This begs the question: What are the possible sources of these differences?

6. The Familiar Background of Nonreligion and Conflict: Family and Evolution

What are the possible sources of perceived science-religion conflict and the development of nonreligiosity? Ecklund and Scheitle find that “most of the family characteristics generate the same effect among academics as they do among the general population” [26, p. 301]. In other words, for example, factors such as the importance of religion in one’s family and the family’s religious background (e.g. Jewish; cf., [9]) exert similar influences on the religiosity of academics [26], as

well as nonreligiosity in general [51]. In sum, variables like family income, marital status, number of children, age, race, political orientation, and geographic location, have all been found to impact the religiosity of academics and the general public [36], [58], [66], [89], (see also [46]). But setting aside predictors of religiosity, what are the primary influences for perceived religion-science conflict?

One of the most familiar points of conflict stem from diverging understandings / teachings of the implications of Darwin's theory of evolution by natural selection for religious truth claims [4], [6], [20]. Indeed, philosopher Daniel Dennett's metaphor for Darwinian thinking is a sort of universal acid that dissolves many of humanity's most cherished assumptions – religious or not [23]. Although some academics claim the conflict is not over evolution *per se*, but its foundation in materialism (which is often mistaken for atheism e.g. [4], [42], cf. [17]), these more abstract and convoluted dialogues – as important as they may be – remain the troupes of highly trained philosophers, theologians, and scientists.

The average person on the street is unlikely to provide a sound justification for their particular view irrespective of their religiosity. As psychologists are well aware, intuitions appear first, followed next by rationalizations [34] (but do not mistake this for irrationality *per se*: [61]). This is one reason, for example, research suggests scientific (natural) and religious (supernatural) explanations co-exist across cultures and human development [54]. Nevertheless, there are many approaches to the possible relationships between religion and science discussed *ad nauseam* elsewhere (cf. [7], [35], [83]). Research suggests that both academics and the public generally perceive the relationship between science and religion akin to Gould's notion of non-overlapping magestria [35]; more or less separate domains that do not have to conflict [4], [28], [27], [89]. Nevertheless, it is also recognized that to the extent some religious claims overlap with empirical claims (e.g., age of the earth for young earth creationists), there can be undeniable conflict (also see, [66]). In fact, in addition to strong nonbelievers in God, perceived conflict is most robust among religious fundamentalists (i.e. biblical literalists; [4], [27]). When Ecklund and Park examined perceived religion-science conflict in elite scientists, the importance of religion at age 16 was a stronger predictor than variables such as maintaining one's religious affiliation, religious switching, or disaffiliating² [27].

There is an undeniable, but often exaggerated, link between scientific-evolutionary thinking and nonreligiosity, especially for scientists [5], [71]. But this does not entail evolutionary thinking will erode religious belief, and the research discussed thus far indicates factors unrelated to scientific-evolutionary education contribute to the development of nonbelief. Rather ironically, one of the greatest triumphs of scientific-evolutionary thinking has been to explain and understand the ubiquity, success, and persistence of religious beliefs throughout history and into the present [12], [61], [60]. Nothing entails a good believer cannot be a good academic and evolutionist (e.g. [38]). However, the prestige of academia (cf. [9]), particularly Darwinian Evolution, has been appropriated equally by atheists and theists to support their respective worldviews (cf. [16]). Pragmatically, the main tragedy³ of the perception that science and religion are in conflict comes in the form of the active rejection of scientific-evolutionary thinking. While the most familiar examples have occurred in the U.S. context (e.g., the "Scopes Monkey Trial" in 1925 and more recently, [48]) – also where the majority of research has been focused (for an exception, see [28]) – one of the most recent clashes in the religion-science conflict comes from the country of Turkey.

7. The Turkish Cultural Context of Religion and Science Research

In 2017 Darwin's theory of evolution was removed from statewide school curriculums in Turkey [62]. This is a text-book example of the various discourse and perplexities surrounding the perceived religion-science conflict and its relationship to academics. The current research is therefore well timed for having occurred shortly after this change in governmental policy – a cogent example of perceived conflict and its possible consequences. Given Turkey's unique regional history as the only democratic country with a Muslim majority population, and a constitutionally

secular government (cf. [80]), this makes researching the perceptions of religion, science, and conflict among Turkish academics all the more important. Moreover, we know of only a *single* study that has examined these perceptions among Turkish academics (scientists in this case, see [28]), and past research has been overwhelmingly limited to the U.S. cultural context. Having already reviewed much of this work we turn to discuss the importance of cultural context, touching on political, linguistic, educational, and other cultural aspects of the Turkish context.

The peculiar Western context that most scientific research has occurred in can obscure important cultural differences [37] that may be relevant for the perceived relationship between science, religion, and academics. For example, a rich tradition of Islamic psychological thinking predates the Enlightenment era of Western Europe [79], and regions such as Central America have developed distinct social sciences that do not find religion and science in conflict (e.g. El Salvador; [59]). Compared to the U.S. and other contexts, in their study of several Muslim countries, Dagher and Boujaoude find science curricula is dictated by government establishments, which are closely intertwined with the dominant religious establishments [20]. For example, unlike the U.S. or El Salvador, Turkey has a long history of government control over both religious and educational institutions [80] which might influence the perceived relationship between science and religion.

For example, looking specifically at how Darwinian Evolution is presented in biology textbooks in 5 Muslim countries, Turkey was the only country without an explicit discussion of human evolution [2]. Again, this may reflect the perception that evolutionary thinking leads to atheism. Published research on atheists in Turkey is difficult to locate, however in one study by Sevinç, Turkish atheists were asked why they do not believe in God, and only 16% of those interviewed reported scientific or evolutionary reasons for their nonbelief [82]. This suggests scientific-evolutionary thinking may not be a threat to religion in the Turkish context (as well as in other countries, cf. [28]), but leaves open the question of whether higher levels of education are associated with lower levels of religiosity.

Historically, many of the Turkish political elite have viewed a shrinking role for religiosity as a necessary step in the modernization of the country [47], [80], [93]. Turkey's transformation into a modern nation-state has not reduced levels of popular religiosity (98.7%, [24], [49]). However, research suggests the more educated in Turkey are less religious in general [93], [88], show less belief-based religiosity [19], [31], and pray less often when compared to the Turkish public [44]. These findings parallel those found in Western contexts, and we generally expect similar results among Turkish academics.

Despite the inverse religion-education relationship, important cultural-linguistic differences between Turkey and other Western research contexts may be more accommodating to the maintenance of religiosity among Turkish academics. For example, the concept of atheism has its roots in the Western context of Christianity [72]. Within Muslim culture and history, there is no straightforward concept that relates to atheism and its cognates (which are belief-based) and belonging to Islam without believing it may therefore be easier to maintain psychologically (cf. [81]). Moreover, structural differences between Islam and various Christian denominations may also play an influencing role. For example, according to Brown, there is a greater focus on institutional orthodoxy and bureaucratic hierarchy in Christianity compared to Islam [13]. Thus academics, who tend to lean more liberal and less authoritarian [50], [76], [87], may find Islam more appealing and/or accommodating for its greater decentralization of authority (i.e. there is no "church" structure) [81]. Additionally, rates of deconversion are higher for individuals with a Christian vs. a Muslim background (ibid). Compared to the U.S., where the "spiritual but not religious" category has been growing substantially over the past twenty years [86], this has not occurred in Turkey, where "spirituality" is perceived to be more closely related to behavior than belief, and the term is harder to separate from religion [1], [25].

The only research conducted in the Turkish context thus far comes from Ecklund et al., who sampled scientists (biologists and physicists) from 7 other countries: France, Hong Kong, India, Italy, Taiwan, United Kingdom, and the U.S. [28]. They found 68% of the Turkish scientists sampled perceived the relationship between religion and science as either one of independence or

collaboration (with similar rates in the other countries); 24% reported there was a conflict on the side of science and 2% reported the conflict was on the side of religion [28, p. 6]. Moreover, 33% of the Turkish scientists sampled reported attending weekly religious services, and 54% reported praying once a day or more (ibid). Moreover, compared to scientists from the other 5 countries sampled, Turkish scientists showed the highest rates of having “no doubts” about God’s existence (61%: 4) and the second highest rate of religious affiliation (84%). In the present study, we extend the global research on science and religion by providing an in-depth focus on the Turkish context.

8. Present Study

Above, we discussed the extant research on the religiosity of academics by discipline, compared academics to the public, and discussed the contribution of demographic variables, and potential sources, and the ways in which religion and science are perceived to conflict. Moreover, we noted the majority of these studies sample only academics who are “elite” scientists in Western universities, specifically within the cultural context of Christianity. Research is needed in other cultural contexts using samples of “non-elite” academics, which comprise the majority of all professional academics [64]. To begin addressing this gap in the literature, we sampled Turkish academics and proposed the following hypotheses: The majority of Turkish academics: 1) self-identify as less religious 2) are religiously affiliated; 3) are believers in God; 4) believers in life after death; 5) and view the Quran as “perfectly true, but it should not be taken literally, word-for-word.” When compared to the general population, elite academics are 6) more likely to be disaffiliated and 7) attend religious services less than the general population. And finally, we hypothesized that 8) perceived science-religion conflicts will be predicted by family religious importance at 16 years of age.

Exploratory analyses: In addition to the above hypotheses, we present several exploratory analyses looking at the diversity of God concepts, demographic associations with belief in God, afterlife, religious attendance, and religiosity; relationships between creation question and evolution question, and differences between the humanities, natural, and social sciences.

8.1 Method

In testing these hypotheses, we invited Turkish academics to participate in an online survey presented in English. This study was approved by the University Ethics Committee (P67535). The full survey items and original data are freely available to anyone upon request to corresponding author.

8.2 Participants

Out of a possible 178 universities we selected the ten largest based on the number of currently employed “full professors” (the highest academic position in Turkish universities) at each institution from the database of the Higher Education Council (www.yok.gov.tr). This strategy was the most likely to capture a broader range of typical academics in different fields, because institutes with a greater number of full professors typically have more departments than smaller institutes. Moreover, full professors have had the opportunity to influence a larger number of students than academics of other ranks in the Turkish university system.

Table 1. Ten Largest Turkish Universities Sampled

Universities	City	Number of full professors
Istanbul University	Istanbul	1442
Ankara University	Ankara	1189
Ege University	Izmir	914

Hacettepe University	Ankara	855
Gazi University	Ankara	853
Dokuz Eylul University	Izmir	725
Marmara University	Istanbul	674
Ataturk University	Erzurum	520
Cukurova University	Adana	506
Istanbul Technical University	Istanbul	490
Total		8168

From the faculty webpages of these universities, a total of 7,394 e-mail addresses were obtained and each one emailed a link using Qualtrics online survey collection platform. After identifying duplicate or bounced emails ($n = 367$), the total survey invitations sent was 7,027. Previous research on Turkish academics received a 39% response rate using email and phone reminders [28]. In the current study, we anticipated the response rate would be much lower given the current political climate of Turkey, and we were unable to issue reminders by phone. Out of the 7,027 surveys delivered by email, $n = 361$ were completed/returned (response rate 5.14%). The average age of participants was 54 years ($SD = 6.5$), 70.1% of participants are male ($N = 253$; female = 108), and 79.8% are married. Most of the participants (56.8%) grew up in a large city and self-identify as adhering to Islamic religious beliefs (68.2%).

8.3 Measures and Analytic Strategy

The questionnaire consisted of three parts: 1) demographic questions (e.g. gender, age, marital status), income levels are equal for professors at state universities in Turkey, with the exception of compensation paid to academics employed in the east of the country, 2) questions about their academic field, and 3) religion-science conflict questions. Based on prior research (cf. [3], [40]), participants chose from the following belief options: I don't believe in God; I don't know whether there is a God and I don't believe there is any way to find out; I don't believe in a personal God, but I do believe in a Higher Power of some kind; While I have doubts, I feel that I do believe in God; I know God really exist and I have no doubts about it; I don't know. The first two options are coded as "nonbelief" (i.e. atheism and agnosticism), and the next three are coded as belief in God or supernatural agents. Next, participants answered questions about belief in life after death, their opinions about authenticity of Quran, and the theory of evolution and creationism. Family importance of religion at age 16 was measured along with personal importance at age 16, and current religiosity levels measured on a five-point Likert-type scale anchored at 1 "not religious" and 5 "extremely religious". Scale points 2, 3, and 4 were unlabeled; we coded 2 as "less religious" and 4 as "religious". Opinions on the theory of evolution and creationism were assessed with single item measures. Participants who believed in God were then instructed to pick one of four descriptions of different God concepts which they felt best matched their God's nature, which remained un-labeled to avoid demand characteristics (theism, deism, pantheism, and for example panentheism, whose descriptor read: "Deity is the inner spiritual essence of everything in the universe. There is no a personal God. Everything composes an all-encompassing, immanent god."

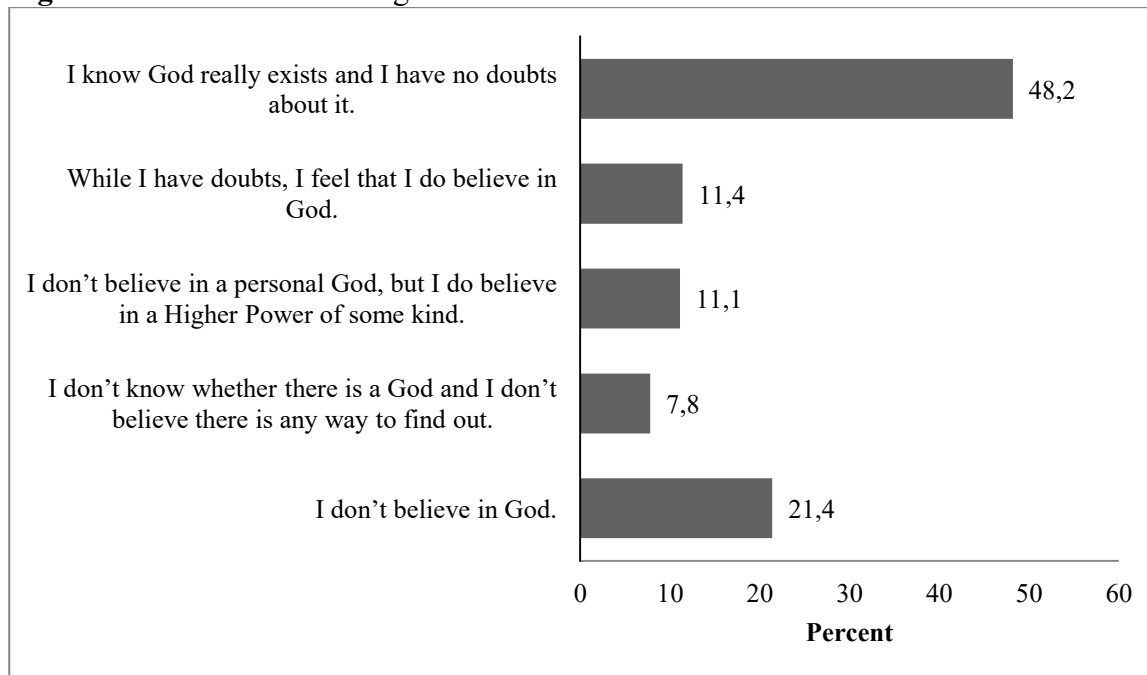
9. Results and Discussion

Among our sample of Turkish academics, *Hypothesis 1* is accepted, with the majority (54%) self-identifying as "less religious" or "not religious," compared to 24.2% self-identifying as "religious" or "extremely religious" ($M = 2.36$; $SD = 1.33$). *Hypothesis 2* is accepted: the majority (Muslim 68.1%; other 2.8%; Christian .03%) report a religious affiliation compared to being unaffiliated (i.e., not religious 28.8%). While these hypotheses might appear contradictory, level of religiosity need not correspond directly with reported affiliation (cf. [21], for Muslim context, see [81]).

Interestingly, religious affiliation appears lower than was identified by Ecklund and colleagues (84%) [28].

Hypothesis 3 is accepted, the majority of academics identified with some type of belief in God (70.4%; nonbelief = 29.1%). Below, graph 1 shows the full options for belief in God. When compared to the rate of belief in God without doubts found by Ecklund et al. (61%) [28], our sample shows much less certainty (i.e. 48.2%). The exact reasons for this are unclear, however we reiterate our sample included only full-professor academics from all disciplines, whereas Ecklund and colleagues sample included physics and biology graduate students, post-doctoral researchers, and professors from all ranks and level of institution.

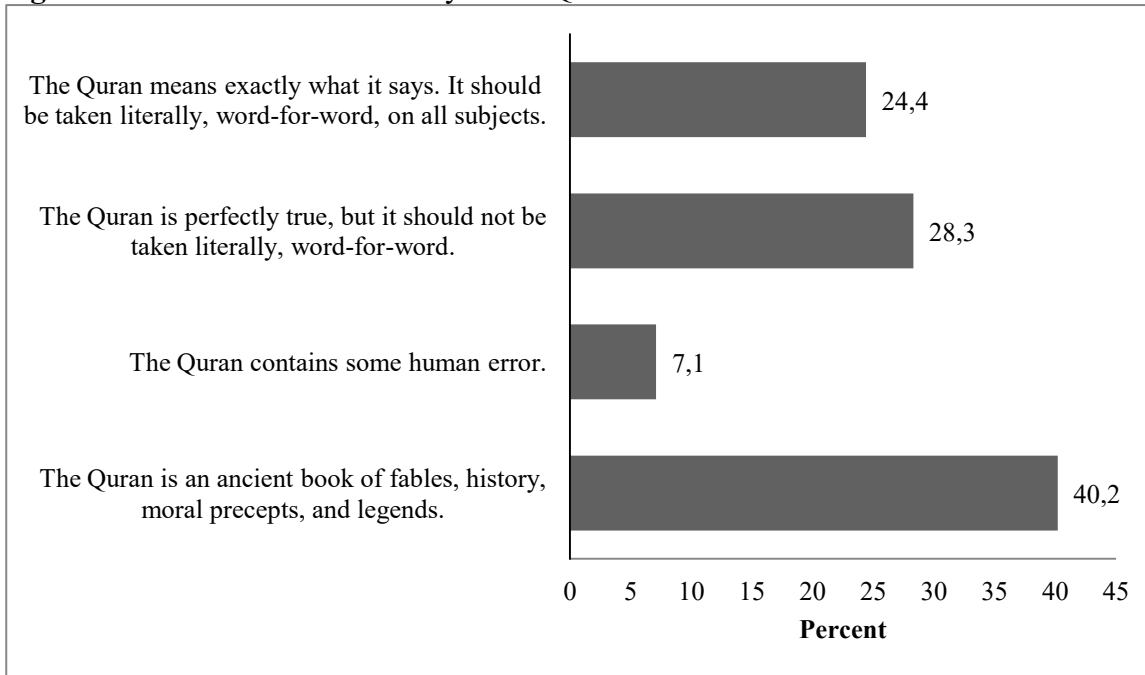
Figure 1. Belief in God among Turkish Academics.



Hypothesis 4 is accepted, the majority of academics (47.1%) believe in life after death, whereas 34.6% do not believe, and 18.3% reported they “don’t know”. However, we concede there is a degree of ambiguity in the meaning of “don’t know” for this item. Participants may have selected it as a proxy for “no opinion” or to express agnosticism.

