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To the Graduate Council:

I am submitting herewith a dissertation written by Trevor Grant Hedberg entitled "Population, Consumption, and Procreation: Ethical Implications for Humanity's Future." I have examined the final electronic copy of this dissertation for form and content and recommend that it be accepted in partial fulfillment of the requirements for the degree of Doctor of Philosophy, with a major in Philosophy.

John Nolt, Major Professor

We have read this dissertation and recommend its acceptance:

David A. Reidy, Jon Garthoff, R. Scott Frey

Accepted for the Council:

Dixie L. Thompson

Vice Provost and Dean of the Graduate School

(Original signatures are on file with official student records.)

Population, Consumption, and Procreation
Ethical Implications for Humanity's Future

A Dissertation Presented for the

Doctor of Philosophy

Degree

The University of Tennessee, Knoxville

Trevor Grant Hedberg

May 2017

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DEDICATION

For my parents

Kevin and Sherri Hedberg

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ABSTRACT

Human population growth is a contributing factor to a number of significant environmental problems. My dissertation addresses both the negative environmental effects of human population growth and what ought to be done to curtail them. Specifically, I defend two main claims: (1) we have a duty to reduce human population, particularly those of us with large ecological footprints, and (2) morally permissible social policies can satisfy this duty.

I begin by addressing three well-known issues in population ethics that could serve as the basis for objections to reducing population: the Repugnant Conclusion, the Non-Identity Problem, and the Asymmetry. I then argue that we are neither obligated to refrain from procreation altogether nor permitted to procreate as often as we like. This groundwork establishes that the correct view about the ethics of procreation must lie somewhere in the complicated middle ground between these two positions.

After surveying the environmental harms caused by rising human population (focusing in detail on effects caused by climate change and biodiversity loss), I argue that we have a collective duty to reduce human population in order to avoid causing catastrophic harm to future people. While we should attempt to reduce environmental degradation by reducing our rates of environmentally harmful consumption, it is not possible to do so rapidly enough to avoid environmental catastrophe: we must reduce human population as well.

I then discuss the policies that might be implemented in the near term to slow population growth and whether these policies could be implemented in ways that are not profoundly unjust or otherwise unethical. I also argue, on the basis of maintaining moral integrity and taking the harms of overpopulation seriously, that couples generally ought to avoid having more than two children even in the absence of policies incentivizing this behavior and even when they live in

parts of the world where their individual ecological footprints are relatively small. I close the dissertation by highlighting some of the lingering questions that will have to be answered in future research on this subject.

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CHAPTER 1: RISING NUMBERS AND TOUGH QUESTIONS

Edward Jenner developed the smallpox vaccine in 1796. Up to this point in human history, smallpox had devastated human populations, often claiming millions of lives per year. It continued to cause deaths for some time afterward but was eventually eradicated. Effective treatment for smallpox was one of the major events in human history that paved the way for the rapid population growth that followed. When 2-3 million deaths are averted annually and the people are already reproducing enough to ensure population stability, then population growth is soon to follow.

Advancements in agriculture and other areas of medicine also facilitated increased population growth, and the cumulative effects were stunning. When Jenner was developing the vaccine, the world was on the cusp of holding 1 billion people. It took about 200,000 years for humanity to reach the 1 billion threshold, and yet we have ballooned to over 7 billion barely two centuries later.[1] The Population Division of the United Nations (UN) Department of Economic and Social Affairs (1999) estimates that 6-billion threshold was crossed on October 12th, 1999, and the UN News Centre (2011) reported that population surpassed 7 billion on October 31, 2011. These numbers are so staggering that they are difficult to comprehend.

The global population has also failed to stabilize at 7 billion. The U.S. Census Bureau (2017) calculates the current number of people on Earth at about 7.37 billion; the Population Reference Bureau (2016) claims that we have already crossed the 7.4 billion threshold. When we crunch the numbers, our current rate of annual worldwide population growth hovers just above

[1] I use the pronoun "we" to refer to collective humanity throughout this work, unless otherwise specified. At its core, this project is about collective moral obligations and a moral problem that is genuinely global in nature, so the "we" should be interpreted as broadly as possible.

1.1%.[2] Such a small percentage may seem insignificant, but 1.1% of 7.4 billion is equivalent to 81,400,000 people. The severity of this rate of growth can also be highlighted by considering its doubling rate – that is, the amount of time the population will take to double. At a growth rate of 1.1% per year, a population will double in less than 63 years.[3]

The good news is that population projections predict a drop in the annual rate of global population growth. (There probably will not be 14.8 billion people on Earth in 2080.) The most recent study by the UN's Population Division (2015) estimates that global population will, in their medium-variant scenario, rise to 9.7 billion by 2050 and 11.2 billion by 2100. This result is also consistent with a recent study conducted by Gerland et al. (2014). These findings deviate from earlier projections that suggested a swifter path to population stabilization: less than 15 years ago, the UN Department of Economic and Social Affairs (2004) projected that the global population would peak in 2075 at 9.22 billion. These more recent projections are controversial,[4]but it is clear that the global population is going to increase significantly in the near term: there are no realistic population projections in which global population does not reach 9 billion.

Some may find it difficult to worry about these projections because claims about population crises have been exaggerated in the past. Thomas Malthus (1798) argued that it was inevitable that human population growth would outpace improvements in agriculture so drastically that a collapse of population – caused by a scarcity of food – was inevitable. Malthus

[2] There is some variance in the annual growth rate depending on what particular numbers are used, but the variance is minimal. For some estimates, see data from The World Bank (2017) and Worldometers (2017).

[3] The mathematical formula for calculating how many years it will take a population to double at a fixed rate is (ln 2 / G) where the variable G represents the rate of growth per year. Thus, a population that grows at a constant rate of 1.1% will double in approximately 63 years: (ln 2 / 0.011) ≈ 63. For an overview of the mathematics involved in calculating rates of population growth, see Bartlett (1993).

[4] Lutz (2014), for instance, suggests that improvements in female education will result in a significant decline in the fertility rates in Africa, the continent where the biggest population explosions are expected during the 21st century.

did not anticipate technological advancements in agriculture that have enabled human beings to continue growing their global population without suffering such a collapse. More recently, Paul Erlich (1975) suggested that rising population could lead to hundreds of millions of people dying of starvation in the 1970s and 1980s.[5] This dire catastrophe did not come to pass. Since fears about overpopulation disasters have been exaggerated, it is tempting to consider discussion of the issue misguided, but the increasing impacts of population growth cannot be denied.

Earth cannot support continuous population growth because its resources are finite, and we are approaching the limits of what the Earth can provide for collective humanity. One illuminating example of this problem is our agriculture. Industrial agriculture requires the use of technologies that use fossil fuels in great quantities – both in growing the food and transporting it. These technologies release greenhouse gases into the atmosphere, and in some cases, we must clear land to grow new crops, often releasing additional greenhouse gases that were trapped in carbon sinks. As a result, our means of growing and distributing food accounts for 19-29% of our annual greenhouse gas emissions (Vermeulen, Campbell, and Ingram 2012). The effects of climate change will be devastating: rising sea levels will displace millions of people and cause several island nations to disappear into the ocean, extreme weather events (such as hurricanes) will become more intense, and dry regions will become dryer, causing more droughts and lower crop yields.[6] It is not difficult to see how population exacerbates the problem of climate change in this scenario: more people need more food to survive, and creating more food requires emitting more greenhouse gases.

[5] Erlich presented hypothetical scenarios that illustrated dire outcomes caused by rising population. Although he said that these scenarios were "just possibilities" and "not predictions" (Erlich 1975, p. 49), their presentation in combination with the alarmist tone of his book created the impression that he viewed these scenarios as realistic.
[6] This is far from an exhaustive list. The most comprehensive accounts of the effects of climate change can be found in the reports from the Intergovernmental Panel on Climate Change (IPCC). For the most recent report on the impacts of climate change, see IPCC (2014a).

Rising population also does not just affect people. While it may lead to more animals being raised and slaughtered in industrial farming operations, perhaps its greatest impact on the nonhuman community is the biodiversity loss that it causes. People are rapidly depleting Earth's biodiversity, leading some conservation biologists to conclude that we are in the midst of the sixth mass extinction (Barnosky et al. 2011), and the scientific link between increasing human population density and the extinction of plant and animal species is gradually being substantiated.[7] A greater human population makes a greater contribution to climate change – which is, and will continue to be, a significant cause of species extinctions – and puts greater stress on nonhuman ecosystems through increased habitat destruction, deforestation, and pollution.

A growing population leads to a greater need to consume resources, a greater demand for physical space in which to live, a greater need to grow crops or raise livestock, and so on. For these reasons, a greater population will (other things equal) yield a greater ecological footprint than a smaller one. The growing human population will have devastating impacts on presently existing people, future people, and the nonhuman community. Thus, the ethical implications of continuing human population growth must be confronted, even if they raise difficult and worrisome questions.

Confronting an Uncomfortable Topic

Given the severe threats that overpopulation poses for collective humanity, one would think that concern about stabilizing and reducing global population would be a central focus in policy discussions. Once upon a time, that was true. The rapid population increase that occurred

[7] See Luck (2007) for a recent review of this literature.

during the first half of the 20th century drew the attention of both the general public and national leaders in the United States during the 1960s and 70s. But as the decades passed, serious discussions of crafting policies to reduce population growth started to disappear. Both in the United States and globally, the topic has all but vanished from academia and the popular press during the last 20 years.

At first glance, it might appear that academic philosophy has not mirrored this trend. The area known as "population ethics" is a growing subfield, and most of its literature has been written during the last 30 years.[8] But once one understands the meaning of "population ethics" in this context, it becomes clear that this appearance is misleading. PhilPapers, perhaps the most extensive database of philosophy articles that presently exists, defines population ethics as follows:

> [Population ethics] covers two major issues concerning the ethics of future persons: (1) Population axiology, or what principles determine the value of a population. E.g., does an additional happy life make a positive contribution to the value of the world, all else equal? (2) The non-identity problem, and the moral evaluation of actions that determine who will exist in future. (Gustafsson n.d.)

Notice what is omitted from this definition: there is no explicit mention of current global population growth, the moral significance of the impacts of population growth, concerns about whether the present generation's monopolization of the Earth's resources is just, or anything else explicitly related to how rising global population may affect our moral duties. Philosophical discussions of population ethics are primarily theoretical, and while they might be intellectually tantalizing, the writings in this subfield usually fail to engage our current population

[8] Derek Parfit's *Reasons and Persons* was first published in 1984, and the last few chapters of this book initiated most of the discourse that has come to dominate this subfield.

predicament. In fact, in many cases, the discussions are so abstract that there are no clear practical conclusions to draw from them.

Why has explicit discussion of population policy become relatively rare? Martha Campbell (2012) highlights six different reasons for the silence on population. First, since the 1960s, fertility rates around the world have been declining. The fertility rate at which the global population will stabilize is about 2.1 births per woman, and many nations are still well above this threshold. Nevertheless, the decline in fertility rates suggests that the population problem is resolving itself. Obviously, this perception is incorrect: the statistics mentioned in the previous section indicate that the global population is not nearing stabilization. But the point is that the decline in fertility rates creates the *appearance* that population growth will not be a problem for much longer.

Another reason that population discussions have largely ceased is that patterns of overconsumption have become more visible, particularly in the context of discussions related to climate change. Developed nations have generally consumed far more energy and resources than developing nations, and one side-effect of their consumption is that they have been (and continue to be) the primary emitters of greenhouse gases.[9] Any morally acceptable response to climate change will require significant reductions in the amount of fossil fuels burned by the inhabitants of developed nations. High-consumption lifestyles have other powerful effects on the environment as well, some of which I have already mentioned (e.g., pollution, deforestation, biodiversity loss). These environmental impacts are easier to see and understand than the subtler

[9] There are certainly some exceptions. Some countries with extremely large populations (such as China and India) have larger carbon footprints than some developed nations despite lower per capita greenhouse gas emissions than most industrialized nations. The point is simply that people often associated the general tendency of industrialized nations to overconsume with the harms of climate change, and that this at least in part explains why concerns about population have been dwarfed by concerns about consumption rates in policy discussions about climate change.

effects of population growth and the relationship between population growth and the environmental impacts of high-consumption lifestyles. As a result, the focus on reducing consumption rates has eclipsed concern about stabilizing and reducing population.

Perhaps the most significant development in removing population growth from policy discourse occurred at the 1994 United Nations International Conference on Population and Development (ICPD) held in Cairo, Egypt. The unique feature of ICPD, which distinguished it from previous population conferences held by the UN, was its emphasis on women's needs around the world. Prior to the conference, discussion of rising population and the connection between population growth and environmental destruction became politically incorrect because suggestions to stabilize or reduce population were perceived as disadvantageous to women. Coercive episodes of family planning in India during the 1970s were highlighted, and China's one-child policy was also examined. These policies were thought to be unacceptable, and conference attendees wanted to distance themselves from such policies. This desire resulted in the adoption of a new strategy for addressing population issues: family planning and all other health-related issues related to women were combined under the heading "reproductive health." Those advocating this change in language, whether intentionally or not, created the impression that all the family planning efforts prior to 1994 had been objectionably coercive. These past attempts at promoting family planning were derogatorily labeled as means of "population control." Despite the fact that many family planning organizations established prior to 1994 aimed only to make family planning easier for men and women (rather than trying to limit or otherwise control their fertility), this false generalization has proven quite sticky: more than 20 years later, discussions of population policy are still often associated with unjustifiable coercion.

Although I suspect these are the most significant reasons why population discussions have mostly disappeared from contemporary discourse, Campbell (2012) mentions three additional contributing factors. First, conservative think tanks and religious leaders opposed to abortion and family planning have had some success in reducing the attention paid to population growth. Some preach the idea of having as many children as possible.[10] The broader strategy, however, has been to reinforce the notion that world population growth is at an end (Lutz, Sanderson, and Scherbox 2001), an idea that has gained a foothold in the media and influenced the public's perception of how significant the population problem really is.[11] Second, the AIDS epidemic in Africa garnered significant attention worldwide, and many believed that it would reduce population growth in the region significantly.[12] Third, classic demographic transition theory creates the impression that it is "natural" for people to want many children and that they have to be coaxed by changes in society to want a smaller family (Potts and Campbell 2005, pp. 180-181). According to demographic transition models, people are naturally inclined to have high birth rates until their societies develop from a pre-industrial to industrialized economic system. According to the theory, it is only after this industrialization occurs (and death rates in the society are lowered) that people become inclined to have smaller families. General acceptance of this theory (despite the many exceptions to it) leads people to believe that we cannot incentivize people in the developing world to have fewer children without unjust forms of

[10] The most common source of this sentiment in Christianity and Judaism originates from Genesis 1:28 in which God says to Adam and Eve, "Be fruitful, and multiply, and replenish the earth, and subdue it" (King James Bible).
[11] In the United States, for example, there is some evidence that scientists are significantly more worried about population growth than the general public. A survey conducted by the Pew Research Center found that 59% of the general public thought that there will not be enough food and resources to distribute around the globe if population growth continues whereas 82% of members of the American Association for the Advancement of Science held this position (Funk et al. 2015, p. 51).
[12] This thought was mistaken: the populations of many African countries are still growing in size. Moreover, given that the effect plagues and epidemics is usually quite transitory, it is unlikely that any long-term changes to population growth will result from them.

persuasion or coercion, and thus, they fear discussion of population policies will lead down a slippery slope to discussions of "population control."