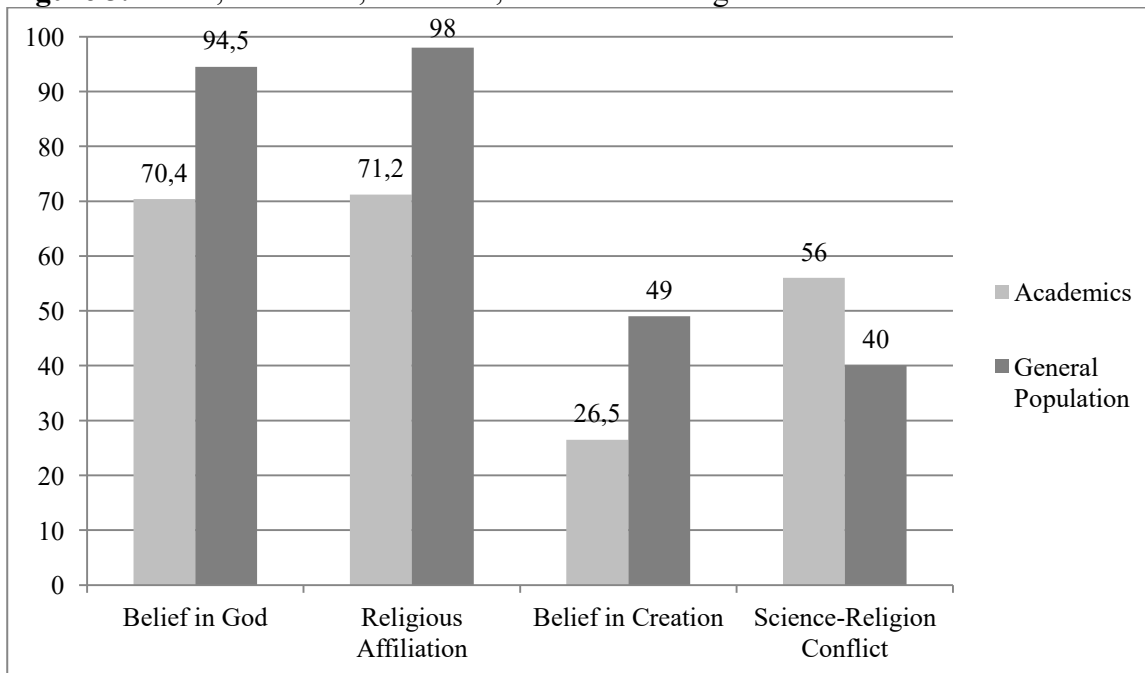
Hypothesis 5 is rejected. As seen in Figure 2 below, the majority of academics do not view the Quran as “perfectly true” and that “it should not be taken literally, word-for-word.” Interestingly, the majority view is that it is an “ancient book of fables, legends, history, and moral precepts.” However, looking at the perceived ontological status of the Quran by combining those who take a literal and non-literal view, it is evident that 52.7% of academics affirm its authenticity. Moreover, this implies that some academics believe in God, although they do not view the Quran as a book revealed by God.

Figure 2. Views on the authenticity of the Quran



Hypotheses 6 and 7 are confirmed. When compared to the general population, academics are more likely to be disaffiliated and less likely to attend religious services. Thus, similar to countries such as France, Italy, India, Unites States, and the United Kingdom there is a gap between the religiosity espoused by the public and the religiosity of the scientists [28]. In addition to this, we also include several exploratory analyses comparing academics' belief in evolution and science-religion conflict with the general population (pictured in figure 3, below), which also show a disparity similar to the U.S. context [66].

Figure 3. Belief, affiliation, evolution, and science-religion conflict view

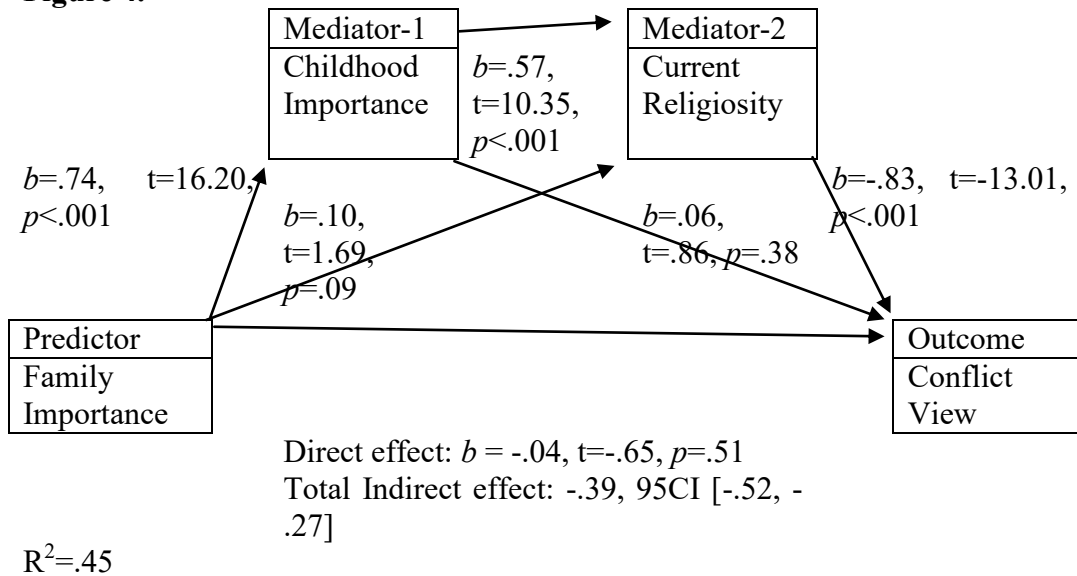


Rates for general population have been taken from European Commission [30] and Pew Research Center [67], [68].

Hypothesis 8 is accepted. Perceived science-religion conflicts are predicted by the level of family religious importance (upbringing at 16 years old), and this relationship is fully mediated by

childhood importance of religion at age 16 and current religiosity. Family background is a predictor of perceived conflict ($R^2 = .11$, $b = -.44$, $t = -6.3$, $p < .001$) (also see, [27]), but only to the extent it works through one's current religiosity (Figure 4). This double mediation model is intended primarily as a "proof of concept" – it explores an intuitively obvious path to the conflict view – that one's current religiosity rather than their upbringing or importance at age 16 is the best predictor of perceived conflict.

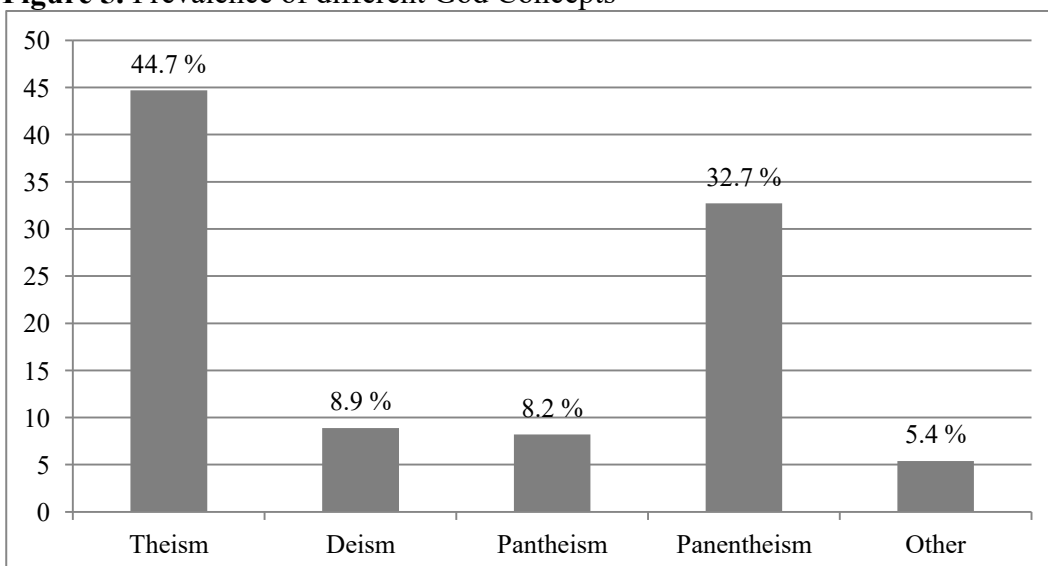
Figure 4.



9.1 Exploratory Analyses

Past research on belief in God among academics has been criticized for not examining the possibility of variation in God concepts (e.g. [85]). In Figure 5 below, we present rates of variation according to God's perceived nature. Our finding that traditional theism is a minority view when compared to all others bares similarity to previous research showing religious scientists tend to identify more with progressive or liberal denominations in the American context (e.g. [27]). In other words, holding less traditional, more abstract, God concepts in Muslim majority countries may be similar to identifying with more liberal denominations in the Christian majority countries.

Figure 5. Prevalence of different God Concepts



Research suggests demographic variables are also influencing factors when considering the religiosity of academics (e.g. [27]). Below, Table 2 displays differences related to demographic variables using chi-square analyses for belief in God, after life, and religious affiliation, an independent samples t-test for religiosity mean, gender, and age, and a One-way ANOVA with a Tukey HSD post hoc test, revealing differences in religiosity and marital status between married and divorced individuals ($p = .018$).

Table 2. Association between demographics and belief in God and afterlife

	Belief in God [†]		Belief in After Life [†]		Religious Affiliation [†]		Religiosity	
	None	Believer	No	Yes	Non e	Affiliated	M	SD
<i>Gender</i>								
Male	33.9	66.1	37.5	49	28.9	71.1	2.40	X
Female	18.5	81.5	27.8	42.6	28.7	71.3	2.26	X
	X^2 (1)=8.593, p =.003		X^2 (2)=13.602, p =.001		X^2 (1)=0.001, p =.977		t (353)=.950, p =.321	
<i>Age</i>								
<50	22.1	77.9	22.7	58.8	24.7	75.3	2.62	1.32
>50	31.8	68.2	39	42.8	30.3	69.7	2.27	1.32
	X^2 (1)=3.185, p =.074		X^2 (2)=9.309, p =.010		X^2 (1)=1.070, p =.301		t (353)=2.193, p =.03	
<i>Residence</i>								
Village/rural area	37.1	62.9	42.9	48.6	28.6	71.4	2.46	1.48
Town	30.2	69.8	41.9	46.5	18.6	81.4	2.48	1.37
Small city	28	72	38.7	50.7	28	72	2.48	1.37
Large city	28.1	71.9	30.2	45.4	31.2	68.8	2.28	1.29
	X^2 (3)=1.266, p =.737		X^2 (6)=12.503, p =.052		X^2 (3)=2.791, p =.425		F (3, 348)=.641, p =.589	
<i>Marital status</i>								
Single	26.9	73.1	34.6	50	42.3	57.7	2.20	1.25
Married	27.9	72.1	32.6	50.7	24	76	2.45	1.34
Divorced	40	60	50	19.4	55.6	44.4	1.71	1.01
Separated	50	50	50	25	50	50	2.50	1.91
Widowed	20	80	20	40	20	80	2.80	1.30
	X^2 (4)=3.329, p =.504		X^2 (8)=15.386, p =.052		X^2 (4)=19.281, p =.001		F (4, 348)=2.650, p =.033	
<i>Children</i>								
No Child	39.5	60.5	47.4	23.7	50	50	1.97	X
1 or more	28	72	33.1	49.8	26.3	73.7	2.41	X
† = percentages.	X^2 (1)=2.147, p =.143		X^2 (2)=9.575, p =.008		X^2 (1)=9.299, p =.002		t (353)=-1.880, p =0.81	
Sig. differences in bold .								

A total of 34 fields were identified in the questionnaire and participants were asked to indicate the study areas. These fields were then classified into the humanities, and the social and natural sciences. A Chi-square analysis revealed significant differences between fields for belief in God, contrasting with past research (see [89], [84], [36], [26]), however belief in after life and religious affiliation did not achieve significance.

Table 3. Belief in God and after life among fields

	Belief in God [†]		Belief in After Life [†]			Religious Affiliation [†]	
	None	Believer	No	Yes	Don't know	None	Affiliated
<i>Fields</i>							
Humanities	23.8	76.2	30.2	53.5	16.3	23.3	76.7
Social	17.4	82.6	24.6	50.7	24.6	23.2	76.8
Natural	33.7	66.3	38.5	44.5	17.0	31.6	68.4
[†] = percentages Sig. differences in bold.	$X^2 (2) = 7.657, p = .02$				$X^2 (4) = 5.992, p = .20$	$X^2 (2) = 2.620, p = .27$	

In the Table 4 below, single-item questions assessed four options for possible science-religion relationship views, perceptions of the impact of science on religiosity, perceptions that scientific advances increase religious disinterest, and questions for belief in the theory of evolution and creationist explanations for the origin of life on Earth.

Table 4. Opinions on the relationship of science and religion (%)

	Strongly somewhat disagree	or	Strongly somewhat agree	or	Neither agree nor disagree
Conflict view	33.0		56.0		11.0
Independence view	30.4		56.6		13.0
Collaboration view	47.6		40.7		11.7
Dialogue view	42.6		37.5		19.9
Science has made me much less religious	46.7		36.6		16.7
Scientific progress increases religious disinterest	36.4		46.1		17.5
Belief in evolution	25.0		61.3		13.7
Belief in creationism	58.6		26.5		14.9

10. Limitations

First, the use of purposive sampling in the present study differs from the stratified and random sampling techniques utilized in most previous quantitative research on perceived science-religion relationships. In turn, the data is not intended to be generalizable to the population of academics across Turkey, and low sample sizes prevented analyses comparing specific disciplines with each other. Furthermore, not all university professors are “full professors” and utilizing an even broader selection criteria may yield different results.

11. Conclusion

The present study investigated the religiosity of Turkish academics and their perceptions on the relationship between religion and science, and associated variables such as interpretation of the Quran, and belief in evolution and creationism. While the existing literature is replete with similar research conducted against the background of American Protestantism and sampling only elite scientists, to our knowledge this is the first study to explore this collection of variables in a Muslim majority country and with professional academics. In addition to entering uncharted research territory, the breadth of topics covered, and our use of purposive, convenience sampling underscores the exploratory nature of the findings [33], [43], that we hope will stimulate further investigations with non-Western samples.

Despite differences in cultural context and our target sample, the data presented here approximates previous research identifying academics as substantially less religious when compared to the general population. Indeed, the Turkish academics we sampled showed roughly a 20% gap when compared to non-academics on measures of belief in God, religious affiliation, perceived science-religion conflict, and belief in creationism. Causation is notoriously difficult to establish in social science. It remains unclear whether individuals who are naturally pre-disposed to the thinking styles associated with lower religiosity gravitate toward academic disciplines as a result (places where being analytical is valued and reinforced) or if academic training itself contributes to their lack of religiosity [9], [27], [60]. Contra early secularization theorists, the advancement of science and the academy have not entailed the retreat of religion among the public. Rather, scientific thinking has given us new tools to study religion and science.

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Notes

1. Throughout this paper we use the terms nonbelief and atheism interchangeably to refer to the lack of belief in gods. Nonreligion and nonreligiosity is a broader category indicating a degree of distance from religion that encompasses the previous terms, but does not necessarily imply atheism (for discussion, see [81]).
2. Disaffiliation did not reach statistical significance.
3. Lest we need to convince anyone of the absolute value of evolutionary thinking, the single example of its priceless and enduring contribution to medicine and public health should suffice (cf. [63]).

Reconciling the Irreconcilable: A Property Rights Approach to Resolving the Animal Rights Debate

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Abstract:

Libertarianism is understood to be a “deontological theory of law” that purportedly applies exclusively to humans. According to some libertarians, however, “one of the greatest weaknesses of libertarian theory” is that there are no provisions outlawing the abuse and torture of animals even though this seems to be one of “the most heinous acts it is possible to do”. Moreover, a few of these libertarians go even further and claim that this legal philosophy of non-aggression should actually be extended to include other animals. The purpose of this paper is to reconcile this seemingly irreconcilable situation by arguing that it is a “continuum problem” and offering a principled, libertarian compromise that resolves the animal rights debate using the non-aggression principle (NAP) and private property rights.

Keywords: animal rights, evictionism, libertarianism, property rights, children’s rights.

1. Introduction¹

Libertarianism is understood to be a “deontological theory of law” that purportedly applies exclusively to humans [1, p. 275].² According to some libertarians, however, “one of the greatest weaknesses of libertarian theory” is that there are no provisions outlawing the abuse and torture of animals even though this seems to be one of “the most heinous acts it is possible to do” [14, p. 83].³ Moreover, a few of these libertarians go even further and claim that this legal philosophy of non-aggression should actually be extended to include other animals [18]. The purpose of this paper is to reconcile this seemingly irreconcilable situation by arguing that it is a “continuum problem” and then offering a principled, libertarian compromise that resolves the animal rights debate using the non-aggression principle (NAP) and private property rights [3].

2. The Traditional Rothbardian View of Animal Rights

The traditional libertarian view of animal rights, expressed most notably by Murray Rothbard, is straightforward. According to Rothbard,

While natural rights, as we have been emphasizing, are absolute, there is one sense in which they are relative: they are relative to the species man. A rights-ethic for mankind is precisely that: for all men, regardless of race, creed, color, or sex, but for the species man alone. The Biblical story was insightful to the effect that man was ‘given’ — or, in natural law, we may say ‘has’ — dominion over all the species of the earth. Natural law is necessarily species-bound [21, pp. 155-156].

In short, under the Rothbardian view, libertarian legal theory currently only applies to humans.⁴ To clarify the reason why, he explained that,

The assertion of human rights is not properly a simple emotive one; individuals possess rights not because we ‘feel’ that they should, but because of a rational inquiry into the nature of man and the universe. In short, man has rights because they are natural rights. They are grounded in the nature of man: the individual man's capacity for conscious choice, the necessity for him to use his mind and energy to adopt goals and values, to find out about the world, to pursue his ends in order to survive and prosper, his capacity and need to communicate and interact with other human beings and to participate in the division of labor. In short, man is a rational and social animal. No other animals or beings possess this ability to reason, to make conscious choices, to transform their environment in order to prosper, or to collaborate consciously in society and the division of labor [21, p. 155].

This means the rights of human beings stem from their capacity as a species to engage in purposeful action in order to satisfy goals that they have intentionally set. Specifically, “man, ‘the rational animal,’ possesses reason to discover such ends and the free will to choose” [21, p. 7]. Unlike humans, animals are “compelled to proceed in accordance with the ends dictated by their natures” [21, p. 7].

In addition to the ability for humans to engage in conscious choices directed toward the pursuit of particular goals, another thing that distinguishes humans from other animals, according to Rothbard, is the ability to petition for their rights to be respected and their capacity to likewise respect the rights of others. In an attempt to clarify this, he stated,

There is, in fact, rough justice in the common quip that ‘we will recognize the rights of animals whenever they petition for them.’ The fact that animals can obviously not petition for their ‘rights’ is part of their nature, and part of the reason why they are clearly not equivalent to, and do not possess the rights of, human beings. And if it be protested that babies can’t petition either, the reply of course is that babies are future human adults, whereas animals obviously are not [21, pp. 156-157].