Taken together, these six factors provide a fairly comprehensive explanation for why worries about population growth are so rarely voiced in policy discussions and the popular press, but why has the issue been largely neglected by academic philosophers? I cannot offer a detailed answer to this question, but perhaps the simplest explanation is that philosophers, even with the privileges of academic freedom, can still be affected by public perception of certain issues. Alberto Giubilini and Fransesca Minerva (2012) received an enormous amount of attention from the media after their paper "After Birth Abortion: Why Should the Baby Live?" was published. In this paper, they argue that only persons have a right to life and that neither fetuses nor infants are persons. Thus, they conclude that both abortion and infanticide are morally permissible in many circumstances.[13] This view was not well received by the general public, and the authors found themselves bombarded by hate mail and death threats. Incidents like this one are rare,[14] but they highlight the potential costs – even for academic philosophers – for arguing in favor of an unpopular position on a controversial issue.

There is little doubt that most people are morally repulsed by the notion of legalizing infanticide or otherwise regarding it as morally permissible. Nevertheless, threatening the lives

[13] Giubilini and Minerva were not the first philosophers to advocate this position. For some other examples, see Tooley (1972) and Singer (1993). In fact, philosophers seem far more willing to entertain the permissibility of infanticide than the permissibility of a coercive population policy.

[14] Julian Savulescu (2013), editor of the *Journal of Medical Ethics*, states that the paper "created unprecedented global outrage for a paper published in an academic medical ethics journal" (p. 257). It is worth noting, however, that other philosophers have suffered social costs for their defense of controversial views. Because of his views on infanticide and euthanasia, Peter Singer's public lectures in several European countries (especially Germany) have often been cancelled due to protests (Schöne-Seifert and Rippe 1991). More recently, Phil Cafaro and Roy Beck were disinvited from a conference in Maryland due to complaints (and threats of protest) regarding their views on population and immigration (Kolankiewicz 2015). Cafaro has also confirmed (in personal correspondence) that some of his published work on the relationship between population growth and climate change has been met with hate mail and threats to his family.

of those who argue for this view (or otherwise silencing them) is not a productive or permissible way to resolve the issue. Those who defend this position do so through philosophical arguments, and if we are going to be responsible critical thinkers, we must look at those arguments charitably and then explain where they go wrong.

Of course, discussion of population did not disappear just because people were morally repulsed by it. There were at least two morally sensible concerns that motivated suppressing this discussion: fears regarding how coercive population policies negatively affected women and recognition of the importance of reducing consumption rates. Some also worry that population policies will be racist in application, since the countries that have the highest birthrates are predominantly in Sub-Saharan Africa and other areas of the developing world. Non-white populations would be the most affected by any policy placing restrictions on procreation. These concerns must be taken seriously, but limiting explicit discussion of population may have caused more harm than good. Following ICPD, access to family planning options did not expand sufficiently to accommodate the increasing numbers of women who wanted them, and the term "reproductive health" was more difficult for governing bodies and the general public to understand and support than the narrow term "family planning" (Campbell 2012, pp. 47-48).[15] Moreover, the limited visibility of the effects of population growth makes it difficult to notice how population growth undermines the overall efficacy of reducing consumption rates.[16] An example will help illustrate this point.

[15] It is possible, of course, that sufficient expansion would have been unachievable even if population growth had remained a more explicit focus of discussion. The point, however, is that there was clearly greater improvement that could have been made and that limiting discussion of population, rather than facilitating that improvement, may have prevented it.

[16] The effects of population growth are readily visible in certain parts of the world, particularly in areas where wilderness is rapidly disappearing. When I refer to "limited visibility," I refer to the ability of the ordinary person – who may be otherwise unconcerned with population growth – to recognize its effects. Those who are insulated from

Thousands of dams were built across the United States during the first half of the 20th century. Eventually, people realized that these dams caused considerable damage to local ecosystems, and a movement emerged to preserve the best remaining rivers in the nation. Demand for water was still rising, but taking water from other people or making more water available by creating more dams, people tried to make more efficient use of the water that was available. They were successful: from 1980 to 1995, per capita use of water in the United States decreased by 20% (Jehl 2002). Unfortunately, the United States population grew by 16% during the same 15-year time period, which means that the progress toward solving the problem was negligible: the need for water was virtually as great in 1995 as it was in 1980 despite the reduction in the consumption of water.[17]

The key takeaway from this anecdote is that improvements to efficiency in our use of resources are solutions only to the extent that they outpace population growth. They are only temporary in the context of an ever-increasing population: if population continues to surge, then eventually new solutions will be needed. Surely we have to reduce our consumption rates to avoid perilous climate change and a host of other catastrophes, but these reductions in greenhouse gas emissions per person, energy consumption per person, water consumed per person, and so on will not amount to sustainable living if population growth continues unchecked. Some even claim that we must ultimately reduce global population to about two billion to maintain an adequate to comfortable standard of living in the long term (Smail 1997,

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natural environments and rather unaware of the empirical research on population growth are unlikely to recognize how pervasive or significant its effects really are.

[17] I borrow this example from Palmer (2012, pp. 98-99).

Foreman 2012). Whether or not one agrees with such an extreme proposal, it should be obvious that we must stop ignoring the moral significance of rising human population.

Tackling overpopulation certainly means that we must confront difficult, often uncomfortable moral questions. We must consider the moral status of future people and how their needs should be weighed against the needs of present people. We must examine the moral significance of population growth's effects on the nonhuman community. We must confront the possibility that non-coercive population measures may not stabilize or *reduce* global population effectively or swiftly enough to be morally satisfactory. In taking these issues seriously, we may discover that some of our moral values are in conflict with one another. It may not be possible, for instance, to allow for maximal reproductive freedom while looking out for the interests of posterity and the nonhuman community. Similarly, it may not be possible to allow a nation with high rates of consumption, such as the United States, to grow its population through immigration even if doing so enables many immigrants to improve their lives.

This dissertation will not answer all the questions relevant to developing ethically acceptable population policies or making morally responsible procreative decisions as individuals, though it will address the most significant moral questions that global population growth currently raises in an anthropocentric context. My central hope is that this dissertation will advance the philosophical discussion of overpopulation and help to break the silence on overpopulation in the realm of academic philosophy.[18]

[18] Since starting work on this project, two books – Sarah Conly's (2016) *One Child* and Travis Rieder's (2016b) *Toward a Small Family Ethic* – have been published that address the overpopulation problem. Time will tell whether this is the start of a trend.

Is Overpopulation a Genuine Moral Problem?