In other words, under the traditional Rothbardian view, rights are granted to those who can petition for those rights to be respected and reciprocate that respect to others. They are also granted to those who will be able to do so at some point in the future of their development.⁵ From this perspective, since animals cannot petition for their rights and are not capable of doing so in the future of their development, they consequently do not have any rights. If, however, at some point in the future they became capable of engaging in such actions, then they would be granted rights. The same would apply to the discovery of a new alien species. According to the traditional Rothbardian view, if the alien

species is capable of petitioning for their rights and respecting the rights of others, then its members would likewise be granted rights. If the alien species couldn't, though, then they wouldn't have any rights.⁶

He is far from alone in this understanding of libertarianism. In defense of Rothbard's views regarding animal rights, Hans-Hermann Hoppe has stated, "animals are incapable of engaging in propositional exchange with humans. Indeed, it is this inability which defines them as non-rational and distinguishes them categorically from men as rational animals. Unable to communicate, and without rationality, animals are by their very nature incapable of recognizing or possessing any rights" [21, p. xxxv].

Similarly, Walter Block has also made the case that libertarianism is "a legal philosophy for *humans*" that "allows us to know how we may act with regard to each other" [14, p. 85].⁷ To reinforce this point, he's pointed out that "animals are simply not capable of functioning in human society" [14, p. 85]. To clarify, he stated, "animals cannot possess the right of self-ownership because they cannot exercise control over their actions like humans, and so they may properly be considered as our property" [14, p. 89].

Block has also argued in defense of granting rights based on being able to petition for rights or belonging to a species that has members who can petition for their rights. Specifically, he stated,

Why is petitioning so all-important? Because this lies at the very core of libertarianism. This philosophy is predicated upon the non-aggression principle (NAP). It is illicit, unlawful, for anyone to initiate violence against an innocent person or his property, or threaten him thereby, unless permission is given. But the opposite side of the coin of this principle is private property rights. For, if I own your jaw, and I punch it, or, you stole from me the shoes you are now wearing and I repossess it, then, you are the criminal, not I. So, we need a theory of private property rights. According to the libertarian viewpoint, this is based on homesteading, and self-ownership, the "mixing of labor" with virgin land of Locke, and the legitimate title transfer theory of Nozick. But petitioning is a sort of homesteading of rights. When you petition, you "mix your labor" with, you link to, your rights. Yes, babies, the comatose, the senile, those who are asleep, cannot do so, but we go by species, not individual, membership. If and when chimps or pigs or dolphins learn to earn their rights in this way, libertarians will then indeed have to rethink their rejection of rights for these species [16, p. 55].

To put it differently, the assumption that legal rights extend further beyond species which are capable of petitioning for their rights and respecting the rights of others is inconsistent with "thin"⁸ libertarianism, at least as it is traditionally understood by Rothbard and others. In other words, the traditional Rothbardian view of animal rights maintains that thin libertarianism, which is limited to the NAP and property rights, purportedly has something to say about where the line should be drawn. Specifically, that the line should be drawn at membership to a species which has other members that are capable of petitioning for rights and respecting the rights of others *qua* libertarianism.

As a result, the treatment of animals, according to Block, is not something that libertarians *qua* libertarians have anything to say about. Specifically, he stated,

The challenge to libertarianism, that it has no answer to the challenge of animal abuse, has been met. The solution is that, at least according to correct libertarianism, the thin version thereof, this is not an issue that this philosophy can or should deal with. Rather, it is adventitious with regard to the freedom perspective. For libertarianism covers but a very narrow slice of political economy. It concerns itself, solely, with violations of the NAP between human beings. Cruelty to animals falls outside this realm. Is this a weakness of

libertarianism. [sic] Yes and no. Yes in the sense that its coverage, correctly understood, is limited. When we view the matter through the lens of thin versus thick libertarianism, that supposed weakness in this philosophy widely thought to exist does not really exist. Thick libertarianism is more pernicious and more of a threat than previously imagined, before this present solution to the challenge against it created by the specter of animal cruelty. Libertarianism, the NAP, is solely concerned with man's relationship to man; that is it! There is no more. There is nothing in this perspective of relevance to the torture of animals [13, p. 110].

3. Criticisms of the Traditional Rothbardian View of Animal Rights

It's possible, however, that the present line may not be drawn at the proper place. When it comes to abortion, for instance, some libertarians, like Rothbard, have maintained that as far as libertarianism is concerned, the line regarding legal protection should be drawn at birth [21]. According to this view, libertarianism only applies to humans who have already been born. Yet Block, in his defense of evictionism, has argued that the matter is actually a continuum problem and has given other reasons why he believes that the line should actually be moved all the way to the moment of conception [2]. Given this, then, it could likewise be the case that when it comes to animals and legal rights, it may not be proper to draw the line at being a member to a particular species. In other words, much like how Block has insisted that libertarianism doesn't only apply to humans who have already been born but also includes unborn humans, some critics of the Rothbardian view of animal rights have suggested that it is likewise the case that libertarianism doesn't only apply to members of a particular species that can petition for their rights, but also other members outside of that particular species who cannot do so.

One of the most vocal libertarian critics of the Rothbardian view of animal rights shared by both Hoppe and Block was Thomas Raskin [20; 23].⁹ According to Raskin,

There are three related problems with Block's argument. First, Block assumes from the outset that the human-animal division is morally significant, even though that division's moral significance is the very thing that Block needs to prove. Second, Block seems to make the inappropriate assumption that individuals have rights if and only if they can articulate a sincere respect and desire for rights. Third, Block pays inadequate attention to sentience when determining who has a right not to be tortured [20].

Before proceeding further, it is extremely important to first address a problem with the first point raised by Raskin regarding the human-animal division being *morally significant* and to offer a friendly amendment. Specifically, libertarianism focuses on *legality*, not morality. Whether or not the human-animal division is *morally significant*, therefore, is beside the point of libertarianism. What matters is whether or not the human-animal division is *legally significant*, which Block appears to maintain. To assist Raskin, then, the first objection should be revised to say, "Block assumes from the outset that the human-animal division is *legally significant*, even though that division's *legal* significance is the very thing that Block needs to prove."

There's also a slight problem with the second point made by Raskin regarding individuals having rights "if and only if they can articulate a sincere respect and desire for rights" [20]. To clarify, the problem with this is that while an individual's capability to articulate a sincere respect and desire for rights may be sufficient, it is not necessary under the Rothbardian view of animal rights. This is because it's possible for individual beings to have rights despite not being able to petition for such rights, such as babies and the intellectually disabled. What matters is whether or not the individual *belongs to a species that can petition for rights*.¹⁰ Therefore, to offer a friendly amendment to his second objection, it can be revised to state, "Block seems to make the inappropriate assumption that

individuals have rights if and only if they *belong to a species* that can articulate a sincere respect and desire for rights” [20].

These revised objections, coupled with Raskin’s other objection, work together to cast doubt on the soundness of the Rothbardian view of animal rights held by Block and many other libertarians.¹¹ Building off of his previous objections, Raskin ultimately concludes that “any legal system permitting unprovoked assaults on sentient animals would be unjustified” [20].

Another critic of the Rothbardian view of animal rights held by Block and others is Michael Huemer [18], [19]. In response to the idea that membership to a particular species is what matters when it comes to whether or not rights should be granted, Huemer has likewise questioned why the line must be drawn specifically at membership to a species that can petition and respect rights and not elsewhere. Specifically, he stated,

The assertion seems to be that babies and the mentally disabled have rights because other members of their species have homesteaded things. Block makes no effort to explain why species classifications are morally special but not genus classifications, race classifications, hair color classifications, or any other grouping – nor, indeed, why the moral rights of an individual would depend upon a grouping of that being with any other entities at all, rather than on the actual characteristics of that individual [19, p. 44].¹²

To clarify and further underscore his point, Huemer added,

Let’s think about land ownership. This is the source of Block’s idea of homesteading, and Block invites us to take land ownership as the model for all rights. But land ownership certainly does not work in the way that Block and Rothbard require: I do not own a plot of land because I could homestead it in the future, or because someone else homesteaded it, or because other members of my species homesteaded other things. The way homesteading works is that the individual who actually homesteads a plot of land acquires that specific plot of land and nothing else. So again, on the homesteading theory, there is no basis for infants or severely disabled humans to have any rights. The idea that they have rights because they might homestead something in the future or because other conspecifics have homesteaded other things is a non-starter [19, p. 44].

In other words, according to Huemer, when it comes to owning a particular plot of land, someone doesn’t own a particular plot of land because other humans have homesteaded other plots of land, nor do they own it because someone else homesteaded it or because they could potentially homestead it in the future. Rather, land ownership is specific to the individual who homesteaded it. If species membership isn’t what grants ownership of a particular plot of land and instead it’s done more on an individual level, then, in Huemer’s view, it’s not clear why legal rights should be based on species membership instead of on the individual level. Huemer’s objection, in conjunction with the other objections raised by Raskin, provide further reason to doubt the idea that, *qua* libertarianism, the line should be drawn at membership to a particular species.

4. Arriving at a Crossroads

So which is it? Do animals have legal rights or don’t they? Respectable libertarians appear to fall on both sides of this issue. In this paper, the former position will be what is mostly assumed. Specifically, that legal rights are not necessarily limited to members of a species that can petition for rights and respect the rights of others. Consequently, this paper will analyze a variety of other places where the

line may be drawn. Wherever the line is assumed to be drawn, those animals will have the same legal rights as humans, albeit non-rational humans such as children and the intellectually disabled.¹³

This position is taken for two reasons. The first reason is philosophical and involves the points made by Raskin and Huemer about drawing the line at membership to a particular species being problematic. Consider, for instance, that alien life is discovered on another planet. Suppose further that this alien life has the exact same features as humans do. The only differences are that for some reason they do not have human DNA and, as a species, they are all intellectually disabled, meaning that they lack the ability to petition for their rights. To be clear, this alien species is not a part of the human species even though they look and act identical to them.

According to the Rothbardian view of animal rights, while it would be completely illegal to abuse and torture intellectually disabled humans since they are a member of the human species, it would be perfectly legal to abuse and torture the alien creatures who look and act exactly the same as the intellectually disabled humans merely on the grounds that they evolved separately on a different planet and consequently have different DNA. Why, though? On what grounds, *qua* libertarianism, does membership to a particular species grant individuals rights, especially when those individuals may never be able to petition for rights or respect the rights of others themselves? Such a distinction does not appear legally significant, *qua* libertarianism.¹⁴ It consequently calls into question the assumption that being a part of a species that can articulate a sincere respect and desire for rights is what grants a species legal rights and it suggests that the issue is a “continuum problem,” which means that the answer cannot be determined *qua* libertarianism [3].¹⁵

To put it differently, basing rights on membership to a particular species does not appear to follow strictly from libertarianism, which is limited to the non-aggression principle and private property rights based on homesteading. Rather, where specifically to draw the line appears to be a continuum problem.¹⁶ To clarify, the non-aggression principle only has to do with initiating “violence against an innocent person or his property, or threaten him thereby” without his permission [16, p. 55]. It doesn’t say anything about what counts as a legal person or where the line for rights should be drawn. Similarly, private property rights based on homesteading is about mixing one’s labor with land or other property.¹⁷ It likewise doesn’t have anything to say about how far rights should extend. Plus, as noted earlier by Huemer, in order for someone to own something, they themselves have to homestead it. They don’t get a property right to something because other members of their species have homesteaded it or are at least capable of homesteading it. In other words, just because individuals own themselves doesn’t mean that the line should be drawn at membership to a species that can petition for rights and respect the rights of others.

Perhaps it may be argued, though, that “self-ownership,” which has to do with whether or not living beings can “exercise control over their actions,” is what determines that the line should be drawn at membership to a species that can petition for rights and respect the rights of others [14, p. 89]. To echo Huemer’s concern, however, how does it follow that one particular creature having rights based on self-ownership due to being able to exercise control over their own actions means *other creatures* who are a part of the same species but *cannot* exercise control over their own actions likewise have rights or self-ownership? To clarify, people having control over their actions just means that those individual people have rights based on self-ownership. It doesn’t follow from this that others who are apart of the same species but cannot control their actions likewise have rights. Specifically, just because individuals own themselves doesn’t mean that the line should be drawn at membership to a species that can petition for rights and respect the rights of others. To sum up the first reason why this paper takes the position that legal rights are not necessarily limited to members of a species that can petition for rights and respect the rights of others, it is due to the fact that drawing the line at species membership does not appear to follow from the NAP, private property rights, or self-ownership and instead appears to be a continuum problem.

The second reason is a more “logical – rhetorical – pedagogical one” [2, p. 17]. To clarify, despite the foregoing, this paper will ultimately end up defending a largely “non-vegan” position. Specifically, the conclusion will be that killing and eating animals could be legal, regardless of where the line is drawn. Consequently, it is imperative that every potential obstacle is placed in the way to avoid the possibility of tearing down or defending against any straw man arguments. If it was assumed that animals don’t have legal rights, then the case would be open and shut. If, however, it can be shown, as this paper intends to do, that it could still be legal to abuse, torture, and kill animals even if it’s given that animals have legal rights, then such an approach would make the analysis “more logically robust” [2, pp. 17-18].¹⁸ Since this paper ends up supporting some non-vegan outcomes in this respect, the analysis begins by considering the vegan belief that the line for legal rights should be drawn in a manner to include at least some, if not all, animals in order to make the case as difficult as possible. Given this, how can the legal abuse, torture, and killing of those animals with legal rights be defended?

5. A Primer on Evictionism

In order to understand how such a conclusion can be reached, it is first important to outline the libertarian theory of “evictionism” developed by Block as a compromise to the abortion controversy. According to the evictionist view, human life is assumed to begin at the fertilized egg rather than at birth or somewhere in between, which means that fertilized eggs on up would have the same legal rights that non-rational humans such as children or the intellectually disabled have under traditional libertarian theory.¹⁹ This is not just for philosophical reasons, but also for similar rhetorical reasons that were described above.²⁰ Namely, that despite assuming that life begins at birth, the evictionist view ends up supporting the pro-choice position related to it being legal for a woman to remove an unborn baby from her womb at any time during the pregnancy for any reason even though the child in the womb lacks *mens rea*,²¹ so assuming the pro-life view regarding when life starts helps strengthen the argument.²²

Regarding the issue of pregnancy, the property in question is the mother’s womb. To quote Block,

But what of the property under dispute between the mother, who does not want, for any reason, or no reason at all, to carry the fetus in her womb for the full gestation period of three quarters of a year, and the human baby whose life is in dire danger if she has her way, and who wishes to remain exactly where he is for the full duration? Why, clearly, it belongs to the mother, and entirely so. The womb consists of parts of her very body. One point for the pro-choicers. Who has a right to control property in the libertarian view? Why, its owner of course; that is precisely who. The unwanted fetus is thus akin to a trespasser for the mother who wishes him not to occupy that or indeed any part of her body. Do property owners have the right to kill trespassers, such as unconscious people, or babies, who lack *mens rea*? Of course not. Must the homeowner allow the trespasser, however innocent to remain in her domicile for as long as the latter need to do so to preserve his life? No, certainly not either. Therefore, the proprietor of the property in question may evict, but not kill the stowaway. He must remove him in the gentlest manner possible consistent with retaining full rights over his own property, lest he, too, engage in an act incompatible with libertarian law [7, p. 126].

In other words, a pregnant woman may evict the unborn baby from her womb, according to libertarian legal theory, but she may not unnecessarily kill it.²³ This is because the unborn baby, by being an unwanted occupier of another person’s property (the woman’s womb), is a trespasser (albeit one that lacks *mens-rea*, otherwise known as a guilty conscience) and libertarianism permits individuals to use

any means necessary, up to and including deadly force, to put an end to a rights violation such as trespass. This is what is meant by the “gentlest manner possible.”²⁴

To clarify, since killing is a necessary part of the eviction process prior to viability, lethally removing the unborn baby would be licit. After viability, however, it no longer becomes necessary to end the life of the unborn baby, which means that doing so would be illicit. Consequently, as medical technology improves, lethal evictions would be pushed further and further back toward the fertilized egg while the number of non-lethal evictions would increase. Eventually, the technology may become so advanced that the unborn baby can be non-lethally removed from the womb from the moment of conception and any time along the way to birth, which means that the killing of unborn babies in the womb would be completely outlawed under libertarianism.

6. A Primer on Children’s Rights

What about children who have already been born or non-lethally evicted from the womb? According to Rothbard,

Parental ownership is not absolute but of a ‘trustee’ or guardianship kind. In short, every baby as soon as it is born and is therefore no longer contained within his mother’s body possesses the right of self-ownership by virtue of being a separate entity and a potential adult. It must therefore be illegal and a violation of the child’s rights for a parent to aggress against his person by mutilating, torturing, murdering him, etc. [21, p. 100].

This essentially means that children own themselves; the parents do not own their children as property and therefore cannot legally violate their negative rights by engaging in things like physical or sexual abuse.²⁵ Although parents don’t own their children, they can come to homestead ownership of the trustee or guardian role for particular children. Specifically, since being a trustee involves caring for a particular child, doing so is how a parent homesteads ownership over the right to continue caring for the child. If a parent stops caring for a child, then they forfeit their ownership of their role as a trustee, which means that someone else can claim ownership of the trustee or guardian role by stepping in and caring for the child. In the words of Block,

The arch-typical way to ‘homestead’ an infant is to engage in sexual intercourse, and then provide a ‘home’ for the baby for 9 months and thereafter. But if a male and female scientist inserted a sperm belonging to one of them into an egg belonging to the other, and then grew the resulting embryo in a test tube, or in a willing host mother, and then cared for the baby after the 9-month gestation period, they, too, would and should be considered the proper parents. The only difference between the cow and the child is that in the former case outright ownership is possible, whereas in the latter all that is ‘owned’ is the right to continue to homestead (e.g., care for) the child. Doing so establishes the right to keep doing so, until the youngster reaches adulthood [4, p. 431].²⁶

The extent of the parent’s role as trustee also depends on the child’s ability to say “no” and leave the home.²⁷ To underscore this point, Rothbard has explained that,

Regardless of his age, we must grant to every child the absolute right to run away, and to find new foster parents who will voluntarily adopt him, or to try to exist on his own. Parents may try to persuade the runaway child to return, but it is totally impermissible enslavement and an aggression upon his right of self-ownership for them to use force to

compel him to return. The absolute right to run away is the child's ultimate expression of his right of self-ownership, regardless of age [21, p. 103].

It should be noted, however, that while parents and trustees may not legally aggress against their children, they also do not have a legal obligation to educate, clothe, or feed them under libertarianism “since such obligations would entail positive acts coerced upon the parent and depriving the parent of his rights” [21, p. 100].²⁸ This means that it is permissible to legally transfer ownership to someone else if the trustee no longer wants to care for the child, which is something that Rothbard has elaborated on in detail. Specifically, he stated,

If a parent may own his child (within the framework of nonaggression and runaway-freedom), then he may also transfer that ownership to someone else. He may give the child out for adoption, or he may sell the rights to the child in a voluntary contract. In short, we must face the fact that the purely free society will have a flourishing free market in children. Superficially, this sounds monstrous and inhuman. But closer thought will reveal the superior humanism of such a market. For we must realize that there is a market for children now, but that since the government prohibits sale of children at a price, the parents may now only give their children away to a licensed adoption agency free of charge. This means that we now indeed have a child-market, but that the government enforces a maximum price control of zero, and restricts the market to a few privileged and therefore monopolistic agencies. The result has been a typical market where the price of the commodity is held by government far below the free-market price: an enormous ‘shortage’ of the good. The demand for babies and children is usually far greater than the supply, and hence we see daily tragedies of adults denied the joys of adopting children by prying and tyrannical adoption agencies. In fact, we find a large unsatisfied demand by adults and couples for children, along with a large number of surplus and unwanted babies neglected or maltreated by their parents. Allowing a free market in children would eliminate this imbalance, and would allow for an allocation of babies and children away from parents who dislike or do not care for their children, and toward foster parents who deeply desire such children. Everyone involved: the natural parents, the children, and the foster parents purchasing the children, would be better off in this sort of society [21, pp. 103-104].

If parents do not have any legal obligations to care for their children, though, does that mean it would therefore be licit to keep them on their property and starve them to death or neglect them in some other way? Not as long as there are others willing to care for them.²⁹ This is due to the fact that someone who is neglecting a child no longer owns the role of trustee over that child. In other words, the status of that role is unowned, and someone who uses their property to prevent others from homesteading unowned property is guilty of the crime of “forestalling,” which is a negative rights violation. As a consequence, it would be legally permissible for individuals to enter onto the neglectful people’s property and rescue the children so that they can be looked after by someone who is willing to take care of them.³⁰ This, to be clear, is not a positive obligation to care for the child, but rather, it is the stopping of a negative rights violation being committed by the person forestalling against others.³¹

What about situations where no one else is willing to care for a particular child? If no one truly wanted to care for the child, then in these kinds of situations, and only these kinds of situations, would it be legally permissible for a child to be neglected. This is for two reasons. First, since no one has a positive obligation to care for children, no one would have an obligation to keep any children alive if there wasn’t anyone who wanted to take care of them. To clarify, if no one else wanted to care for particular children, then that means that those children would essentially be stuck on whatever property they were last on and since those property owners don’t have a positive obligation to keep those

children alive, it would be licit to let them starve to death or neglect them in some other way. Second, if no one else wanted to care for the children, then the people who are now neglecting the children would not be forestalling against anyone. It is only when others make it known that they want to care for particular children that it becomes an illegal act of forestalling.

Moreover, if no one wanted to care for the child, the property owner would not have any legal obligation to allow the unwanted child, who is now technically a trespasser despite lacking *mens rea*, to continue occupying their property. This means that the property owner would be justified in using force, up to and including lethal force if necessary, to put an end to the trespass. In other words, it would be licit for someone to end the life of a child on their property provided that no one else wants to care for that child since doing so would be acting in the gentlest manner possible consistent with stopping the crime. Such an action would not be a rights violation against the child, to be clear, because the child is actually the one engaging in a rights violation by being a trespasser; ending their life is simply putting a stop to the rights violation.

7. Stem Cell Research

A final point worth mentioning relates to whether stem cell research would be legally permissible under libertarianism since, according to the theory of evictionism, it is stipulated that life starts at the moment of conception. For starters, it would be licit for people who have a desire to do research on stem cells to produce as many embryos as they'd like since doing so is not itself an initiation of aggression.

Once produced, though, these embryos would be considered rights bearing creatures akin to infants and the intellectually disabled.³² This means that those who cultivate the embryos would not own them but rather only own the right to continue caring for them. If they no longer wish to care for the embryos, then they can abandon their role as trustee or guardian and pass the child along to someone else to continue caring for them. If the person who created the embryos decides to abandon their role as trustee but also prevents others who do wish to care for them, however, then they would be guilty of forestalling and consequently violating the rights of those who want to look after the unborn babies.³³

It should also be noted that abandonment involves notifying others of its availability to be owned. Specifically, "you cannot (logically) abandon something if you do not notify others of its availability for their ownership" [1, p. 279]. In order to abandon property and not be guilty of forestalling, then, the person abandoning the property must let others know that they can now acquire ownership of it. To clarify, someone who decides that they no longer want to care for an embryo or child but fails to notify others who do want to provide care of their decision would be guilty of forestalling. In other words, when it comes to children and embryos, someone can be guilty of forestalling either by preventing others from caring for them or by no longer caring for them while failing to notify others who are interested that they can take over the role of guardianship.

What does all of this mean for stem cell research? Essentially, those who have a desire to do stem cell research can do so if and only if no one else wishes to care for the embryos. As long as there are people who wish to look after them, however, then they "get first option at them" [4, p. 435]. To clarify, "if there are adoptive parents forthcoming (presumably from the pro-life community, but not at all necessarily limited to it) then their rights trump those of the creators of the fertilized egg, since the latter do not wish to homestead them, for example, protect them from harm, whereas the former do" [4, p. 434].

In other words, if no one else wishes to care for the embryos, then, and only then, would it be legal to use them for research purposes. The reason for this is that since no one wants to care for the embryos, they are confined to the current piece of property that they're on. Since the owner of that property, however, likewise does not want them occupying the property that they're currently on, the

unwanted embryos are, legally speaking, guilty of trespass. Since the property owner cannot evict the embryos onto other people's property without violating the rights of those property owners, lethal force would be justified on the grounds that it is the only means by which an end can be put to the ongoing trespass. Since lethal force against the embryos would be justified, lesser forms of aggression would also be justified, such as conducting experiments on them or abusing them in some other way.

What matters, then, is the number of people who want to care for the embryos compared to the number of embryos in existence. If there are more people who want to look after the embryos than there are existing embryos, then there wouldn't legally be any stem cell research. If, on the other hand, there are more embryos in existence than there are individuals interested in adopting them, then stem cell research could legally be conducted on the excess embryos that are not wanted by others. To put it differently,

If allowed, this scenario will constitute a true compromise between the contending forces on the stem cell research debate. It will be an empirical issue as to which side will win the fertilized egg 'race.' Will the demand on the part of potential adoptive parents outstrip the supply of fetuses that can be created in the laboratory? If so, then not a single one of them will be killed, and no research will [licitly] take...place, under the legal regime we are now considering. Or, will the ability of the medical technicians to create fetuses in this way overwhelm the willingness of adoptive parents to bring them up? If so, then some fetuses will be saved, those who are adopted, and others will be used and/or destroyed in medical research, the ones that exceed the demand of adoptive parents [4, p. 435].³⁴

8. Tying It All Together: Application to Animal Rights

How does all of this relate to animal rights? First off, much like the way that the theory of evictionism stipulates that life starts at the moment of conception, the compromise in this paper will assume, for the reasons mentioned earlier, that animals are included under libertarian legal theory and consequently have the same rights as non-rational humans such as infants or the intellectually disabled.^{35,36} This is one point in favor of vegans.

To be clear, this means that animals own themselves, at least partially; people do not own animals as property and therefore cannot legally violate their negative rights.³⁷ Despite this, people can come to homestead ownership of the trustee or guardian role for particular animals by caring for them.³⁸ If, however, a person stops caring for an animal, then they forfeit ownership of their trustee role, meaning that someone else can come in and, by caring for the animal, become the guardian of it.³⁹ As long as there are people who want to care for particular animals, it would not be legal for individuals to abuse, neglect, or starve those animals since doing so would make them guilty of forestalling.⁴⁰ This is another point in favor of vegans.

Much like with children, though, people would likewise not have any positive legal obligations to care for any animals. This means that, as long as no one else wants to care for the animal, it would be licit to let an animal starve to death or to neglect it in some other way. In addition to this, since the animal in this situation is currently an unwanted occupier of whatever piece of land it is currently on, it would also be legal for the property owner to use whatever force necessary to put a stop to the trespass. In other words, a property owner would be legally justified in ending the life of an animal that is currently on their property in a situation where nobody else wants to take care of the animal because, in that case, using lethal force would be acting in the gentlest manner possible consistent with stopping the violation of rights. This is one point in favor of non-vegans.

With this in mind, consider the case of animal abuse. Under the Rothbardian view of animal rights, it would be completely licit for people to torture or abuse their pets despite the fact that there may be others willing and able to care for them, which is something that Block himself has referred to

as being perceived as “one of the greatest weaknesses in libertarian theory” [14, p. 83].⁴¹ Under the compromise position presented in this paper, however, this supposed weakness would be eliminated since it would not be legal to torture or abuse a pet if someone else wants to care for it. If there is someone willing to adopt a particular dog, for instance, then that person’s right to homestead ownership of the trustee role for that dog trumps that of the individual abusing it due to the fact that the former wishes to protect it from harm whereas the latter does not. It would only be in situations where nobody wanted to care for the dog that abuse or torture would be licit.⁴² This is a third point in favor of vegans.⁴³

Consider another thorny problem related to animal rights, namely, that of bestiality. Under the Rothbardian view of animal rights, it would be completely legal for people to engage in unrestrained sexual intercourse with their pets. Under the compromise position presented in this paper, this apparent weakness is also eliminated since, as long as there are people willing to care for them, it would be just as illegal to have sexual intercourse with pets as it would be to have sexual intercourse with children. This is a fourth point in favor of vegans.⁴⁴

Additionally, consider the torture or killing of animals to produce meat and other products, such as the operations of industrialized farming. Under the Rothbardian view of animal rights, such activities would be perfectly legal. Under the compromise position presented in this paper, the industrialized farming of animals would also be legal if and only if no one else wanted to care for the animals.⁴⁵ While this may seem like yet another point in favor of vegans, a closer examination will show that it is actually a point in favor of non-vegans. To begin with, it would be legal for people who have a desire to slaughter animals for meat and other products to produce as many animals as they’d like since doing so is not itself an initiation of aggression. Once produced, the animals would be considered rights-bearing creatures and as such, they cannot be owned; only the role of guardianship over them can be owned. Since no one has a positive obligation to care for any animals, however, it could be the case that no one wants to care for particular animals. In that situation, it would be legal to neglect, abuse, or even kill those specific animals. In the case of stem cells, it’s likely that there wouldn’t be any stem cell research since it’s relatively easy to produce stem cells but just as easy to adopt them and then freeze them for future use. In the case of animals, though, it’s likely that there would be industrialized farming of animals since it is much easier to continuously produce animals than it is to continuously adopt them and care for them.^{46,47} This, then, is a second point in favor of non-vegans.⁴⁸

Finally, consider using animals for medical or cosmetic testing. Under the Rothbardian view, doing so would be completely licit. Similarly, under the compromise position in this paper, it would also be legal contingent on the fact that no one else wants to care for the animals in question. If someone wants to care for the particular animals, though, then they would get priority over them.⁴⁹ Much like with industrialized farming, therefore, it’s likely that there would be medical and cosmetic testing on animals since it’s harder to continuously adopt and care for animals than it is to continuously produce them. This is a third point in favor of non-vegans.

To summarize, there are at least four possible points in favor of veganism and three possible points in favor of the non-vegan position. On the vegan side, animals have legal rights and, because of this, it would be illegal to neglect, abuse, or torture any animals so long as there are people who have an interest in caring for them. On the non-vegan side, in situations where no one wants to care for particular animals, it would then be licit to neglect, abuse or torture animals, which leaves open the possibility for the industrialized farming of animals for meat and other products as well as medical and cosmetic testing. In other words, although the compromise would grant legal rights to animals, it would also allow for the possibility of animals to be legally tested on or killed for human consumption.

In short, the libertarian compromise to the animal rights controversy is capable of starting wherever proponents of animal rights assume the line should be drawn by clearly defining the ownership of those animals along the lines of trusteeship, much like what is done with both born and unborn children as well as the intellectually disabled.⁵⁰ In doing so, the issue becomes one of property

rights; namely, whether or not someone owns, or is willing to own, the role of trustee over an animal. If no one owns the role of trustee over an animal, and no one is willing to homestead such a role, then abusing or killing an animal would be licit. Otherwise, doing so would be illicit. Essentially, then, the compromise presented in this paper is based on the universal application of the non-aggression principle and property rights wherever the line ends up being drawn along the continuum.⁵¹

9. Further Implications

While keeping the foregoing section in mind, consider how this compromise compares with Raskin and Huemer's views as well as the Rothbardian view of animals. Also, consider a few implications of this compromise related to predators and prey (i.e. lions and gazelles or wolves and deer), rodent infestations, germs and insects, plants and vegetables, alien species, and cannibalism.

a. Raskin and Huemer's Views on Animal Rights

To begin, compare the compromise view presented in this paper with Huemer and Raskin's views on the treatment of animals. According to the compromise described in this paper, which applies the NAP and strict private property rights to animals given the assumption that they have legal rights, if people are willing to care for a particular animal, then abusing or killing it would be illegal since doing so would make the person guilty of forestalling. However, if no one is willing to care for particular animals, then it would not be illegal, under libertarianism, for people whose property is being occupied by those animals to use force, up to and including deadly force, to stop them from continuing to trespass on their property since property owners do not have a positive obligation to continue caring for the animal and also because preventing property owners from doing so would be incompatible with strict private property rights.

According to the views held by Raskin and Huemer, however, it does not appear that they would support the idea of being able to legally kill animals, even if no one else wants to care for these animals. Raskin, for instance, has stated, "because it would greatly exaggerate the importance of agents' articulateness and vastly understate the importance of their capacity for pain, any legal system permitting unprovoked assaults on sentient animals would be unjustified" [20]. Similarly, Huemer has claimed, "factory farming is wrong because of the enormous amount of pain and suffering it causes, for the sake of trivial benefits for ourselves" [19, p. 48].

These views, though, appear to either imply positive obligations or undermine strict private property rights, both of which are inconsistent with libertarianism. To clarify, being required to care for an animal that no one wants to care for would imply that there's some kind of positive obligation to care for others. But, under libertarianism, much like people do not have any positive obligations toward other humans, they likewise do not have any positive obligations to animals. Similarly, being prohibited from using force to stop a trespass would imply that private property rights can be interfered with. Yet, under libertarianism, private property rights should be upheld in the event of a trespass, even if doing so resulted in an enormous amount of pain for the sake of trivial benefits. This means that it would be legal for the property owner to use force, up to and including deadly force, to stop a trespass from occurring even if doing so would result in an enormous amount of pain and suffering in exchange for a trivial benefit. As a consequence, unlike the compromise presented in this paper, which is consistent with libertarianism regardless of where the line is drawn, the views held by Raskin and Huemer do not appear to be fully consistent with libertarianism.⁵²

b. The Rothbardian View of Animal Rights

In addition to Raskin and Huemer's views, compare the compromise presented in this paper with the Rothbardian view of animal rights. As noted earlier, the compromise view only allows for killing of an animal determined by courts to have legal rights extended to them if no one else wants to care for the animal. This implication for animals is the same as the implications for both born and unborn children as well as the intellectually disabled under evictionism's uniquely libertarian application of the NAP and private property rights. As a result, if it's assumed that animals have the same legal rights as children or the intellectually disabled, then it would likewise be consistent with libertarianism to apply the same reasoning to animals.

According to the Rothbardian view of animal rights, however, which doesn't view the matter as a continuum problem and instead draws the line at particular species membership, it would be legal to abuse and kill animals that others want to care for even if courts extend legal rights to them. Consequently, if courts decided to draw the line for legal rights beyond membership to a particular species to include dogs and cows, for instance, then the Rothbardian view, assuming it insists on drawing the line at particular species membership and doesn't include dogs and cows, would imply that it would be permissible for people to effectively forestall against others by preventing others from homesteading the role as guardian over those animals. But, since forestalling is prohibited under libertarianism, the Rothbardian view of animals shared by Block and others likewise does not appear to be fully consistent with libertarianism regardless of where the line is drawn.

c. Predator and Prey Animals

Next, consider the implications of this compromise if courts were to draw the line at larger predator and prey mammals. Since all of these animals would, by stipulation, have legal rights, the predator and prey would both be thought of as children under the law. Would it be legal, then, for one child to kill and eat another child? Not as long as there are others who want to care for the child being killed and eaten. Similarly, it would not be legal for one mammal, such as a lion or wolf, to kill and eat another mammal, such as a gazelle or deer, as long as there are people who want to care for the prey of the other animal. A mammal that kills and eats one of these animals which someone else wanted to care for, then it would be guilty of a negative rights violation as well as forestalling, their lack of *mens rea* notwithstanding. In addition to that, trustees who allow one of their animals to kill and eat other animals which they're the guardians of would similarly be guilty of a rights violation as well as forestalling. Moreover, it would also be illegal for people to allow their animals to kill and eat animals who have different trustees since doing so would not only violate the rights of the animal but also violate the rights of the other trustee by interfering with their role as a guardian.

If, however, no one wanted to care for a particular prey mammal, then it would not be forestalling under these conditions for the predator to kill and eat it. Therefore, much like when it comes to slaughtering animals for meat and other products, what primarily matters is the number of people who want to care for the prey animals compared to the number of prey animals in existence. Since it would likely be easier to continuously produce prey animals than it would be to continuously adopt and care for them, it's likely that there would be plenty of animals for predators to eat. For example, if there was a surplus of prey animals, those prey animals could be slaughtered and fed to zoo animals or sent to a safari park to be hunted by humans or other animals.⁵³

Suppose, however, that there wasn't a surplus of prey animals, which would mean that it would be illicit for predators to kill and eat the currently existing prey animals. While this would likely result in the extinction of all the various predators since they need to kill and eat other creatures in order to survive, is this a weakness of the libertarian compromise presented in this paper? Absolutely not! If there was a vampire species that could only survive by sucking the blood out of living humans, it

would not be legal for those vampires to aggress against others and involuntarily suck their blood out of necessity. If they end up going extinct as a result, then so be it!⁵⁴ Similarly, if slavery was the only way to keep the human species alive, it would still not be legally justified under libertarianism since it is a deontological, not a consequentialist, theory of law.

d. Rodent Infestations and Extermination

Now consider the implications of this theory when applied to rodent infestations. Specifically, suppose that someone's house becomes infested with rats and the courts have drawn the line for legal rights to include small rodents in addition to large mammals. According to the compromise presented in this paper, each of those rodents would be assumed to be rights bearing creatures, which means it would not be licit to aggress against them as long as others want to care for them. Does this mean that a person with a rodent infestation must allow the rats to continuously occupy their property? Not at all. The property owner may legally evict, but not kill, the unwanted trespassers, assuming that the homeowner was there prior to the rodents coming.⁵⁵ If the only way to evict the rodents is to necessarily kill them, then doing so would be justified.⁵⁶

What does this mean for rodent exterminators? For starters, much like with abortion, extermination is really a combination of two acts: eviction and killing. Therefore, under this theory, evicting the rodents would be licit but killing them, provided that others want to care for them, would be illicit. In other words, if it is assumed that others want to care for the rodents and that it's not necessary to kill the rodents in order to remove them, then the role of exterminators would be to go over to someone's house, capture the critters alive, and then bring them somewhere else where they are wanted, such as an animal shelter or another person's house.

e. Germs and Insects

Another thing to consider is how this theory would apply if the line was drawn at microscopic germs and insects. According to the compromise position presented in this paper, they would all likewise have legal rights similar to other animals, children, and the intellectually disabled. Nevertheless, what matters is whether or not there are more tiny germs and insects in existence than there are people willing to care for these living organisms. If there are more people who want to care for existing organisms, then it would be illegal to kill these tiny critters,⁵⁷ unless it's necessary for individuals to do so in order to evict them from their property.⁵⁸ Given the sheer number of germs and insects and the current lack of interest in caring for them all, then, it would be likely that squishing these creatures or using pesticides on them would be legally permissible.

f. Plants and Vegetables

Moreover, consider the even more extreme case of plants and vegetables. Would the compromise position still hold up if it was insisted, even if only to test out the limits of this theory, that these living organisms would likewise be protected by the law just like germs, insects, animals, and children?⁵⁹ Certainly. While it may seem absurd at first, such a radically fringe view of life would not necessarily pose any problems to the theory. To clarify, just like with all of the other living organisms, what would matter would be whether or not there are more individuals who want to care for the plants and vegetables than there are existing plants and vegetables.⁶⁰ Since it is far easier to continuously produce such vegetation than it is to adopt and care for it, it's likely that there would be plenty of flora for people to consume.⁶¹ In addition to this, not only would there be plenty of plant matter to eat, it's likely that there would also be plenty of plant life for people to "torture," as would be the case with grass planted in a city park for people to walk on.⁶²

In this preceding analysis, it has been assumed that there are ways to evict the plant life without killing it. It should be noted, however, that if the only way for a property owner to evict a piece of vegetation is to necessarily kill it, then doing so would be legally justified. It would also be legal for someone to continuously plant vegetables in the ground knowing that they won't want to continue caring for them in the future even if the only way to remove them at a later point in time was lethal eviction. Under this assumption, this would essentially mean that farming would be completely legal regardless of whether or not people want to care for the plants and animals since there would be no way to non-lethally remove them from property they're currently on. An analogy to this would be an unborn baby in a woman's womb; namely, that it would be legal for the pregnant woman to lethally evict the future child from her womb before viability even if others want to care for that individual. Similarly, if there was a type of sci-fi development that can grow humans in the ground like trees and the only way to remove these tree-like humans who are attached to the land would be to kill them, it would likewise be legal for property owners to lethally evict them from the property, even if the property owners voluntarily planted them there in the first place.

g. Alien Species

Furthermore, consider the case of an alien species being discovered on another planet. Would this newly discovered alien species have rights? In other words, would it be legal to abuse or kill this newly discovered species? According to the Rothbardian view, it would only be illegal if the alien species was capable of petitioning for their rights. If this was not the case, then it would be licit [21].