Based on what I have said thus far, it is probably obvious that I give a resounding affirmative answer to the question that titles this section: overpopulation is undoubtedly a genuine moral problem. One might dissent, however, by arguing that genuine moral problems require some uncertainty regarding what we ought to do and that virtually everyone agrees what we ought to do with respect to population. Brian Barry (1999) claims that "virtually everybody who has made a serious study of the situation and whose objectivity is not compromised by either religious beliefs or being in the pay of some multinational corporation" has concluded that concern for posterity demands a significant reduction in population (pp. 62-63). Furthermore, Barry is not the only philosopher to think that the need to reduce population is a moral requirement. David DeGrazia (2012) mentions avoiding disastrous overpopulation in his list of obligations to future generations (p. 200), and John Nolt (2015) identifies population reduction as one of five clear moral imperatives in the domain of environmental ethics (pp. 219-221). But if Barry is right in thinking that it is clear what we ought to do regarding overpopulation, then one may worry that a detailed philosophical examination of the issue is not too valuable. Further scrutiny might appear unnecessary.

For the sake of argument, grant that those who have studied our population predicament generally agree that we need to stabilize and then reduce global population.[19] It does not follow from the truth of this claim that all the relevant moral questions pertaining to population policy are resolved. We are still left with many questions regarding the moral permissibility of particular ways to achieve that stabilization and reduction and the relative moral significance of

[19] As we shall see later, there is some significant disagreement about the implications of population growth regarding what individual reproductive decisions are permissible, so this assumption is only plausible with respect to a consensus on what we *collectively* ought to do.

achieving these goals when they conflict with other moral values (e.g., reproductive freedom). Agreement on one of the broadest questions in population ethics does not entail agreement about all the subsidiary questions that must then be answered. Moreover, agreement on controversial issues can arise for a variety of reasons that have nothing to do with the philosophical merits of the adopted position. Thus, it is important to subject *all* positions to rigorous philosophical scrutiny. Widespread agreement would not in itself provide us with a reason to cease philosophical examination of the issue. Thus, Barry's claim does not ground a significant objection to the pursuit of this philosophical project.

Juha Räikkä (2000) tries to refine Barry's claim into a more focused and sophisticated argument. He claims that the issues commonly discussed within the philosophical subdiscipline of population ethics are not genuine moral problems. Räikkä (2000) defines "genuine moral problems" as those moral questions that "(1) are open in the sense that there are various plausible answers to them and (2) have practical relevance in the sense that they concern the issue of what should actually be done" (p. 401). He does not believe that anything typically discussed within population ethics satisfies both of these conditions. While this restricts the scope of the objection to some extent, its truth would imply that large portions of this dissertation do not concern questions of philosophical interest. Given that this objection could undermine the value of this project, it must be addressed before we proceed.

Räikkä begins by differentiating moral problems from social problems and empirical uncertainties. He claims that the questions related to the socially detrimental effects of certain population policies are merely social problems (Räikkä 2000, pp. 402-403) and that many of the issues in population ethics hinge on disagreements about empirical claims (pp. 405-406). He is certainly right to note that certain concerns, such as how relevant government actors can be

motivated to act as they should or how family planning programs could earn public support, are not moral in nature, but what about the questions about population policy that have an explicitly ethical component? Consider the following question: should the United States government restrict immigration in order to stabilize the U.S. population? This question clearly meets both conditions of Räikkä's definition of a genuine moral problem: there is certainly no consensus regarding what immigration policy the U.S. ought to adopt, and this question clearly addresses what should be done to resolve the moral problem. It is not difficult to pose other questions concerning population that appear to be genuine moral problems by the criteria Räikkä provides. Here are a few that will be addressed elsewhere in the dissertation:

1. What are the limits (if any) on the number of children a couple can permissibly have in the context of overpopulation?
2. Are any coercive population policies morally permissible in light of the history of abuses and human rights violations that have resulted from them?
3. What are the implications of overpopulation with respect to the moral permissibility of abortion?

Even Räikkä's handpicked examples of issues in population ethics that are *not* genuine moral problems actually meet his criteria.

Räikkä highlights three issues that have been widely discussed in population ethics: the Repugnant Conclusion, the Non-Identity Problem, and the Asymmetry. The Repugnant Conclusion can be represented as the following claim: for any given population, there exists a vastly greater population whose existence would be better even if the members of this population have lives that are barely worth living (Parfit 1987, p. 388). The Non-Identity Problem refers to the following puzzle: how can future people claim to have been harmed by our actions if they

have lives worth living and they would not have existed at all if we had refrained from performing those actions? Finally, the Asymmetry refers to a union of two claims in procreative ethics: it is morally wrong to bring a child into existence who will have a miserable life, but it is permissible not to bring a child into existence who will have a blissful life.

Räikkä claims that none of these issues constitute genuine moral problems because we know what to do in all of them. We know that we are not obligated to bring about an overcrowded world of people with lives barely worth living (even assuming that we had the means of creating a world with those enormous numbers of people). We know we are not free to do whatever we wish with the distant future even if the identities of future people are dependent on what we do. We know that the two principles of the Asymmetry are correct. Since there is no substantive disagreement about what we ought to do in these cases, they fail the first condition of Räikkä's definition of a genuine moral problem.

There are two problems with Räikkä's assessment of these issues. First, his outlook unjustifiably privileges philosophical intuitions. Philosophers typically acknowledge that the positions Räikkä favors are the most intuitive ones on offer – the ones that seem most consistent with common sense and ordinary practice. But to stop inquiry here favors intuition far too much. I will explain why in greater depth in the next section, but the short explanation is that philosophical intuitions are often mistaken. Trivially, since philosophers often have conflicting intuitions, some philosophical intuitions must be mistaken. Moreover, even widely shared intuitions can be incorrect, since they can result from biases and other distorting factors. So even if intuitive positions turn out to be correct, we can only reach that conclusion after serious critical evaluation.

Second, Räikkä inaccurately assesses the level of agreement that has been achieved on these three issues. All three of these topics are controversial. Many philosophers have suggested that the Repugnant Conclusion, regardless of how counterintuitive it might seem, should be accepted (Sikora 1975, pp. 409-419; Anglin 1977, p. 754; Sikora 1981, pp. 128-133; Ng 1990; Attfield 1991, pp. 127-130; Ryberg 1996; Fotion 1997, pp. 95-96; Tannsjo 1998, pp. 160-163; Tannsjo 2002; Huemer 2008). Michael Huemer (2008) even identifies several reasons for thinking that the specific intuition underlying the repugnant conclusion is mistaken (pp. 907-911).

Philosophers have come closer to consensus on rejecting the conclusion of the Non-Identity Problem – the claim that we cannot wrong future people whose identities are dependent upon our actions so long as we do not make their lives no longer worth living. Nevertheless, anyone who attends a conference presentation on a topic in intergenerational ethics will likely discover that many philosophers still take the problem seriously. David Boonin (2014), author of the first book-length treatment of the Non-Identity Problem, claims that the conclusion of the Non-Identity Problem is actually correct. According to his view, it is not possible to wrong a future person whose identity is dependent upon your actions unless you make that person's life no longer worth living. It follows from this claim that it is *not* morally wrong to conceive a person who will be born with a severe physical or mental impairment, provided that the person cannot exist without this impairment and that the person will still have a life worth living.[20]

Philosophers have also not achieved a consensus with regard to the Asymmetry. Many philosophers have been unable to provide coherent theoretical support for the Asymmetry (e.g., McMahan 1981, 2009, 2013; Singer 1993; Persson 2009); others have posed creative, though

[20] In chapter 2, I will explain and critically evaluate Boonin's argument for this claim.

controversial, ways of vindicating this view (e.g., Benatar 2006, esp. pp. 32-34; Roberts 2011b). Thus, it is not clear whether the two claims in the Asymmetry can be held consistently.