Under the compromise in this paper, however, it would be assumed that they have legal rights regardless of whether or not they can petition for them. As a consequence, it would only be legal to abuse or kill the newly discovered species if no one else wanted to care for them. Otherwise, doing so would be illicit.

h. Cannibalism

Finally, since this compromise position allows for the possibility of legally killing and eating animals despite the fact that they have the same legal rights as human children, consider the bizarre case of human cannibalism. How does the compromise position presented in this paper compare to the Rothbardian view? According to both views, it's possible that human cannibalism could be done legally if, and only if, no one else wanted to care for the person being eaten.⁶³

To clarify, if no one wanted to care for a particular person or let that person on their property, then that individual would be confined to the current piece of property that they're on. If they don't own the current piece of property that they're on, the person who does own the property does not have a legal obligation to continue letting them occupy their property. Since there is no other property where the person can transfer the person to, lethal eviction becomes the only means necessary to put a stop to the crime. Once that person's life is put to an end, the property owner may do what they please with the remains, which includes eating them or selling them to others.⁶⁴

10. Non-Vegan Objections

a. The Law Simply Does Not Apply to Animals

The primary possible non-vegan objection to the compromise position presented in this paper is that, under libertarianism, the law simply does not apply to any individuals who do not belong to a species capable of petitioning for rights. This objection fails for a few reasons, though. First, while many may

be comfortable taking this position, defending the killing and eating of animals under this assumption is far too easy and consequently not a very intellectually rigorous defense of such conduct.

Second, there are several philosophical problems with this objection. The main problem is related to the legal significance of species membership. Specifically, the issue concerns exclusively applying legal rights to all members of a species that can petition for their rights and respect the rights of others, even if some of the individual members cannot do so. This concern, coupled with a few others mentioned earlier, casts doubt on the soundness of the Rothbardian view that concludes that animals do not have legal rights on the grounds that they do not belong to a species that can petition for and respect rights.

Third, since many non-vegans would ultimately get pretty much the same outcomes that they desire under the compromise position as they would without having to make the assumptions that they do under the Rothbardian view, it is not even necessary to make this objection. Given that it could be possible to kill and eat livestock and game animals under the theory presented in this paper, the main difference between the two views is essentially related to whether or not people can torture or sexually abuse their own pets if others are willing to care for them. Under the Rothbardian view, doing so would be legal whereas under the compromise position, such acts would be criminal animal abuse.⁶⁵ Those who are okay with killing and eating animals but not okay with allowing unnecessary animal abuse, therefore, would be right at home if they adopted the compromise and wouldn't actually be losing out on anything.

Fourth, for those who are not only okay with killing and eating animals but also okay with unnecessary animal abuse, this objection fails for pragmatic, consequentialist reasons. Specifically, as of now, the non-vegan people are "winning the battle" over whether or not killing and eating animals is legal; right now, countless animals are slaughtered every day for human consumption.⁶⁶ However, there is no reason to expect that this will always be the case. In fact, as nations continue to develop, there could be a growing global movement in favor of animal rights. This means that in the distant future, it's entirely possible the tide shifts and the people in favor of animal rights get their way and consequently make it illegal to kill and eat animals even if no one else wants to care for them. In this type of situation, the non-vegans would ultimately lose the battle since they wouldn't be able to abuse or kill any animals, even their own. Under the compromise position, though, non-vegans would be in a much better situation. Specifically, if the compromise was adopted, then in the future situation just described, the non-vegan people would at least be able to consume animals that no one else wanted to care for rather than not being able to consume any animals at all.

b. Continuum Problem

A second possible non-vegan objection that could be brought up is that it is problematic for there to be a "continuum problem" when it comes to deciding what living organisms should have legal rights and which ones, if any, should not have legal rights [3]. Similarly, it could also be objected that there being a similar continuum problem when it comes to deciding what constitutes animal abuse is also problematic.

Regarding the first objection, one of the purposes of this paper showing how this compromise position can deal with even the most extreme stipulations, such as assuming plants, germs, and insects all have legal rights is to demonstrate that the existence of a continuum problem would not actually be problematic since it could be applied wherever the line is drawn. In each of these cases, what matters is whether or not there are more people who want to care for the organism in question than the number of organisms in existence. Similarly, this compromise can even deal with the even more extreme assumption that hurricanes and other natural phenomena have legal rights by treating them like aggressive individuals who lack *mens rea*.

Regarding the second objection, being uncertain about where to actually draw the line wouldn't necessarily be a problem for the compromise since the existence of continuum problems does not necessarily undermine libertarianism [3]. Consider, for instance, at what point shining an increasingly bright light at a neighbor becomes a rights violation. A similar problem involves the point at which a threat becomes imminent. Someone jokingly telling their friend in another country who's on the phone that they're going to punch them wouldn't be an imminent threat, but someone with a knife angrily chasing another person while shouting that they're going to stab them would be.⁶⁷

If where the line should be drawn is unclear, then these issues would just be left up to courts to decide. Regarding the abuse of animals, it may end up being the case that courts decide that whipping workhorses is legal but lighting cats on fire for fun is illegal torture.⁶⁸ When it comes to where precisely the line will be drawn on continuum problems, though, libertarians *qua* libertarians have nothing to say. Libertarianism as a legal theory limited to the NAP and property rights is agnostic about continuum problems and, to reiterate, lets the courts work it out instead.

In the words of Block, "of course there will always be, at least potentially, continuum [3] problems...There is nothing in political philosophy that can be done with these insoluble challenges" [14, p. 85, n. 9]. To clarify, "there are no objective non-debatable solutions to any of [the continuum problems]. All answers to them are arbitrary. Responding to these challenges are, ideally, the responsibility of courts, juries, etc." [3, p. 151].

To be clear, then, this paper does not suggest that the line should be drawn in a specific place. Rather, it argues that determining where the line should be drawn should be left up to the courts and that species membership appears to be too narrow of a distinction as well as one that cannot be made *qua* libertarianism.

c. Animals Shouldn't Be Given Rights That Cannot Be Reciprocated

A third possible non-vegan objection that could be brought up is that this compromise grants rights to animals that they are unable to reciprocate. Specifically, Block has argued,

The problem with this more 'humane' system is that if adopted, we humans would be granting to mammals, for example, more rights than they, in turn, accord to the creatures upon which they prey. To take but one example, the cat tortures the mouse, playing with it, not putting it to an immediate and relatively painless death. To prohibit by law abusing cats would be to grant to them more rights than they offer mice [14, p. 90].

This objection fails, however, for multiple reasons. First, even the traditional Rothbardian view grants rights to individuals who are unable to reciprocate those rights, such as the severely intellectually disabled. While they may belong to a species that has other members that can petition for rights and respect the rights of others, that doesn't change the fact that they cannot reciprocate whatever rights are granted to them. Second, as established earlier, granting rights based on the ability to reciprocate the respecting of those rights does not appear to actually follow from the NAP and private property rights. Instead, it is more of a continuum problem. Third, while some cats may torture some mice, that doesn't mean that other cats that haven't ever tortured mice don't have any rights. If a particular cat has never tortured or killed another mouse, then this objection doesn't apply. Fourth, under the compromise presented in this paper, if the courts granted rights to both cats and mice, then any cats that torture or kill mice would be treated the same as any child or intellectually disabled person who tortures and kills another child or intellectually disabled person. In other words, just because some animals may not respect the rights of others doesn't mean that those animals, or the trustees of those animals, cannot be held accountable for violating the rights of others.

11. Vegan Objections

a. Lethal Evictions Contradict the NAP

One of the most common vegan objections to the compromise that someone could potentially bring up is that people lethally evicting animals from their property in situations where no one wants to care for them is an act of violence and would, therefore, be inconsistent with the NAP and consequently a violation of the animals' rights. This objection also fails, though, due to the fact that killing another rights-bearing creature is not always illegal. It would not be a rights violation, for example, for someone to use force, up to and including deadly force if necessary, to defend their own life or the life of someone else from an attacker. The same applies to people defending their property or the property of others from trespass, theft, or damage. Since the unwanted animal in the situation described earlier is occupying the property of someone who does not want them there either, they are technically a criminal trespasser, and as such, it would not be a rights violation to use the force necessary to stop the trespass from continuing, even if the necessary force is deadly.

Block has applied this same reasoning to abortion, stating,

Individuals only have a right not to be aggressed against. The fetus is not being aggressed against by eviction from a woman's womb, which is her property; that is, this 'facility' is owned by the woman not the fetus. On the contrary, the fetus aggressor, albeit not purposefully, is the initiator of violence [2, p. 22].

To clarify, he added,

The position put forth here...is one of eviction not of killing. However, if the only way to evict is by killing the fetus, then the woman's right to her property - that is, her womb - must be held above the valuable life of the fetus. At least in cases of rape, it is clear that the fetus is a trespasser and a parasite. This, then, is true in every case because all fetuses have the same rights.

Let us put this in other words. Must A agree to stay attached to B, who has no functioning kidney, for the rest of his life? Hardly. Individual B is a parasite, no matter how personally innocent. Must A agree to maintain this bizarre experiment for nine months, if that is how long it would take to uncover a new donor for B? Not at all. Any such requirement would entail slavery of A, for whatever the duration.

Nor, at the other extreme, may A simply haul off and shoot B to death. The latter is not guilty of any wrongdoing. Our theory would require that A detach himself from B in the gentlest manner possible, so as to give him the best chance for survival. This would entail, presumably, a visit to the hospital that very day, where they could be surgically disconnected, and the status quo ante achieved.

If this discussion is correct, we deduce that the pregnant woman may remove the fetus from her body in a manner that does the least harm to it possible. That is, she may evict but not kill it. True, one hundred years ago the only way to rid herself of the unborn human within her would have been to put it to death; one hundred years from now, it will presumably be possible to transfer it to a test tube or a host mother without disturbing it in the slightest [2, p. 24].

b. Animals Lack Mens Rea And Cannot Be Trespassers

A second common vegan objection that could get brought up by someone is that animals lack *mens rea* and consequently cannot be trespassers. This objection, however, also fails due to the fact that *mens rea* is not necessary for someone to be guilty of trespass under libertarianism due to the doctrine of “strict liability,” which means that a rights violation does not depend on whether or not someone intended to do so. [22, p. 131]. In other words, the only thing that matters, according to libertarian legal theory, is whether someone actually violated the rights of another person, not whether they intended to do so. If fully rights bearing adults unintentionally trespassed onto other people’s property, it would still be the case that they’re an unwanted entity occupying the property of the other owners, making them a trespasser. As a result, it would be legal for the property owners to use force, up to and including deadly force if necessary, to put an end to the trespass, even if the people didn’t mean to trespass in the first place.

This is something that Block has also discussed in the context of abortion, stating, “Certainly, neither the fetus nor (an entirely innocent) X can be regarded as an aggressor...Both lack *mens rea*. Neither can be considered as a criminal. But, it cannot be denied that objectively they are trespassers, a very different matter indeed. They are innocent trespassers; but they are still trespassers” [11, p. 6].⁶⁹

To clarify, he added,

Of course, this baby human being lacks *mens rea*, and thus cannot be considered a criminal. However, he is nonetheless violating the libertarian legal code, which forbids anyone, for any reason, from trespassing on, occupying against the will of the owner, another person’s property. It cannot be denied that the fetus is totally devoid of any intention to trespass. But the same can be said for the unconscious adult, who is unknowingly stowed away on someone else’s airplane or boat. Innocence must not be allowed to prevail over private property rights, at least not for the libertarian [7, p. 127].⁷⁰

c. Positive rights

A third common vegan objection that could potentially be brought up is that animals have a positive right to not be abused or killed, even if no one else wants to care for them. This objection, however, also fails due to the fact that there are only negative rights, which constrain others from violating another person’s rights and stem from self-ownership and the NAP, not positive rights, which obligate people to perform certain actions, since positive rights conflict with people’s self-ownership and the NAP. To clarify,

A basic premise of libertarianism [is] there are no positive obligations. No one is forced to contribute to charity. Good Samaritan laws mandating that people come to the aid of those in trouble (say, an unconscious person) are incompatible with libertarianism. To take an extreme case, there would be no law against refusing to toss a life preserver to a drowning man even if one could do so with minimal effort, and his death would occur otherwise. In this political philosophy, there are only negative obligations. It is prohibited, and a punishable criminal offense, to initiate or even threaten violence against anyone or his justly acquired property [1, p. 275].

d. Deadly Storm Scenario

A fourth common vegan objection that could be raised is that someone who lets an animal occupy their land is similar to someone inviting that animal onto their property, and if someone is invited onto another person's property right before a deadly storm breaks out, the person would not be allowed to evict the individual until the deadly storm passes. The deadly storm, in this case, is analogous to a situation where no one currently wants to care for a particular animal, which means it would not be able to survive outside of the other person's property. As a consequence, it would not be legal, according to this objection, for property owners to kill unwanted animals occupying their property. Instead, they would have to allow the animals to continue occupying their property until someone decides to adopt them, which could potentially never happen.

Much like the other objections, this one also fails. First of all, it is not necessary for a property owner to allow an unwanted animal to occupy their land while it waits for someone else to change their mind and adopt it much like how a property owner would not have a legal obligation to allow a trespasser to complete their journey across their property. To make this clearer, suppose someone trespassed onto someone else's property to cross over to the other side. If the whole trip across would take one hour, the property owner would not be legally obligated to let the person trespass on their property for an hour while they walk across to the other side.

Second, someone who lets an animal stay on their property in a situation where no one else wants them is acting as a Good Samaritan and improving their condition, not worsening it. Doing so, however, does not obligate the person to continue caring for an indefinite length of time. They could decide, at any moment, to no longer care for that individual and to kick them off of their property. It doesn't matter if someone else will possibly change their mind and decide to care for the animal in one hour, one day, one week, one month, or even one year.⁷¹ What matters is upholding property rights, not the duration of the trespass.

Block has applied this same reasoning to using a lifeboat to rescuing someone, stating,

A is swimming 500 miles from shore. B picks up A out of the water, invites A onto his boat, feeds him, nurtures him for a day. Then, B demands that A leave his boat and get back into the water. This will spell certain death for A, who cannot swim 500 miles. We assume there is no other boat around. Yes, property owners must remove no longer wanted invitees in the gentlest manner possible, but, sometimes, as in the case of the fetus not yet into the third trimester, and in the case of A, this will end up in a killing of an innocent trespasser (one with no *mens rea*) [11, p. 2].

e. Offenses Against Animals Are Worse Than Offenses Against Property

Finally, a fifth common vegan objection that could get brought up is that offenses against animals are worse than offenses against property. This means that while trespassing on someone's property may be bad, ending the life of the trespasser is far worse and therefore should not be legal in those situations.

This objection also fails, though, because it does not matter if offenses against property are not as bad as offenses against animals or even people. All that matters, under libertarianism, is whether or not a trespass is occurring and whether or not deadly force is necessary to stop the violation of rights. To clarify, it would be legal, for instance, for someone to kill a person who is trying to steal their car, if doing so was necessary to stop the crime, even though stealing a car may not be as bad as ending a life.⁷²

12. Conclusion

In conclusion, prominent libertarians have come down on different sides of the issue about whether or not animals have legal rights, but none of their views on the matter are fully compatible with libertarianism. The non-vegan Rothbardian position on animal rights that draws the line at membership to a species that can petition for rights and respect the rights of others is too narrow and not one that can be arrived at *qua* libertarianism since it is a continuum problem. The vegan position on animal rights is likewise not fully compatible with libertarianism since it would either obligate people to care for animals even if no one wanted to do so or prohibit lethally evicting them from one's property even if no one else wanted to care for them.

Only the compromise position presented in this paper is fully compatible with libertarianism. Under this theory, which ultimately views where to draw the line as a continuum problem to be left up to the courts, even if animals have the same legal rights as children and the mentally disabled, the existence of industrialized farming, as well as animal testing, could still be possible. This conclusion can be reached by first assuming the vegan argument in favor of animals having legal rights and then applying the theory of evictionism, which addresses the rights of children and the unborn using property rights and the NAP, to animals and other living organisms.⁷³

One major benefit of this theory, then, is that it allows for the killing of animals, which is a point in favor of non-vegans, while simultaneously granting legal rights to animals, which is a point in favor of vegans. A second major benefit is that it does all of this by remaining consistent with the "thin" libertarian principles of non-aggression and private property rights. Another major benefit of this compromise is that it eliminates several perceived weaknesses of the Rothbardian view of animal rights, including bestiality and the torture of pets which others would like to care for. A fourth major benefit of this theory is that it is capable of dealing with issues related to predators and prey, rodent infestations, tiny germs and insects, plants and vegetables, and even hurricanes and other natural phenomena. A fifth major benefit of this compromise is that it leaves what the outcome of such an approach will be open to courts and market forces. While it may be likely that there would be industrialized farming and animal testing, it could be the case that the demand related to caring for animals exceeds the supply of animals in existence, in which case neither of those things would be legally permissible. The outcome would ultimately be decided by the market, which makes it an empirical issue. Similarly, while it may be the case that courts extend legal rights to cattle but not rodents, it could also be the case that the courts rule that legal rights should also include rodents. A sixth major benefit is that this theory is capable of withstanding various objections from both vegans and non-vegans. For all of these reasons, the Rothbardian view of animal rights and the traditional vegan view of animal rights should both be abandoned by libertarians in favor of the compromise position presented in this paper.