This brief synopsis should be sufficient to demonstrate that it is *not* obvious what we ought to do with respect to these three issues. Furthermore, as we shall see in chapter 2, one's views with respect to these issues could have significant implications with respect to addressing our current population crisis. Specifically, one's positions on these issues affects whether one has reasons to object to a duty to reduce global population. Thus, according to Räikkä's own criteria, all three of these issues are genuine moral problems.

At this juncture, we can see that the moral questions raised regarding population – both theoretical quandaries and problems that arise in the real world – *are* genuine moral problems. We must now consider how they should be addressed.

The Philosophical Method

Many philosophers approach ethical dilemmas through the lens of a particular moral theory. Perhaps they have adopted the moral philosophy of Immanuel Kant and apply his Categorical Imperative to moral controversies. Or perhaps they think the utilitarian imperative to maximize total welfare provides the proper decision procedure for moral dilemmas. There are plenty of other possibilities as well.[21] Unfortunately, any approach grounded solely in a single moral theory has two significant shortcomings. First, an analysis of an ethical dilemma that is grounded explicitly in a single theoretical outlook will only have a limited audience. There is

[21] The most prominent alternative to Kantianism and utilitarianism is virtue theory: the family of ethical theories that ground right action in what the virtuous person would do and emphasize moral character rather than adhering to moral duties or acting so as to bring about the best consequences. Care ethics (Held 2006) and contractualism (Scanlon 1998) have also recently been defended, and there exist many other lesser-known moral theories.

profound disagreement among philosophers regarding which moral theory is correct,[22] and thus, any analysis of a moral dilemma grounded in a single theory will be unappealing to many philosophers. Second, it may be impossible to condense all morally relevant considerations into a single theory. Part of the reason that different families of moral theories have persisted in philosophy is that they all appear to get an essential piece of the moral puzzle correct despite their fundamental differences. But if no comprehensive unified theory of ethics is achievable, then any approach to a moral problem based on a single theory is destined to provide only an incomplete moral outlook on the issue.

Rather than attempting to examine the ethical dilemmas created by the rising human population through moral theory, I will instead attempt to do so by crafting plausible moral principles that offer guidance as to what we ought to do. While I am not confident in my ability to defend any particular theory from its competitors or to craft a comprehensive, unified theory of ethics, I believe I can articulate and defend certain fundamental moral principles. Ideally, these principles could be derived from many, if not all, plausible moral theories. The pressing methodological question is how we should determine what these principles are.

Following many moral philosophers, I will adopt the method of reflective equilibrium to determine what moral principles we should endorse.[23] In broad terms, reflective equilibrium refers to the method of trying to explain our considered judgments – those moral convictions that survive sustained critical reflection under conditions conducive to good reasoning (e.g., no manipulation, an absence of social biases) – in terms of moral principles that can be unified into

[22] In their survey of philosophers, Bourget and Chalmers (2014) found that participants "accepted" or "leaned toward" the major positions in normative ethics with the following frequency: deontology, 25.9%; consequentialism, 23.6%; virtue theory, 18.2%; and other, 32.3%.

[23] Nelson Goodman (1955, pp. 65-68) appears to be the first philosopher to explicitly describe and endorse this method, though Goodman employed it as a means of justifying principles of deductive and inductive inferences. John Rawls (1999, pp. 18-19, 42-45) is responsible for popularizing the term.

a coherent system. A state of perfect coherence among all our theoretical principles and considered judgments is the ideal equilibrium at which the method aims.

Reflective equilibrium has been used in normative theory by both nonconsequentialists (e.g., Rawls 1999, 2005; Scanlon 1998, 2014) and consequentialists (e.g., Nielsen 1994, Hooker 2003). This method has also been used in conjunction with normative theory specifically to address controversial issues in applied ethics (e.g., Carruthers 1992, DeGrazia 1996, Boonin 2003). Nevertheless, reflective equilibrium has a significant shortcoming, one that can be highlighted by examining how other philosophers describe the method. Consider an excerpt from Boonin's (2003) description of reflective equilibrium:

> We begin by accepting, at least provisionally, our moral intuitions about a variety of types of actions, giving more initial weight to those which seem especially clear or forceful. We then attempt to develop a credible moral theory that would serve to unify and underwrite these various judgments (pp. 9-10).

The concern about this method of reasoning is the starting point: what exactly is a moral intuition, and why would these intuitions be serviceable starting points for moral inquiry?

A growing trend in moral philosophy is to employ research in experimental psychology to shed new light on age-old philosophical problems.[24] We know that people's moral intuitions can vary, but the worries about their reliability run deeper than that. Some recent research suggests that intuitions are grounded in automatic, unreflective responses (e.g., Haidt 2001, Greene et al. 2001). One may also worry that our intuitions are just remnants of our evolutionary history, cultural heritage, or the teachings of our parents. The way that some philosophers use reflective equilibrium creates the impression that the method privileges moral intuitions in an

[24] For a helpful overview of this trend, see Doris and Stich (2005).

unacceptable way: since intuitions are not reliable guides to truth, we cannot be confident that the principles reached through reflective equilibrium will be true either.

This concern about reflective equilibrium arises in part because philosophers are sometimes unclear about what they mean by "moral intuitions." Some philosophers use the term "moral intuition" to refer to a considered judgment, some consider moral intuitions to be spontaneous initial judgments (e.g., McMahan 2000), others believe that moral intuitions refer to the combination of both sets of judgments, and many fail to specify what they mean by the term. I understand moral intuitions to be spontaneous initial judgments, and I consider this category of judgments to differ greatly from considered judgments. Drawing in part on Rawls (1951), I believe that considered judgments must meet the following criteria (pp. 181-183):

1. The judge (i.e., whomever is making the judgment) must be able to make the judgment without her own interests hinging in some way on what judgment is made.
2. The judgment must concern a case with which the judge is familiar and preferably one in which the details are simple and easily graspable.
3. The judgment should not be made spontaneously. Instead, the judge should give the details of the case careful consideration, and a judgment should be made only after all the facts of the case are fully understood.
4. The judge feels strongly that her judgment is correct.
5. The judgment must be stable over time: there must be some evidence that others have rendered similar judgments about similar cases.
6. The judgment should not be reached by the conscious, systematic application of a moral theory or a complex series of moral principles, though it may involve sustained

critical reflection and perhaps the application of a basic moral rule (e.g., promises should be kept, equals ought to be treated equally).[25]

Intuitions frequently fail to meet conditions (2), (3), or (5). Some philosophers draw on intuitions about complex thought experiments that are difficult to comprehend; these are not considered judgments because they violate (2). Some philosophers portray intuitive judgments as spontaneous, violating (3). As I mentioned earlier, I understand "intuitions" to have this feature, so I believe condition (3) captures one of the fundamental differences between intuitions and considered judgments. Some philosophers also appeal to intuitions that many other philosophers do not share, which violates (5).

What makes considered judgments better than mere intuition? Focusing on (2), one might ask why we cannot trust our intuitions about outlandish cases that are unlikely to be realized in the real world. The central reason is that it is typically difficult to fully understand the features of these outlandish cases and the moral import of these features (Elster 2011, pp. 150-153). To illustrate this point, consider the following claim: there is no circumstance in which one would prefer two years of intense torture to having a hangnail for her entire life, no matter how long her life is. Larry Temkin (1996) uses this claim in a complex argument designed to show that the "all-things-considered better than" relation is not transitive (pp. 179-180). His support for the truth of this claim is a mere intuition: he has a spontaneous initial judgment that the claim is

[25] This sixth condition only applies to moral judgments, but considered judgments could be made about cases in other areas of philosophy. We might, for instance, be able to form considered judgments about certain kinds of Gettier-style cases in epistemology: cases that use luck as a means of deriving counterexamples to the claim that knowing a proposition is equivalent to holding a justified true belief about that proposition (Gettier 1963).

true.[26] Does this intuition give us good reason to think that the claim is true? I contend that it does not.

The problem with this example is that it is not possible to reasonably conceive of the details that the case describes. If we were the kinds of beings who ordinarily lived for 100 million years, it is hard to know how we would feel about two years of torture. If we typically lived so long, this period of torture would constitute a mere 0.0000002% of a person's life; in an ordinary human life of 80 years, this period of torture would take up 2.5% of a person's life. Thus, it's not hard to think our intuitions about the case might be different if we had a better grasp on what it would be like to live for 100 million years (or a similar length of time). Unfortunately, knowing what it would be like to live that long is beyond our imaginative capacities. As a result, we should not be surprised if our judgment about this case is misguided. Judgments about these kinds of cases – those that are remarkably idealized and radically foreign to ordinary human experience – are not reliable.

In a similar fashion, spontaneous judgments are often unreliable, which is why considered judgments must satisfy (3). Spontaneous judgments, by their nature, do not involve a careful consideration of the relevant facts, and sometimes even simple cases require careful deliberation if a reliable judgment is to be reached. Many have the intuition that it would be permissible to flip a switch to redirect a runaway trolley away from a track with five workers in its path and onto a siding with only a single worker. But many also have the intuition that it would be impermissible to push a large gentleman off a bridge and into the trolley's path even if doing so were the only way to derail the trolley and save the 5 workers.[27] But these intuitions

[26] Temkin has presented this example to many audiences, and the intuition does appear to be fairly common.
[27] The trolley problem originates with Philippa Foot (1967).

appear to be in conflict because the cases are very similar: both involve sacrificing one person's life to save the lives of five other people. Even if the intuitive judgments can ultimately be vindicated, it is clear that these spontaneous initial judgments are not, in themselves, enough to justify holding these views. We have to see if these judgments can survive critical scrutiny.

A further indication of an intuition's unreliability occurs when another expert on the subject does not share that intuition. Appealing to our own personal intuitions to support our claims is a foolhardy enterprise if others have intuitive judgments that differ from our own. Appealing to controversial intuitions is problematic because "it seems unreasonable to have any confidence that a judgment is correct if competent persons disagree about it" (Rawls 1951, p. 183). After all, our intuitions may merely reflect our own personal idiosyncrasies rather than tracking anything of philosophical significance.

Chapter Outline

I will ultimately argue that we – that is, collective humanity – are morally obligated to reduce our population over the next several generations.[28] I will then explore some implications of this moral duty, including what policies we should implement to achieve it and the implications of this duty for individual moral decision-making. The journey towards this conclusion begins with the extant literature on population and procreative ethics.

As I mentioned earlier in this chapter, population ethics has traditionally been dominated by three issues: the Repugnant Conclusion, the Non-Identity Problem, and the Asymmetry. I address these issues in chapter 2. Beyond their prevalence in the literature, each of these issues

[28] As will be discussed later, demographic momentum will ensure that we do not reduce our population in the immediate future, no matter what policies on procreation we implement. The process will be gradual and require many generations to realize.

can generate an objection to a duty to reduce population, so I will address them at the outset to preemptively refute any objections that could later arise from them. We will see that they fail to provide compelling reasons to reject a duty to reduce population.

In chapter 3, I examine two extreme positions in procreative ethics that, if correct, would provide clear moral imperatives regarding population. The first of these is Antinatalism – the position that we ought not to reproduce *at all*. If such a position were correct, it would follow that we ought to try to reduce the human population to zero. While such a view would be unlikely to get any traction with the general public, it has become a relatively hot topic in the academic literature on procreative ethics and warrants serious treatment. The other extreme position is the view that we have a right to procreate freely and have as many children as we like. If this view were correct, then it would follow that we ought to not regulate procreation at all because it would violate individual rights. I argue that both these positions are mistaken. Procreation is sometimes (but not always) permissible, and individuals do not have a right to procreate as often as they want. Our right to procreate is constrained by the effects that the exercise of this right has on others. In the context of harmful overpopulation, the moral constraints on this right may be quite limited. Hence, an appeal to individual rights does not establish that all forms of procreative regulation are objectionable.

I begin presenting my positive view in chapter 4. This task starts with getting a firm grasp on precisely how bad the population problem really is. Although I discuss a few of the problems caused in part by overpopulation that are not primarily environmental in nature (e.g., overcrowding), my main topics of emphasis are climate change and biodiversity loss. Both these environmental problems could have catastrophic and long-lasting impacts on future people.

After highlighting the severity of the problems looming on the horizon, I argue in chapter 5 that we have a moral imperative to either significantly reduce human population, radically reduce our rates of environmentally destructive consumption, or pursue reductions in both human population and rates of consumption. If we properly recognize the moral status of future people and treat their rights and interests with the moral seriousness they warrant, then it becomes clear that we cannot continue with our currents trends in population growth and destructive consumption. Something must change. Unfortunately, although some reductions in consumption can be made, I further argue that it is not possible to make sufficient cutbacks in environmentally destructive consumption – particularly in the short timescale in which they must be made – to reliably avoid the worst outcomes these environmental crises may cause. Some reduction in the human population will be necessary. The only viable path toward a solution involves making efforts to *both* reduce consumption and reduce population.

In chapter 6, I consider what policy measures could be pursued to permissibly hasten the stabilization of the global population and then aid its reduction. I argue in favor of a combination of policies that would help lower fertility rates in both developing and developed nations. These policies include increasing access to contraception and family planning services, implementing preference-adjusting media campaigns that promote having smaller families, and providing economic incentives that reward people for having smaller families. One of these economic incentives is the ability to trade one's right to an "allowed" number of children in an open marketplace.[29] All people would be able to sell their allowance (or a portion of it) to those who

[29] As we will see, this proposal would have some context sensitivity in application, since the ecological footprint of a child is not equal in all parts of the world. Couples in some portions of the world, at least so long as their ecological footprint remains low, may be permitted to have 2 or 3 children without purchasing additional rights to have children.

wanted to purchase the ability to have a larger family. To offer an example, if a couple was allowed a total of two children but wanted a third, they could purchase the legal right to have a third child from a seller (or group of sellers) in this marketplace.

We would not begin with the economic incentives, however. Our goal would be to implement the least coercive set of policies that would solve the population problem, so we would start with non-coercive measures such as increasing the availability of contraception and family planning services, particularly in those countries with large unmet needs for these services. Assuming that these measures did not have a large enough impact, we would then implement preference-adjusting interventions that might motivate people to choose to limit their family size voluntarily. Should we need to go further, we can provide economic incentives for individuals to have fewer children, such as tax breaks for childless couples. Along these lines, we could consider punitive measures to encourage compliance, though I argue that these measures could not in practice go beyond heavy fines. More severe punishments, such as mandatory sterilizations or abortions, carry too great a risk of abuse and may violate individuals' rights to privacy and bodily integrity even if they are not abused. Thus, they are too morally problematic to be a feature of a satisfactory population policy. I conclude chapter 6 by considering some objections to the policies I have proposed and considering whether unjust outcomes resulting from these policies can be avoided.