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Notes

1. The present author would like to thank Dr. Walter Block for happily encouraging the prompt submission of this paper for publication despite his present disagreement with it as well as acknowledge the deeply saddening loss of Thomas Raskin, whose views are mentioned repeatedly in this paper.
2. Or any other creature that can one day petition for their rights [21, pp. 156-157].
3. "Animals" in this paper means "non-human animals."
4. In addition to humans, libertarian legal theory would also apply to any other species that is capable of petitioning for their rights, as will be discussed later.
5. As developed later by Block [14], rights also extend to individuals who cannot petition for their own rights or respect the rights of others but are a member of a species that is capable of doing so under the traditional view.
6. To clarify, Rothbard stated,

What of the 'Martian' problem? If we should ever discover and make contact with beings from other planets, could they be said to have the rights of human beings? It would depend on their nature. If our hypothetical

‘Martians’ were like human beings — conscious, rational, able to communicate with us and participate in the division of labor — then presumably they too would possess the rights now confined to ‘earthbound’ humans.

But suppose, on the other hand, that the Martians also had the characteristics, the nature, of the legendary vampire, and could only exist by feeding on human blood. In that case, regardless of their intelligence, the Martians would be our deadly enemy and we could not consider that they were entitled to the rights of humanity. Deadly enemy, again, not because they were wicked aggressors, but because of the needs and requirements of their nature, which would clash ineluctably with ours [21, p. 156].

7. Expanding further on this point, Block has stated that libertarianism,

...is but a narrow slice of ethics. It is concerned, solely, with intra human actions. That is true of the thin libertarian view of the matter. However, it cannot be denied, there is also a version of thick libertarianism in the literature. In that view, in addition to the non-aggression principle (NAP) of thin libertarianism, there are a host, a plethora, of other requirements to comply with this philosophy. For left wing thickists, the libertarian must embrace feminism, homosexual rights, labor unions and oppose hierarchies (‘bossism’) and prejudice against minorities. In contrast, right wing or conservative thickists maintain pretty much the opposite of all these criteria. And in the view of thin libertarians, this philosophy has no position on any of these outside issues. As long as a person does not initiate violence against any of these groups, he is acting in accordance with the freedom philosophy. The perspectives on any of these causes are as relevant to libertarianism as is the issue of whether chess or checkers is more libertarian. For the purist or logically consistent libertarian, as long as an individual does not toss checkers at innocent people, or gouge them with chess pieces against their will, his actions are compatible with libertarianism [13, pp. 106-107].

8. Thin libertarianism, to be clear, “is defined as being based, solely, on the non-aggression principle (NAP)” [15, p. 1]. Specifically, “it is a theory of just law, or, equivalently, the proper use of violence. This philosophy maintains that it is licit to use force only in defense, or punishment against NAP violators. That is, people may lawfully do exactly as they please, except that they may not initiate aggression against non-aggressors, nor steal their property” [15, p. 1]. To put it differently, “a (thin) libertarian theorist is one [who] maintains that property rights and the NAP exhaust the basic premises of this philosophy” [15, p. 4, n. 6]. For more information on the distinction between “thin” vs “thick” libertarianism, see [15].

9. Raskin has published a written response to Block [20] and also verbally debated him on the topic [23]. For another proponent of animal rights who is also critical of the Rothbardian view, see Michael Huemer [18]. For a critique of Huemer by Block, see [16]. For a reply to this critique by Huemer, see [19].

10. Since babies and the intellectually disabled cannot exercise control over their own actions or petition for their own rights, though, it would be legal for people to do things to them against their will if, and only if, what they’re doing improves, not worsens, their condition. In other words, parents would be legally allowed to feed, bathe, and change the diapers of babies against their will since doing these things are all improvements of the children’s conditions, even though it would be illicit for someone to do that to a fully developed, conscious adult. They wouldn’t, however, be allowed to unnecessarily beat or sexually abuse them since doing so would be a worsening of their condition. Because of this, children and the intellectually disabled are somewhere between having the full rights of fully developed humans and no rights at all. In relation to this, if children acquire property, such as an inheritance, then their trustee would likewise be the trustee of their child’s property, rather than the actual owner of it themselves. As trustees, they would only be allowed to do things with the child’s property against their consent as long as it improves, not worsens, their condition. This means that if a child received a million-dollar inheritance, the parent wouldn’t be able to squander the money on drugs and alcohol for themselves but they would be able to spend the money on a life-saving medical operation for the child.

11. It should also be noted that if animals do, indeed, have legal rights, then a strong analogy could be made between vegans and the abolitionists who opposed slavery. A similar analogy could be made between the treatment of animals and the Holocaust. Given the number of animals slaughtered every day, though, the atrocities against humans would appear to pale in comparison to the cruelty inflicted upon a countlessly greater number of animals.

12. Huemer likewise makes the same mistake as Raskin when he says “Block makes no effort to explain why species classifications are *morally* special.” To clarify, since libertarianism focuses narrowly on *legality*, Block is not suggesting that the classifications are *morally* special, but rather, that they are *legally* special. To offer a friendly amendment to Huemer’s statement, then, it can be revised to state, “Block makes no effort to explain why species classifications are *legally* special.”

13. The reason why animals have legal rights similar to children and the intellectually disabled will be clarified later.

14. To be clear, if this point is objected to on the grounds that where precisely to draw the line when it comes to extending legal rights is really a “continuum problem,” which is something that will be discussed in more detail later, then that would mean that there are no “objective, non-debatable solutions,” consequently making their initial objection to extending rights to animals moot [3].

15. It also highlights how sentience or something else may actually play more of a role than species membership. To clarify, the intellectually disabled serve as an especially hard case for those who believe that legal rights should be extended to them but do not believe that legal rights should be extended to animals. Normally, under libertarianism, legal rights are extended to others if they can petition for their own rights and respect the rights of others. In addition to this, legal rights are also extended to those who will develop into someone who can petition for their rights and respect the rights of others at some future point. When it comes to the intellectually disabled and animals, however, neither can petition for their own rights nor can they respect the rights of others. On top of this, neither will not eventually develop into someone who can do such things. Yet, according to the Rothbardian view, the intellectually disabled humans would have legal rights because they are a part of a species that has other members which can petition for their own rights but animals would not have legal rights because they don't belong to such a species. In other words, the main difference is that one has human DNA and the other has different DNA. But drawing the line here would be inappropriate for libertarians *qua* libertarians to do since it is a narrow philosophy focused on the NAP and private property rights and including the intellectually disabled but not animals does not follow from these principles.

16. Since the issue of where to draw the line is a continuum problem, this paper will explore how the implications of this compromise would apply to situations involving a variety of different assumptions about where the line may potentially be drawn.

17. To clarify, libertarian property rights are “based on homesteading, and self-ownership, the ‘mixing of labor’ with virgin land of Locke, and the legitimate title transfer theory of Nozick” [16, p. 55].

18. Therefore, even if the claim that there are philosophical problems with the Rothbardian view of animal rights is ultimately rejected, a case can still be made for embracing the compromise presented in this paper for the second, more rhetorical, reason.

19. In this context, the word “non-rational” means not being capable of petitioning for one’s rights; this is in contrast to “rational,” which would mean capable of petitioning for one’s rights in this context.

20. To be clear, according to Block, conceding this assumption under the theory of evictionism is not a case of “thick” libertarianism since the extent to which legal rights should be granted is a “continuum problem” [3]. Specifically, “in a sense there is no unambiguously correct answer to the question of when human life begins. It is a continuum problem, and hence there is no non arbitrary solution to it. The fertilized egg stage is as good as any of the other possible responses, and better than some” [8, p. 291].

21. The phrase “*mens rea*” is Latin for “guilty conscience” and is related to people intentionally committing crimes.

22. An obvious exception to this would be surrogate mothers who sign a contract agreeing to bear a child in their womb for the full nine months due to the libertarian recognition of performance contracts [12], which are legal contracts binding the party who signed it to perform a specific task. Another exception would be situations where the baby is seconds from being born due to the legal concept known as *de minimis* [6], which has to do with the law not dealing with trifles.

23. To make this point clearer, it should be noted that abortion is technically a combination of two acts, eviction and killing. Under evictionism, the former is licit at any point during the pregnancy barring any exceptions whereas the latter is only licit prior to viability.

24. Block has expanded on this further, stating,

I contend that [the gentlest manner] stems from the non aggression principle (NAP): in countering a rights violation, we want to ensure that we stop just on this side of violating the rights of the rights violator. So, if A sees B stepping on his lawn, as a first step A may not blow B away with a bazooka. Rather, A must notify B of his trespass, and if B immediately ceases and desists, perhaps even with an apology thrown in, that is the end of the matter. It is only if B turns surly, hostile and aggressive, and refuses to budge, that A may properly escalate. Not, immediately, to the bazooka stage, but a threat to call the police would not be considered at all inappropriate; even a physical push would not be untoward. If B at this point initiates physical aggression against A, say by pushing him back, throwing a punch at him, or pulling a gun or knife on him, then all bets are off, and A may appropriately escalate the violence sufficiently to protect himself and his property from invasion. That is the sum and sole element of ‘gentleness’ in libertarianism [5, p. 5].

25. In an attempt to clarify this further, Rothbard stated,

The mother, then, becomes at the birth of her child its ‘trustee-owner,’ legally obliged only not to aggress against the child’s person, since the child possesses the potential for self-ownership. Apart from that, so long as the child lives at home, it must necessarily come under the jurisdiction of its parents, since it is living on property owned by those parents. Certainly the parents have the right to set down rules for the use of their home and property for all persons (whether children or not) living in that home [21, p. 103].

26. To further clarify this point, Block has suggested that determining when a child should be considered an adult for legal reasons is a continuum problem. Specifically, he stated,

When does a child become an adult? As with all continuum problems, the solution does not lie in objective numbers. For no matter what age is selected, it is always possible to be critical, and reasonably so, on the ground that an age one day older or younger would also be justified. It is always possible to point to those under this age who are more mature than some who exceed it. Surely, there are some if only a few 12 year olds who act in a more adult manner than some who have reached the age of 21.

Other criteria must instead be employed if the continuum problem is to be finessed. One such is offered by Rothbard (1998). Here, the criterion is not calendar years, but rather the type of human action, or homesteading, which is indicative of maturity. The child becomes an adult in effect when he seizes control over himself by setting up his own household. This might have to be done under the approval of a judge, but in this manner a modicum of common sense is inculcated into what would otherwise be a sterile objective criterion [3, p. 157].

27. To quote Hoppe,

According to the natural theory of property, a child, once born, is just as much the owner of his own body as anyone else. Hence, not only can a child expect not to be physically aggressed against but as the owner of his body a child has the right, in particular, to abandon his parents once he is physically able to run away from them and say ‘no’ to their possible attempts to recapture him. Parents only have special rights regarding their child — stemming from their unique status as the child’s producers — insofar as they (and no one else) can rightfully claim to be the child’s trustee as long as the child is physically unable to run away and say ‘no’ [17, p. 24, n. 12].

28. Block has emphasized this point as well, stating,

Positive obligations are anathema to libertarianism. As supporters of laissez faire capitalism, we support only the doctrine of negative obligations: people are obligated, only, to refrain from initiating, or threatening, physical violence against innocent people or their property. They are not at all legally obliged to help others, to be a Good Samaritan. Once we open up the floodgates of positive obligations, there is no logical stopping place. We will be logically obligated to accept a right to food, clothing, shelter, medical care, etc. Welfare “rights” cannot be far behind [5, p. 6].

29. If this was the case, then people who no longer wanted to care for their children would need to notify others of their ability to take over caring for them. In addition to this, they wouldn’t be allowed to keep the children on their property to starve to death but would instead have to bring them to those interested in caring for them. This, to be clear, wouldn’t be done as a positive obligation, but rather, as a way to avoid being guilty of forestalling. In other words,

Do the parents have any obligation to support the child? No. Are they free to dump him out? Yes, to the orphanage, hospital, religious organization that takes on babies or to an adoptive parent. May the initial parent starve or freeze the baby to death? Certainly not. Are the parents obliged to try to find an alternative caregiver first? Yes, indeed. However, if there is not a single solitary adult on the planet who wishes to take on this role, then and only then may the baby be put to death. Can the parents, for instance, put the child behind a window and charge viewers to watch it starve to death? No; that is grotesque. Do they have an obligation to find alternative caregivers? Yes; this does not constitute a positive obligation based on forestalling theory. Must they, by law, give notice that the child is in need of a caregiver? Yes. Must they bear any costs at all to keep the child from dying, supposing they do not want to raise it? The only costs they need bear are those necessary to bring the child to the proverbial church steps or make other similar arrangements [10, p. 89].

30. One of the most common examples of forestalling is someone who homesteads in the shape of a bagel (the person homesteads in a circle but leaves the center of the circle un-homesteaded). In this example, if the individual who homesteaded in this manner refused to let people homestead the inner circle, then that person would be guilty of forestalling (a negative rights violation) since they would be preventing others from homesteading the plot of unowned land. This means that it would not be a negative rights violation for the other people to go across the original person’s property without their consent in order to homestead the inner circle.

31. To clarify,

Suppose a person comes to own these guardianship rights, legitimately, but then no longer wants to continue to feed and clothe her baby. May she hide this child from others, who would be glad to be its guardian? No more than may anyone homestead land in the bagel format. For, to do so would be to forestall others from adopting that child. Just as nature abhors a vacuum, and land homesteading disallows the donut format, so, to, does libertarian theory reject the person who kills a fetus, when there are others who would gladly have

adopted it. It is no more a positive obligation to allow others into the hole in the bagel than it is to notify the orphanage, church, monastery, etc., of an no longer-wanted infant, whether pre or post birth [5, p. 7].

32. To quote Block,

Let us now consider the compromise position on stem cell research: Allow all those who wish to do research on embryos to create as many of them as they wish. To do so is not per se to contravene the one libertarian legal axiom of non-aggression against non-aggressors. It matters not one whit whether these embryos are unneeded frozen leftovers from in vitro fertility clinics or are created de novo for the express purpose of medical research. It is also a matter of complete indifference, as far as libertarian law is concerned, whether the ‘activated egg’ has a sperm cell in it or a transferred nucleus from another area of the body. As long as the egg fertilized in either manner will eventuate in a child when properly housed, it is a human being at that point, by stipulation [4, p. 434].

33. If this led to the death of the embryo or fetus, then they would be guilty of murder and could be punished accordingly.

34. Block has expanded on this topic in immense detail, stating,

Strictly speaking, the issue of who would win this race is irrelevant to libertarianism. After all, this philosophy ‘merely’ sets up the rules for human interaction; it specifies no particular outcome, it mandates no specific behavior, and provided only that whatever occurs complies with the non-aggression axiom. Which side will win, then, is a matter of complete indifference to libertarianism, properly understood.

Nevertheless, it is of great practical interest to know, if this libertarian compromise is implemented, whether it will likely result in the creation of numerous fetuses available for medical research (the pro-choice position), or none at all (the result desired by those who take the pro-life stance.).

At first blush, it would appear that the former would win, hands down. After all, it is far easier to create hundreds, thousands, even millions of fertilized eggs in the laboratory than it is to feed, cloth, care for, love, financially support, so many potential children. Those who wish to do stem cell research would appear to have a total and overwhelming advantage. But this only holds true if we characterize the contest as one between those who create fertilized eggs and those who bring them to fruition as human beings. This, however, need not be the case. Let us remind ourselves that any substantial improvement in the lives of a child who is going to be killed by his natural parents, on the part of those willing to adopt him, would count as a homesteading of unwanted property. If A is going to kill his child, whereupon a poverty stricken B comes along who is willing to keep him alive, albeit with a very poor standard of living, libertarian law would certainly not allow the killing to take place. Rather, it would force A to give over the unwanted child to B, the would-be adoptive, but impecunious parent.

If B is willing to bring the fertilized egg to term, and then to raise the resultant child, well and good. As we have seen, the law would force A to hand over this bit of protoplasm to B under such conditions. But suppose B is unwilling or unable to bring up the child in the normal manner; however, he contractually obligates himself to keep this fetus alive, perhaps under the self same laboratory (refrigerated) conditions it is now being kept viable, for research, by the scientific creators of it. Would this count as a ‘substantial improvement’ in the fetus’s welfare? Certainly it would! How so? In making this determination, I reject the doctrine of reincarnation, wherein souls percolate into different bodies in different lives. In this view, the fetus might well be better off dead, so that it could later enter into a ‘better’ body and live an entirely different life. Instead, I am assuming in making this claim that this is the one and only chance the fetus will have to live. Alive, the fetus has a chance to reach maturity; dead, no chance at all. It cannot be denied that the pro-life forces would be hard put to adopt, and bring up to adulthood, all the fertilized eggs scientists are capable of creating in the laboratory. But on the other hand, there is little doubt that the task of refrigerating them in their own laboratories, and thus preserving their lives, would be one to which they would be more than equal.

But it is still an empirical issue. If the scientists are far richer than the baby savers, it is still possible that they could churn out enough ‘material’ that would overwhelm the pro-life forces—even under the assumption of their reduced responsibilities. If and only if this was true would stem cell research (for the fertilized eggs who are not safeguarded) be justified in the libertarian society [4, pp. 435-436].

35. The reason animals have the same rights as infants and the intellectually disabled is due to the fact that, much like the latter, animals are non-rational and consequently cannot exercise control over their actions or petition for their rights. In both cases, it is not necessary for them to be capable of respecting the rights of others in order to have rights of their own.

36. It should be noted that conceding this point would not be a case of “thick” libertarianism any more than conceding the point that life starts at the moment of conception makes evictionism “thick.” To clarify, this is because how far legal rights should be granted is a similar “continuum problem” [3].

37. To be clear, much like with the theory of evictionism, which assumes that embryos have legal rights from the moment of conception, this compromise, which assumes that at least some animals have legal rights, would *not* be a case of “thick” libertarianism since the issue of animal rights appears to likewise be a continuum problem. Rather, it is just a principled compromise that strictly applies the libertarian principles of non-aggression and private property rights to animals regardless of where the line is drawn along the continuum.

38. The trustees would also be legally permissible to do things to the animals against their will as long as what they are doing improves, not worsens, their condition. This means that they would be allowed to do things like pick up and carry animals, bring them on walks, bathe them, and take them to the vet. They wouldn’t, however, be allowed to do things that worsen their condition, such as torture or abuse them, which will be explained in more detail later on. Similarly, if the animal produced or acquired some kind of property, such as a bird building a nest or a beaver creating a dam, the trustee of the animal would be the trustee of the animal’s property as well. This means that they would only be able to interfere with the animal’s property if it was to improve, and not worsen, their condition. To be clear, though, if property owners no longer wanted to care for the animal or its property, then it would be legal to destroy the animal’s property if doing so was the only way to remove it from the other people’s property.

39. In this sense, the legal treatment of an animal would be more similar to the treatment of a child than the treatment of a couch, which is why, as it will be shown later, people who neglect or abuse their pets would forfeit their rights as guardians over them.

40. Similarly, it would not be legal for someone to abuse an animal that is under the care of a different trustee since doing so would not only violate the rights of the animal, it would also violate the rights of the trustee by interfering with their role as a guardian.

41. To clarify, Block stated,

Libertarianism faces a problem with the notion that animals have no rights whatsoever; that they are considered as no different than an inanimate object, such as the aforementioned couch. Yes, animals cannot possess the right of self-ownership because they cannot exercise control over their actions like humans, and so they may properly be considered as our property. But if, in a libertarian society, a person is allowed to torture animals to death that he owns this is a problem with the very framework of libertarianism. The overly sharp division between humans and everything else, in the libertarian philosophy, moreover, seems quite anachronistic given our scientific understanding of the animal kingdom; although humans are, by far, more intelligent than other animals, we know that other species have the ability to feel pleasure or pain (both physical and mental). Thus, assigning full rights to humans and no rights whatsoever to any other creature seems rather arbitrary [14, p. 89].

42. The same would go for “pour[ing] gasoline on a cat, then light[ing] the cat on fire, just for the fun of watching it writhe in agony” [18, p. 14]. Similarly, this would also apply to creatures that are killed by flooding caused by dams.

43. This is also a point in favor of non-vegans who believe that “viciously mistreating helpless animals is about the most despicable act imaginable” and, consequently, are personally opposed to the unnecessary abuse of pets [13, p. 105].

44. In addition to this, it is also a point in favor of non-vegans personally opposed to bestiality.

45. Similarly, sports involving animals, such as cockfighting, dogfighting, and bullfighting would be legal only if no one else wanted to care for the particular animals being used.

46. To clarify this further, imagine someone who had an interest in raising and eventually slaughtering cows and pigs for meat and other animal products. Under the compromise position, a person who had such an interest could allow the animals to continuously reproduce. Anyone who then wanted to care for the animals would get the first option to adopt them. Since cows and pigs are fairly large creatures that take up a lot of space and cost quite a bit of money to care for, it’s likely that the number of cows and pigs adopted would be considerably limited. Assuming this is true, then it would be relatively easy for those who want to slaughter cows and pigs to produce a greater number of cows and pigs than people are capable of caring for. Once the number of animals exceeded the number of people, it would be legal to end the lives of the surplus creatures and sell their remains to others.

47. If there were more people who wanted to care for animals than there were existing animals, a case could also be made by non-vegans in favor of eating meat related the concern that if everyone stopped eating meat, then farm animals would likely all go extinct due to a lack of demand to keep producing them, which means that it would be better for the animals to exist and eventually be eaten than for them to eventually be wiped out completely.

48. To be clear, it could be the case, under this compromise, that no animals can be legally killed for meat and other products, which means this could potentially be another point in support of the vegan position. What matters is the number of people who want to care for the animals compared to the number of animals in existence. If there are more people who want to look after the animals than there are existing animals, then there wouldn’t be any legal killing of animals. However, if there are more animals in existence than there are individuals interested in caring for them, then, and only then, would

killing the excess animals be licit. And since it's easier to produce animals than it is to adopt and care for them, this point leans in favor of the non-vegan position.

49. Under this compromise position, it would not be legal to use animals that others wanted to take care of for testing even if there was great benefit in doing so since libertarianism is a deontological theory of law, not a consequentialist one.

50. Determining where the line should actually be drawn for this particular continuum problem, though, would be a matter that's left up to the courts to decide.

51. As will be shown later, this can even extend to natural phenomena.

52. In fairness to Huemer, his view is only incompatible with libertarianism if by "wrong," he means "should be illegal" since libertarianism recognizes that just because something is wrong doesn't mean it should be illegal [19, p. 48].

53. They could also live on unowned land and fend for themselves, but it is assumed for the sake of discussion that all of the land that they could live on, including the oceans, is owned. Therefore, every single animal would be occupying someone's property and as such, would be subject to the implications of evictionism. As a brief digression, however, suppose that all of the land wasn't owned and consequently, some of the prey animals that no one wants to care for lived on unowned land as wild animals alongside other predator animals. According to this compromise position, all of those animals would still be rights bearing creatures. This means that if a wild lion, or someone's pet lion, ate a wild gazelle on unowned land, the lion, and possibly the trustee of the lion if it's a pet, would still technically be a rights violator. However, since no one has a positive obligation to care for animals or to stop the violation of rights, and since no one in this situation wanted to care for the wild prey living on unowned land, no legal action against the lion would likely result. If someone wanted to hunt down that lion and treat it like a murderer, though, then it would be perfectly licit to do so since the lion technically violated the rights of the gazelle. In other words, hunting wild predator animals on unowned land would be completely legal.

54. For the sake of discussion, it's assumed that people's blood can't be voluntarily removed and placed in bags for the vampires to drink. If this possibility is also assumed, then the vampire species may not go extinct. Their existence, however, would depend on the willingness of others to voluntarily donate their blood.

55. If the rodents were there first, then those who arrive later would be the trustees of them and could only do things to them that improve their condition.

56. It would also be justified to lethally evict any rodents that are not wanted by anyone else as well as any rodents that present an imminent threat to the property owner since doing so would be an act of self-defense.

57. To expand on this even further, consider a situation where people do want to care for particular insects so they homesteaded the role of trustee for the organism by providing them with food and letting them occupy their land. Would it be legal for someone to come onto their property and kill the insect of which they were the trustee? Under both the Rothbardian view of animal rights and the compromise in this paper, such an act would be illegal. According to the Rothbardian view, it would be illegal because doing so would be a violation of the owner's property rights. According to the compromise position, doing so would be illegal because it not only violates the rights of the insect but also violates the rights of the trustee by interfering with their care of the living organism.

58. To be clear, though, if the tiny germs or insects present an imminent threat to the health or safety of others, then it would be licit for those organisms to be killed in self-defense.

59. Including plants and vegetables, as well as tiny germs and insects, alongside animals and humans helps to highlight that this theory is not undermined by a continuum problem. Just to be clear, though, even if it was uncertain where the line should be drawn, that wouldn't necessarily be a problem since there are other continuum problems in libertarianism that do not undermine the theory, as will be explained in more detail later further on.

60. To emphasize this point, what would matter would be whether or not there are people who want to care for the plants and vegetables, not people who want to eat the plants and vegetables. Starving people who want to eat the plants and vegetables would not necessarily get first claim to the unwanted plant life because the important point is not whether or not people want to eat the vegetation, but whether or not they want to care for them. Since starving people lack the means to care for themselves, it's unlikely that they would be able to care for the plant matter like someone would a pet or child. If no one is willing and able to care for the plants, then it would be legal for the owner of the property where the vegetation is located to evict and kill the plant matter and then do what they wish with the remains, such as selling them at a marketplace. Starving people, to be clear, would not get to claim a legal right to the plant remains and thereby stop the person from selling them to others. This is because, first, there isn't a positive legal obligation to be fed or cared for, and second, being in need does not grant someone legal ownership over the unwanted possessions of another person.

61. If there were people who insisted on caring for the plants and vegetables, it would just be a matter of people continuously producing more until those who insist on caring for them can no longer afford to do so. Consequently, there would likely be plenty of vegetation for people to eat.

62. Related to this, consider the problem of hurricanes, tornados, earthquakes, and other natural phenomena. If someone were to assume, just for the sake of testing the limits of this theory, that these natural phenomena are also living organisms and therefore have legal rights, would this pose any problems? No it would not. First of all, it's unclear how someone would homestead guardianship over something like a hurricane. Suppose, though, that someone did so with a machine that created

hurricanes and these hurricanes, it is stipulated, are rights bearing creatures like infants or intellectually disabled people. Even in this situation, there would not be a problem with this compromise position since the hurricane would be similar to a person without *mens rea* who is imitating aggression on other people. In other words, much like how it would be legal to use force, up to and including deadly force, to stop such an individual from aggressing against others, people would be completely justified in using any means necessary to stop the natural phenomena from aggressing against others.

63. Assuming that all of the land is privately owned.

64. Since it would be legal to sell and eat the remains of humans under certain conditions, it would therefore also be legal to sell and eat the remains of animals under similar conditions.

65. While unrelated to libertarianism, the compromise position also seems to be more compatible with many people's intuitions on the matter.

66. For more information, see [24].

67. To clarify this point, Block has stated,

A similar situation applies to the age at which statutory rape applies. That there must be such a law is clear; females below some cut off age point are simply incapable of engaging in consensual sexual relations. But at what level should this apply. Twelve seems far too young, and 21 too old. So is the correct age 14, 16, 18? Whichever age is picked, there will be girls younger than that who are more mature than others who are older. And what of the age of the male involved? Surely, there is a difference in physical relations between a girl who is 16 and a boy who is 17, or a man who is 45. Cut off points of this sort simply cannot be derived in any straightforward manner from the law of non-aggression. There is a need for private competing courts¹⁸ and juries to decide such matters [3, pp 158-159].

68. This also applies to the first objection. Perhaps courts will draw the line at mammals and rule that non-mammals such as fish, reptiles, insects, germs, and plants, do not have legal rights. Perhaps the courts will also include fish and reptiles. *A priori*, where the line will actually be drawn is unknown.

69. To underscore this point, he added,

It is important to realize that a trespasser need not have *mens rea*: a guilty mind. The trespasser need not purposefully want or intend to unlawfully occupy someone else's property. The trespasser could be comatose, or unconscious, or, as in the case of the fetus, unawake, and in any case too young to think or have purposes. But, as long as the fetus, whether invited or not, and A, who is explicitly invited, occupies someone else's property against their will (in the absence of a contract giving the occupier rights), he is a trespasser, and the property owner should have a legal right to remove him, in the gentlest, least rights-destroying manner possible [9, p. 2].

70. In other words,

Of course the fetus cannot actively, purposefully, consciously, commit a trespass. But he can passively do so. The same applies to the adult person who is drugged unconscious and then stowed away on a boat or plane, or attached to someone else's kidney. Of course the fetus and such an unconscious adult person cannot 'refuse' or agree, for that matter, to depart from someone else's property. But he can fail to do so. If he does, he is in violation of libertarian (not 'gentleness') law. It is thus justified for the rightful owner or his or her agents to act so as to defend their property [7, p. 130].

71. With the exception of the *de minimis* principle.

72. Assuming that killing the car thief in this situation is the gentlest manner possible necessary to stop the crime.

73. As well as natural phenomena.

Rejoinder to Huemer on Animal Rights¹

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Abstract:

Heumer and I debate animal rights, utilitarianism, libertarianism, morality and philosophy. We agree that suffering is a problem, and diverge, widely, on how to deal with it. I maintain that this author's reputation as a libertarian, let alone an intellectual leader of this movement, is problematic. Why? That is because libertarianism, properly understood, is a theory of intra-human rights; this philosophy says nothing about right from an extra-human perspective, Heumer to the contrary notwithstanding. That is to say, he is improperly importing into the freedom philosophy considerations extraneous to it.

Keywords: vegetarianism, libertarianism, animal rights, utilitarianism.

1. Introduction²

This is part IV in a debate between my colleague and friend Michael Huemer and me on the ethical and legal status of vegetarianism and animal rights. Part I was Huemer [32], a book that set out his views on this matter. Part II consisted of my critical review of that book [20]. Part III constituted Huemer's 2021 [33] rejoinder to that book review of mine.

If I were to summarize this disagreement between us, it would be that Huemer supports the doctrine of animal rights, and I do not. But there is much more to this dispute than that, to which we now turn. I follow the organization of [33], since it is very coherent.³

In this section of his reply to me, this author offers a curious point: that it is illicit, or improper, or not quite Kosher, for a critic of a book to focus on any statement in this publication which is "beside the point" of its main thesis. Since the essence of his book concerns veganism and animal rights, he declines to defend his writings against my criticisms of the points he makes about legalizing insider trading, the use of the word "them," ending trade with China, and torturing cats if needed for research in order to find a cure for cancer. I find this problematic. An author is responsible for every word he publishes, even *en passant*, not just those involving his main thesis. Huemer's views on all these points are erroneous in my opinion, and I would have welcomed the opportunity to criticize any defense of

them he might have made. Why is this important? It is important because at least one of the purposes of scholarly articles, debates, such as which he and I are now having, is to push out the frontiers of knowledge. If we are to be constrained to only discussing issues that are exactly “on point” then, to that extent, we do not adhere to one of the reasons for the existence of this scholarly literature.

2. Methodological Points

2.1. The Argument from Libertarianism

My debating partner starts off this section with the criticism that I engage in “the Argument from Libertarianism.” That is, that I upbraid him for deviating from this philosophy. He deflects this criticism on the ground that he is in effect a free spirit. He looks at philosophical issues on a one by one basis. True, it cannot be denied, most of his views are indeed congruent with the freedom philosophy, but he does not hold them because of this. He maintains them because they seem correct to him, and he is always open to taking positions that are incompatible with that viewpoint.

He states that I criticize him “more than once for not arguing in libertarian-typical ways or taking sufficiently libertarian positions... Despite being a libertarian myself, I find this argument form not at all persuasive. I do not accept any position simply because it is the libertarian position. I first figure out what I believe about a variety of philosophical issues, then look for labels to describe my views. I call myself a libertarian because that term happens to correspond to my political views.”

He and I are passing each other on this matter like ships in the night. I would scarcely content myself by demonstrating that the likes of Bernie Sanders, or Paul Krugman or John Rawls were not libertarian, and leave the matter at that. This would be like shooting fish in a barrel. Why, then, am I disparaging this author on that ground?

It is because I am a social scientist. A large part of all science, any science, is categorization [5]. Chemistry consists of more than the periodic table of the elements but that is of the utmost importance in this discipline. Ditto for genus and species in biology. Economics has microeconomics and macroeconomics. Why should political philosophy be any different? It is important in this discipline also, to separate the sheep from the goats. From the perspective of libertarianism, it is of great interest to know who is one, and who is not. In the case of Michael Heumer, he is not only widely considered to be a member of the fold, but, to be an important leader of this entire philosophical movement.⁴ Is it therefore as totally out of bounds as he seems to think it is, to test this hypothesis? I think not. Enquiring minds want to know if he deserves the honorific not only of supporter of the freedom philosophy, but as one of its important contributors.

Heumer misinterprets my comments in Block [20] as

“Positive Argument from Libertarianism:

“Libertarianism says that P.

“Therefore, P.”

Au contraire. I am instead subjecting the claim that this author deserves his reputation as one of the most profound contributors to this philosophy to an empirical test. It would appear at the outset, however, that Heumer’s libertarian credentials are somewhat suspect. He states:

One must of course hold a consistent set of beliefs. But there is no inconsistency in holding libertarian views about some issues but not others. For instance, there is nothing inconsistent in supporting gun rights, capitalism, and ethical vegetarianism – regardless of whether the last position counts as ‘libertarian’ or not. If Block is right (I don’t think that he is) that libertarianism only recognizes crimes with human victims, then so much the worse for libertarianism...

Pardon me for saying this, but “so much the worse for libertarianism” does not exactly ring the libertarian bell.

Heumer’s next sally against my critical review of his book is as follows:

“The Negative Argument from Libertarianism:

“Libertarianism doesn’t say that P.

“Therefore, who cares about P?”

Again, Professor Heumer sees things quite differently. I am trying to measure the congruency of his position with libertarianism. So, of course, anything having nothing to do with this philosophy is not of interest, *in this endeavor*. But I must acknowledge his sense of humor. I almost died laughing at his depiction of my “cousin” heart surgeon Dr. Joe Block who is totally uninterested in whether his patient is having a heart attack or not. This is really rolling on the floor in a paroxysm of laughter material. But in a serious vein, there is such a thing as specialization and the division of labor. One must sometimes put the “blinders” on, and focus, narrowly, on the issue at hand. To do so in this case, one must ignore irrelevancies, however important they are for other purposes.

I am of course not “completely uninterested in moral questions.” I am interested for the purposes of this book review, in but one and only one sub-category of ethics: that pertaining to the libertarian focus on property rights, the initiation of violence, and just punishment for malefactors. This does not at all mean that I do not “care about any other kind of wrong, or any other problem, besides the problem of unjust law.” I also care about music, and love and sports and chess; but not for the purpose of evaluating an author’s adherence to libertarian principle. If this makes me a “psychopath” as Heumer charges I embrace that mental illness.

Our author continues: “... just a few years of factory farming causes a greater total quantity of suffering than all the human suffering in all of history. Note that Walter Block does not dispute any of these facts. To react to such a problem with indifference would be a shockingly nihilistic stance.”

Who says that I react to this fact with “indifference”? Not I, not I, nor does Heumer quote me to that effect. He cannot, since I never wrote anything of the sort. Let us return to my cousin Dr. Joe Block. He is a heart surgeon. When he is working on a patient he focusses narrowly, and fully, on that one organ. He does not give a rat’s rear end about the patient’s toe, nose, ankle or ear; he totally ignores starvation in poor countries; if there were an asteroid heading toward earth, he would be “indifferent” to such a threat. Can this behavior of this be justified? Of course it can. He wants to do a good job on the heart transplant he is now working on. Well, I want to succeed in determining if Heumer is a libertarian or not, and the best way to do so is to concentrate on that one narrow issue, like my made up “cousin,” Joe.

2.2. Extremism

Here, again, my favorite Colorado philosophy professor parts company. He avers that I like, have a penchant for, revel in, extremism. It is true that I appreciate Barry Goldwater’s famous statement “Extremism in defense of liberty is no vice. Moderation in pursuit of justice is no virtue.” But in my book review I was praising Professor Heumer, along with Bernie Sanders, both with whom I disagree, for their courage, not their extremism. I am not at all of the opinion that “thinkers should take up extreme, unqualified generalizations with high confidence” and I cannot understand what might have led Heumer into ascribing this irrational view to me. Certainly, he does not quote me to this effect, since I wrote nothing along those lines.

3. Objections to the Case for Ethical Veganism

3.1. “*Suffering Can Be Good*”

Heumer’s “central case for veganism turns on the vast pain and suffering caused by human consumption of animal products.” He continues: “But Block argues that pain and suffering can sometimes be good. Masochists, he says, desire suffering as an end in itself.” Both true. But I never, not in a million years, used the latter true statement to rebut the former true statement, and this author does not quote me as saying any such thing.

I now claim that

1. murder is a violation of rights

And

2. some people commit “suicide by cop.” That is, they are afraid to commit suicide themselves; instead, they pull a gun on a policeman, and welcome being killed by him.

Again, we have two true statements. Would I argue that the second refutes the first? Of course not. But that is in effect what Heumer is accusing me of.

In the view of this author: “My claim is that torturing animals on factory farms for the sake of trivial benefits for yourself, in the way that we are doing in actual reality, is *wrong*. Block has not attempted to identify any reason why that might be acceptable (emphasis added).”

Again, Heumer is confused about what libertarianism is all about. Hint, it has nothing to do with being “wrong.” There are many things that are “wrong” that have nothing to do with this philosophy. It is “wrong” to get drunk. It is “wrong” to be obese. It is “wrong” to torture animals, as this author demonstrates eloquently. But libertarianism has no truck with “wrongness.” It deals with rights violations, and only rights violations, all of which are also “wrong” but there are many things such as mentioned above that are “wrong” but *not* rights violations, and thus are irrelevant to libertarianism. This undermines his supposed adherence to this perspective.

3.2. “*Rights Require Homesteading*”

In the section, Heumer rejects the notion that rights go by species, not by races or hair color or any other such criterion. That is why comatose human beings who cannot petition for their rights⁵ still have them.

This scholar is widely and well known for his brilliant work on intuitions [31]. We can do worse than to follow his splendid lead in this regard.⁶ We know that it would be an act of murder to kill a baby, or a sleeping person, or a mentally handicapped individual, none of whom can petition for their rights. Only if rights are accorded to all members of a species are we logically entitled to arrive at any such conclusion. However, we all have to start somewhere. Perhaps it will be of some solace to this author that when and if any member of any of the intelligent species – dolphins, chimpanzees – ever demands the right to be left alone, free from human intervention, and promises to respect our equal rights, we shall have to grant this not only to that individual, but to every other member of that species.