While prior chapters address the collective moral duties that we have with respect to reducing population, chapter 7 focuses on individual procreative choice. Whether or not policies are eventually implemented to limit procreation, many people will have the freedom to decide how many children they have for some time to come. What are they morally required to do? Our individual obligations cannot be to remain childless: a universalized obligation of this sort would

lead to our extinction. Moreover, many view having a child as a central feature of the ideal human life, so requiring such people to remain childless would be to demand too great a sacrifice on their parts. Nevertheless, in this chapter, I argue that it is morally wrong for couples to intentionally have more than two children, given the impacts of continued population growth on future people. Given the moral seriousness of the situation, we should all acknowledge the existence of a collective moral imperative to reduce global population. If one accepts this imperative, then maintaining integrity requires that one also not take individual action to increase the global population. Practically speaking, this means that individuals should, when possible, avoid having more than two children. While having fewer children would be morally better, I argue that it would be too onerous to require couples to have only a single child in the absence of a collective scheme that provides options for having larger families.

I conclude the dissertation in chapter 8 by recapping the main arguments presented and the central conclusions that I have reached. I also gesture at some of the lingering questions that should be addressed in future work, noting in particular the limitations of the anthropocentric approach that I have adopted. I also address one final objection: the concern that we should not act to prevent overpopulation because the looming environmental crises are not solvable regardless of what we try to do. According to this defeatist objection, we should not worry about making sacrifices for future people because they are already doomed, meaning that our sacrifices will be meaningless. I argue that this objection rests on a mistaken conception of what it means to “solve” a moral problem and that there are still opportunities to make a great difference in the state of the future even if some of the destructive impacts of our past actions can no longer be prevented.

CHAPTER 2: FAMILIAR ISSUES IN POPULATION ETHICS

In the opening chapter, I mentioned the three issues that have traditionally dominated the subfield of philosophy known as population ethics: the Repugnant Conclusion, the Non-Identity Problem, and the Asymmetry. All three of these issues provide a basis for objecting to a duty to reduce population. Moreover, given the theoretical implications of these issues for intergenerational ethics more broadly, any adequate discussion of long-term population ethics must address them. In this chapter, I examine each of these issues in turn, clarify my views on them, and explain why none of them grounds a strong objection to a duty to reduce human population.

The Repugnant Conclusion

The Repugnant Conclusion is an implication of what Parfit (1987) calls the Impersonal Total Principle: "If other things are equal, the best outcome is the one in which there would be the greatest quantity of whatever makes life worth living" (p. 387). This principle implies that for any population, no matter how blissful the lives of its members, there exists a much larger population that is better even though its members all have lives barely worth living. A population with hundreds of trillions of members whose lives are barely worth living may, for instance, have a greater total welfare than a population with a billion members who are all living blissful lives. Thus, according to the impersonal total principle, the larger population is preferable to the smaller population.

As the name of this implication suggests, Parfit (1987) finds the conclusion of this reasoning "hard to accept" (p. 388). However, he does not explain why in great detail: the Repugnant Conclusion is simply counterintuitive and rejected on those grounds. As my

discussion of philosophical methodology in chapter 1 indicates, I do not think a mere intuition provides strong grounds for rejecting or endorsing philosophical claims. Intuitions are simply too unreliable to play such a strong role in our deliberations.

Perhaps Parfit believes his verdict about the Repugnant Conclusion is a considered judgment rather than just a mere intuition. That proposal faces a significant problem, however, because it does not seem possible to have a considered judgment about the Repugnant Conclusion. I have already mentioned that having a considered judgment about a case requires (among other things) familiarity with the case and stability of the judgment over time. It is clear that we do not have a deep familiarity with the case described by the Repugnant Conclusion. We do not have much experience reasoning about populations with trillions of members (or more), and it is also difficult to conceptualize precisely what constitutes a life that is *just barely* worth living. We also have a natural difficulty comprehending extremely large numbers and compounding small quantities (Huemer 2008, pp. 908-910), and both of these are required to make a judgment about the plausibility of the Repugnant Conclusion. Additionally, as also discussed in the prior chapter, many philosophers have dissented from the intuitive verdict about the Repugnant Conclusion. Since many people with similar expertise and familiarity with the case have rendered different judgments about it, the judgment cannot be considered stable. For these reasons, we should not regard the rejection of the Repugnant Conclusion as a considered judgment.

Now suppose that someone accepts the Repugnant Conclusion. This claim could provide the basis for an objection to population reduction. If a world with vast numbers of people at low welfare can be better than a world with a much smaller population of individuals at a very high welfare, then perhaps we should not be so concerned about our increasing population, even if it

reduces the average welfare of everyone. After all, the *total* welfare of a larger population could still be higher than the total welfare of a smaller population.

Whatever theoretical implications the Repugnant Conclusion may have, however, it does not in practice entail that we should work toward creating a world in which we have as many human beings as possible that have lives barely worth living. Attempting to create such a world would run a grave risk of leaving many members of the population with lives *not* worth living. Moreover, we can expect that reductions in average welfare among members of a population will be rather drastic once a population begins to exceed the planet's carrying capacity: resources will become more limited, and inhabitants will have greater difficulty satisfying their basic needs. *Figure 1* below, which originates from Huemer (2008, p. 930), illustrates this aspect of the Repugnant Conclusion.

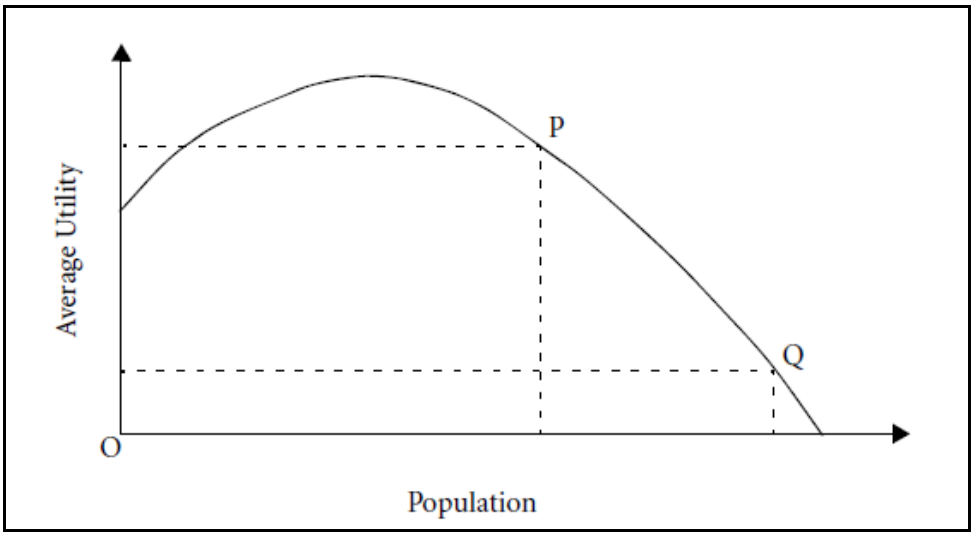

Figure 1: The Relationship between Population and Average Utility

This figure is a representation of what the actual relationship between average utility and population size appears to be. Initially, increases in population improve the efficiency of

resource distribution and production, resulting in an improvement in average welfare. Eventually, however, the population increases to the point that it is no longer feasible to adequately distribute resources to everyone. Once this threshold is passed, increases to population size *decrease* the average welfare of those in the population. In *Figure 1*, according to the Impersonal Total Principle, the ideal population size is point P because that is the point where total welfare, which equals the total population multiplied by the average utility, is maximized. As we can see, point P is nowhere near the maximum population size, so the Impersonal Total Principle "does not enjoin us, in reality, to pursue the world of cramped apartments and daily gruel" (Huemer 2008, p. 930).