Heumer points to the disanalogy between homesteading rights to people, and to land. He maintains there should be a logical consistency between the two. He casts aspersions on my claim that petitions for rights pertains to the entire species, since it does not at all apply to homesteading for land. In my opinion, this is an astute objection on this part. I had never before appreciated this bifurcation, and thus am in his debt for pointing this out to me.

However, it will not suffice to undermine my and Rothbard's [54], [55] claim that rights petitioning for people applies to the entire species and is not properly confined to the individual members of the species who are capable of so doing. Why not? This is because there are strong dis-analogies between the two cases. Therefore, we cannot infer the one from the other.

Petitioning for personal rights applies to the entire species. In initial land ownership, only the actual homesteader obtains ownership, certainly not all or even any other members of his species. Where is the disanalogy between the two cases? For one thing, it is only because we first own ourselves that we are entitled to homestead the land in the first place. The "causal direction" if I may employ such a phrase, goes from the former to the latter, not the other way around. If a slave homesteads terrain, he does so in behalf of his master, not himself. For another thing, no one, not even non-libertarians, disputes the claim that land or other natural resources, once owned, may be sold, bartered, lent, given away, to other people. What about individual self-owners and thus rights-bearing entities? May they be sold, bartered, lent, given away, to other people? This is a highly contentious issue amongst libertarians. Some favor the legalization of voluntary slavery, people selling themselves to other people.⁷ Other libertarians vociferously oppose this.⁸ Again, there is no such division as to land. If that is not a disanalogy, and an important one, then nothing is.

3.3. Reductio of the Risk Argument

In this section, Heumer concocts all sorts of probabilities about suffering. For example: "If, for example, there is even a 1% chance that animal suffering is as important as human suffering, then the expected value of a year's worth of factory farming is equal to that of a program that tortures 740 million people." He demonstrates his dexterity with probability calculations, and I applaud him for his talents in that direction.

However, his major premise is false, and all that follows from it, however correct the deductions, must fall by the wayside also. That is, he once again misconstrues libertarianism. This is a deontological undertaking, not a matter of utilitarianism or pragmatism. The proper goal of this philosophy is to wrestle with questions of rights, responsibilities, justice, etc. For a utilitarian like Heumer, this sentence is not merely false, it is meaningless⁹: "Justice though the heavens fall."

Having said that, and, with due allowances for interpersonal comparisons of utility and demonstrated preference [53], I am also happy to make the claim that not only is libertarian righteous, it also brings about the greatest amount of human happiness possible. For the only acts allowed in this viewpoint are voluntary ones, and every human action, without exception, improves the lot of the economic actor, at least ex ante. No other system can make that claim. For example, I buy a shirt for \$10. When I did, I valued this bit of clothing more than what I paid for it; the difference being the profit I earned from this purchase. The seller valued it at a lower rate than that, and thus also improved his economic welfare.¹⁰

3.4. "Farming Is Good for Animals"

I argue that if no one ate meat, most barnyard animals would simply disappear. Posit that that is true. Then, paradoxically, they would be worse off under total veganism, since it is better to exist than to disappear entirely.

Heumer offers a clever objection. He posits that there would be a group of human beings who were bred to be enslaved and kept in that status. Do I really favor such a situation, he challenges me? He then offers me the following syllogism and asks me to choose wherein I disagree:

1. The argument in defense of the meat industry is analogous to the argument in defense of the slave industry (with people who are specifically bred to be slaves).
2. The argument in defense of the slave industry is unsound.

3. Therefore, the analogous argument in defense of the meat industry is unsound.

He is an intellectually bully.¹¹ I'll grasp the horns of the dilemma he poses. I select the second premise. It is unsound, since a better situation would be one where this slavery was supported. Let me say that again: slavery would be justified under these weird conditions. And I don't mean voluntary slavery. I am now talking about the coercive variety that has occurred all too often in human history.¹² But there is a caveat. The alternative is death. Joke: the economist is asked, "How is your wife?" Came the answer: "Compared to what?" Yes, we must delve into the alternative to coercive slavery here. And what, pray tell, is the alternative? It is death. I claim that from the welfare point of view of Heumer's slaves, they would be better off alive, and enslaved, rather than dead. One "proof" of this is that we have never had mass suicide on the part of slaves.¹³ That is, based on their own deliberations, they prefer slavery to death.

So, Heumer's attempt to bully me into accepting slavery in his example fails. I do accept it. Horrid as it is, it is preferable to death. Where there is a will there is a way. Where there is life, there is hope. Life is a very precious commodity. Who knows, a slave rebellion might succeed. Perhaps the evil slave holders will repent their monstrous ways, and engage in manumission. If all the slaves are dead, this cannot occur.

Similarly with animals. I repeat what I said in Block [20]: if I were the guardian of animals, the last thing I would want would be for them to disappear. My only question of Heumer in this section is, why was this not already fully comprehensible?

Note that in this section we are straying from deontological libertarianism. We are not discussing rights, here. Rather, we are engaged in a utilitarian analysis. Would animals, human slaves, be better off from a pragmatic point of view, if they did not exist at all. I claim they would be worse off; Heumer demurs. Presumably, if this author were a slave he would commit suicide, not try to escape, overcome his masters, etc.

3.5. "*Animals Kill Other Animals*"

Chickens kill other chickens. Lions kill zebras. Wolves kill deer. We have rights only to the degree that we respect other people's rights. When human being A murders human being B, A loses his rights, in proportion to the rights of B he has disrespected. If we apply this to animals, that is, if animals have rights, then so do victimized chickens, zebras, deer, other victims of animal rights violations.

Yet no one, not even Heumer, favors bring up murder charges against these vicious chickens, lions and wolves. Rights come with responsibilities. If you have a right not to have violence initiated against you, you have an obligation not to do that to other people. If these predatory animals really had rights not to be killed by humans, they would not pick on other chickens, zebras and deer. But they do engage in these acts. Ergo, they do not have rights.

3.6. "*Rights Imply Responsibilities*"

Heumer denies this. He claims I have no justification for this "popular catch phrase." But this is no mere popular catch phrase. Rather, it stems from the fact that murderers, thieves, rapists, lose their rights in proportion to those they violate. Let us turn matters inside out. What would it mean to deny that "Rights Imply Responsibilities?" It would imply that anyone could get away with anything at all. Want to murder, rape, enslave someone? Go ahead. Do it. You will not suffer any loss of your own previously held rights whatsoever. This doesn't sound very Kosher to me.

But Heumer has other arrows in his quiver on this matter. He again resorts to "babies, severely mentally retarded people, and severely mentally ill people." He claims that they "lack responsibilities, (therefore) they must have no rights; hence, we may torture and kill them at will," at least according to my analysis. No, no, no, such persons do indeed have responsibilities: they must refrain from killing,

maiming and other criminal activities. It is difficult to see how babies can violate rights.¹⁴ How about sleeping people? Suppose there were a person who sleep-walked, and then killed in his nightly excursions. Would we hold him responsible for such an act? We certainly would, at the very least after the first such foray. If he didn't tie himself down in his bed after that, so that he could no longer sleep-walk, he would certainly be found guilty of murder. In his first such episode he would still be guilty of a crime, but, lacking mens rea, could not be accused of first-degree murder. But not after that! Mentally ill people can indeed commit mayhem. But when and if they did, they would be treated roughly akin to others who lacked mens rea.

3.7. “Utilitarianism Supports Rape”

Utilitarianism certainly can support rape, if and only if the rapist derives more pleasure from this despicable act than the victim suffers.

Heumer claims that this charge of mine against his views is “off-target” since it does not “address anything that I have ever said or thought.” I certainly am not privy to his thoughts. I have had numerous meals and discussions with him, but what he said on these occasions is a tiny small percentage of his verbal utterances. However, I have read his book [32] and he continually inveighs against suffering. Indeed, even in his refutation of my claim as being “off-target” he once again emphasizes the importance he places upon reducing suffering; e.g., he offers a utilitarian calculus: “I simply argued that we should not inflict severe pain and suffering on other creatures for the sake of minor benefits to ourselves. This does not entail that no one has rights, nor did I in any way suggest that.” Of course this does not imply that no one has any rights. But it certainly does “suggest” that Heumer places great importance on maximizing utility via the alleviation of suffering. Utilitarianism may be inferred in practically every sentence of this book.¹⁵ He never ever “simply” argues for the alleviation of pain and suffering. “Severe pain and suffering” vis a vis “minor benefits” sounds like utilitarianism to my ears; well, eyes. A fair reading of this publication of his will demonstrate the overarching emphasis he places on the alleviation of the former, and denigration of the latter. Well, let those who live by utilitarianism (intellectually) suffer from it as well. If the rapist derives more pleasure from his evil act than his victim loses utility, then Heumer is logically required to support this nefarious behavior of his. After all, net utility will *increase* as a result of it.

3.8. “Experts Can Be Wrong”

States Heumer: “In the Dialogues, I mentioned that most experts who review the ethical arguments concerning vegetarianism agree that they are compelling.” In my review of this book, I gave a loud Bronx cheer to this notion, deprecating the expertise of some self-styled experts. As an illustration I chose humanities professors who wax eloquent about the shortcomings of laissez faire capitalism. Our author rejects this criticism on the ground that they are not really experts in economics.

Continues Heumer:

Now, unlike Block's example of humanities professors talking about economics, ethics professors who work on animal ethics actually are experts on that subject. They tend to be highly intelligent; to be well-informed about the relevant ideas, distinctions, and arguments in the field; and to have spent a long time thinking about the subject.

But the same identical thing can be said about “humanities professors talking about economics.” They are also well versed in the dismal science, are well informed, spend much of their time denigrating economic freedom, despite the fact that their PhD's are in different subjects. However, Gary Becker's Ph.D. is in economics; yet, many of his major contributions are in sociology. Gordon Tullock's

advanced degree was in law; yet many of his major contributions are in political science. Elinor Ostrom's Ph.D. was in political science; yet she won a Nobel Prize in economics; this is also true of Daniel Kahneman, a psychologist. David Friedman's Ph.D. is in physics, yet his major contributions are in law and economics. Heumer's understanding of credentialism varies widely from my own.

Moreover, there is the matter of social justice warriors, the cancel culture and wokesterism on college campuses. The physical sciences and mathematics are the least infected by this virus,¹⁶ the social sciences especially economics occupy an intermediate position in this matter and the humanities are the worst violators of what universities are supposed to stand for: open inquiry, academic freedom, etc. Of all the humanities, philosophy is one of the very worst disciplines in this regard.¹⁷ So it comes with particular ill grace for Heumer to claim that those who specialize in this philosophical sub-discipline are "experts." Experts agree to dialogue, debate, as Heumer to his credit most certainly does. But the same cannot be said, unfortunately, for all too many of his colleagues.

3.9. Shutting Down Modern Society

Heumer accuses me of attributing to him the idea that his views require that "All activities that ever cause any harm at all are impermissible." But he is entirely mistaken in attributing to me this absurd claim against him.¹⁸

He maintains that he only "argued that factory farming is wrong because of the enormous amount of pain and suffering it causes, for the sake of trivial benefits for ourselves."¹⁹ This does not imply, nor did suggest, that everything that "causes any suffering or death at all is wrong." In other words, like the utilitarian that he is, he is offering a balancing scheme: if greater utility can be derived from something, and less harm, then it should be done; if not, then not.

What did I do, instead? I merely confined myself to helping with the utilitarian calculus. For example, deep coal mining is more dangerous than strip mining, given the same amount of product garnered. Therefore eschew the former, and support the latter. That is nowhere near akin to shutting everything down, the view he accuses me of attributing to him. Another instance: Flooding from dams not only kills human beings, but, also, Heumer's beloved animals. Unless it can be demonstrated that more pain will ensue for lack of these dangerous sources of energy, it would also behoove us to shun fuel derived thereby. Notice that I am getting with the utilitarian program: calculating pain and gain.

4. Opposing Suffering

Heumer notes that he and I are not so far apart in our tastes. He accepts my three-word summary of his book, "stop the suffering," and my enthusiastic agreement with it, and then wonders why I don't carry through and oppose factory farming? The reason is, I say this not in my capacity as a libertarian, but only insofar my tastes are concerned. As a personal matter, I like and admire Heumer, in large part because of his concern for the downtrodden species he so mightily and valiantly defends. But, as a libertarian, I note that since animals have no rights, factory farmers who engage in these practices are not criminals, and therefore it would be unjust to shut down their operations by law. Boycotts are of course another thing. They are entirely compatible with libertarian law. Why, then, do I continue to eat meat? One reason is that based on my own internal utilitarian calculus, the benefits outweigh the costs. Another is that it would be worse for the barnyard animals if we were all vegans, since they would then disappear, and I cannot believe that would be to their benefit. I absolutely abhor sadists who gain pleasure from torturing animals, but if experiments on them that cause them to greatly suffer get us closer to curing diseases that attack mankind, I am all in favor of them. People before animals is my motto.

Heumer ends his essay on a note of wonder about me. He states: "In case this hasn't been made sufficiently clear, the central thesis of my book was that it is morally wrong for us, right now, to buy

products from factory farms, as almost everyone is doing. Almost none of Block's critique bears on that; almost none of it could be seen as even attempting to explain why it would be acceptable to buy factory farm products."

This author misunderstands my stance. I am first and foremost in these matters a libertarian. My main goal was to see what kind of overlap there is between his views and those of that philosophy. My conclusion: not too much. His concern is that it is "morally wrong" to patronize factory farms. Libertarianism is only concerned with a small slice of overall morality, that dealing with private property rights and the initiation of violence against human beings, not animals.

I have been very thorough in my response to Heumer [33]. I replied to each and every point he made in this essay of his. He has not done me the honor of being responsive to me [20]. I announced, there, that my main focus would be on determining to whether or not, and if so the extent to which, his views could be characterized as libertarian. I am still in the dark as to how he would deal with that challenge. He never responded to my point that libertarianism is concerned with but a small subset of overall ethics. Did he respond to my reductio that a large corporation earned a small profit, garnering them a small gain, while as a result a small mom and pop operation had to close their doors, suffering grievously? No, he did not. I mentioned that "petitioning so all-important" because it is predicated on homesteading. Another avoidance by Heumer. Ditto for burning a cat for pleasure vis a vis torturing an animal so as to cure cancer; his utilitarian, not libertarian, analysis of the nuclear bomb in the basement; my devastating response to his challenge about killing one person or 100 pigs; his analysis of the Killian case (stand in for factory farms) and eliminating trading relationships with the likes of Cuba, Venezuela, North Korea, China; the supposed immorality of Prostitution, pornography, addictive drugs, gambling, homosexuality, masturbation, fornication; why only "consider" stopping lions from killing zebras?; the subjectivity of "enormous" and "minor"; my riposte about chocolate covered ants; my query about "free range farm animals, humane certified meat"; the fact that his punishment theory will encourage criminality.

Nevertheless, I learned a lot from his response to my book review, and I am very grateful to him for it. If ever he pens a response to this present missive, maybe he will condescend to respond to these other issues.

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Notes

1. I wish to thank an anonymous referee of this journal for help in improving an earlier version of this paper and A. J. Cesario for a splendid copy-editing job. All remaining infelicities and substantive errors are of course my sole responsibility.
2. For a background on the debate over animal rights, see [23], [46], [50], [52], [56], [63].
3. Unless otherwise mentioned, all references to Heumer will be to this one [33] article of his.
4. This claim is buttressed by Heumer, [29], [30], [31]. Further, the Bleeding Heart Libertarian blog is one of the most important platforms in the libertarian movement and Michael Heumer is one of the most prominent members of this organization:
https://www.google.com/search?q=Bleeding+Heart+Libertarians+Michael+Heumer&rlz=1C1CHBF_enUS724US724&oq=Bleeding+Heart+Libertarians+Michael+Heumer&aqs=chrome..69i57.444j0j15&sourceid=chrome&ie=UTF-8
5. Strictly speaking, they must not only petition for their rights, demand them, complain of their absence, but must also promise to respect the rights of human beings, and act accordingly. No animal, no matter how intelligent, comes anywhere near being capable of acting in any such manner.

6. But see Gordon [28] for a critique

7. [1], [6], [7], [8], [9], [10], [11], [12], [13], [14], [15], [16], [17], [18], [21], [26], [34], [41], [45], [47, pp. 58, 283, 331], [59, pp. 232-233], [60, pp. 230-244], [61, pp. 283-284].

8. [2], [3], [22], [24], [25], [27], [35], [36], [37], [38], [39], [40], [42], [43], [44], [48], [49], [51, pp. 455f., 634-636], [52, pp. 40-41, 135-136], [57], [58], [62].

9. To return the favor, I would say the same about this phrase: “If ... there is even a 1% chance that animal suffering is as important as human suffering...”

10. But what about the case where someone else wanted that shirt and I outbid him for that. Does not his negative welfare, his pain and suffering, have to enter the calculation? No. As Rothbard [53] demonstrates, this person has no way of demonstrating his welfare loss. The only counterexample to the claim that laissez faire capitalism necessarily maximizes human(!) welfare are concocted scenarios such as the following. The all-powerful Martians beam down a message to us to the effect that unless we murder an innocent person, they’ll blow up the entire earth and all of us will die. A hero steps up and murders that individual. Whereupon libertarianism swings into action once again, and we are about to execute this heroic murderer. The Martians send down another message: if we do that, that is, if we follow libertarian principles in this or any other way, they will pulverize our planet. Then and only then in these types of made up examples, can a wedge be created between utilitarianism and libertarianism.

11. I mean this as a compliment!

12. Please, no one tell the New York Times about this! See on this Block [19].

13. Perhaps Masada is a counter example. Fools. They should have stayed alive and killed at least a few more of their enemies, from their own perspective.

14. Ok, ok, they cry and keep people awake, but let’s be serious here.

15. I exaggerate of course, but only somewhat.

16. Although even they are now coming under fire as racists for insisting that $2+2=4$.

https://www.google.com/search?q=mathematicians+are+racists+for+insisting+that+2%2B2%3D4.&rlz=1C1CHBF_enUS724US724&oq=mathematicians+are+racists+for+insisting+that+2%2B2%3D4.&aqs=chrome..69i57.10932j0j15&sourceid=chrome&ie=UTF-8

17. The Peter Boghossian case is only the latest episode in this sorry story.

https://www.google.com/search?q=is+philosophy+the+most+woke+discipline%3F&rlz=1C1CHBF_enUS724US724&sxsrf=AOaemvLgGe7SI9m_-IYSfadCanJz5XngWQ%3A1631407941106&ei=RU89YZT6Be3v9AOWn6aICQ&oq=is+philosophy+the+most+woke+discipline%3F&gs_lcp=Cgdn23Mtd2l6EAM6BggAEAcQHjoFCAAQgAQ6BAgAEB46BAgAEB46BggAEA0QHjoICAAQBxAFEb46BggAEAUQHjoICAAQCBANEB46BAghEApKBAhBGABQ10dYu5ABYNKZAWgAcAJ4AIABaYgBhw-SAQQyNi4xmAEAoAEBwAEB&sclient=gws-wiz&ved=0ahUKEwjUsMCWnPjyAhXtN30KHZaPCZEQ4dUDCA4&uact=5

18. I do wish he would at least upon occasion do me the honor of citing my actual words, as I do of his. If he did so, this might preclude him from ascribing to me objections to his thesis that I never made.

19. If this is not an instance of utilitarianism, I don’t know what is.