An adherent to the Impersonal Total Principle who thinks long-term may also be concerned about the far-reaching consequences of having too many children in the present. Doing so may exhaust resources in such a way that larger populations become impossible to sustain in the future, which would significantly *reduce* total welfare. Each person with a life worth living increases total utility, so if an overpopulated generation depletes resources so severely that the population size must be drastically reduced in subsequent generations, then this may result in lower total utility than if a more modest population size had been maintained over many generations.

Additionally, the Impersonal Total Principle is typically thought to include the welfare of many nonhuman animals.[1] Taking animal welfare into account radically alters the calculation of ideal population size because we must balance the welfare of our own species with the welfare of other species, which entails that we cannot assume that a large *human* population is the one that

[1] Animals that are sentient (i.e., capable of experience pleasure and pain) are typically included. Whether the biotic welfare of plants and other non-sentient organisms should be considered morally significant is more controversial.

maximizes total welfare. After all, increasing our numbers may result in significant decreases to the numbers of other sentient animals and may cause significant suffering to those that remain. Thus, even if we accept the moral principle that we ought to maximize total utility, this principle does not imply that we should always strive to increase *our* population size.

There are also strong deontological reasons to reject the population-increasing imperative of the Impersonal Total Principle. Perhaps the most powerful of these reasons is that an imperative to increase population would place enormous burdens on women that would not be shouldered by male members of the population. As Christine Overall (2012) explains:

> The Repugnant Conclusion is repugnant in part because it does not direct adequate moral attention to the women who would have to do the reproductive labor to generate the millions of new human beings. It is mistaken because the premises that lead to it are insidiously gender neutral. That gender neutrality at best ignores and at worst mandates injustice to women, first by requiring disproportionate sacrifices from women for the sake of the alleged goods to be obtained through procreation and second by ignoring women's right not to reproduce. (pp. 73-74)

If we view the Repugnant Conclusion purely as an abstract exercise in which we are choosing among two possible worlds to actualize, perhaps the higher total utility is sufficient for us to choose the world with the larger population, but in practice, we would not have such a choice. The larger population could only be generated through large-scale human reproduction, and if we value gender equity and reproductive rights, we should not endorse an imperative to create such a world, even if doing so would ultimately increase total welfare. In this manner, Overall highlights a more general problem with the Impersonal Total Principle: it ignores justice and equity in cases where these considerations do not contribute to maximizing utility, which is perhaps the most fundamental reason why many moral philosophers do not endorse the claim that we should always strive to maximize total welfare. There are simply too many other moral considerations to weigh in our deliberations, and they are not all significant only insofar as they contribute to improving the people's overall welfare.

Rule utilitarians may be able to accommodate some or all of these justice-oriented considerations indirectly by emphasizing how their promotion ultimately contributes to overall welfare. But if one favors rule utilitarianism, it is not clear that the Repugnant Conclusion will be generated. One of the central tenets of rule utilitarianism is that the general rules be followed even in rare cases where following the rules does not lead to maximizing utility[2] – that is, cases in which utility would be maximized by violating the rule.[3] So suppose we implement a rule to respect women's reproductive autonomy – a very plausible inclusion to a rule utilitarian's list of principles given the ways in which a failure to respect their reproductive autonomy has caused unnecessary suffering in the past (and continues to do so in the present). Here, we might have a case in which violating this rule would promote greater overall utility, but according to rule utilitarianism, we ought to respect the general rule nonetheless. Respecting this moral rule would not entail the Repugnant Conclusion, since not all women would volunteer to produce such an extraordinary number of children. In contrast, if we violate this general rule whenever doing so maximizes utility, then we have retreated straight back to the Impersonal Total Principle. Under those circumstances, we are really only adhering to one rule: do whatever maximizes aggregate impersonal utility, and we return to the worry that we are not properly incorporating justice-oriented concepts into our moral decision-making.[4]

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[2] If a rule *frequently* leads to non-maximal utility, then the rule may need to be altered, but even generally effective rules will likely yield non-maximal utility on occasion.

[3] This feature of rule utilitarianism has led some philosophers to reject it because they consider it inconsistent with the central goal of utilitarianism – maximizing utility. The classic representation of this view comes from J. J. C. Smart (1956).

[4] There is obviously much more that could be said about why one should reject the utilitarian outlook that gives rise to the Repugnant Conclusion, but this is not the venue for a detailed discussion of the merits of different moral theories. While my own outlook is rather pluralistic, it may be worth mentioning that the core arguments of later chapters do not appeal explicitly to any particular moral theory – only to moral principles that I consider plausible.

Ultimately, we have strong theoretical reasons to reject the Impersonal Total Principle that gives rise to the Repugnant Conclusion, and even if we accepted the Impersonal Total Principle, it would not in practice require us to pursue radical population expansion. Thus, accepting the Repugnant Conclusion is not a strong reason to object to an imperative to reduce the global human population.

The Non-Identity Problem

A second objection to a proposed obligation to reduce population could arise from the Non-Identity Problem. To illustrate this moral quandary, imagine that Wilma is thinking about having a baby (Boonin 2014, p. 2).[5] She learns from her doctor that if she conceives a child in the near future, that child will have a severe and irreversible disability, though that disability will not render her child's life not worth living. Fortunately, Wilma can prevent her child from having a disability by taking a tiny pill once a day for two months before conceiving the child. Her health insurance will cover the costs of the medication, and the pill boasts no side effects. But Wilma decides to conceive at once despite the doctor's advice, and her child – Pebbles – is born with incurable blindness.

Here's the moral puzzle created by Wilma's decision: most believe that she acted wrongly in conceiving Pebbles in this manner, but if she had taken the pill for two months, the child she would have conceived would not have been Pebbles – it would have been someone else. After two months, an entirely new sperm and egg pair would be united, and since the child would have a complete different genetic constitution than Pebbles, it could not have been Pebbles. Why does this matter? It matters because it raises a serious question about whether

[5] This case is heavily influenced by Parfit's (1982) *Handicapped Child* case (p. 118).

Pebbles was harmed by being born with blindness: since it is impossible for Pebbles to exist and not be blind, she is not made worse off than she otherwise would have been.

David Boonin (2014) uses Wilma's case of decision-making to present what he calls the Non-Identity Argument (p. 27):

P1: Wilma's act of conceiving now rather than taking a pill once a day for two months before conceiving does not make Pebbles worse off than she would otherwise have been.

P2: If A's act harms B, then A's act makes B worse off than B would otherwise have been.

P3: Wilma's act of conceiving now rather than taking a pill once a day for two months before conceiving does not harm anyone other than Pebbles.

P4: If an act does not harm anyone, then the act does not wrong anyone.

P5: If an act does not wrong anyone, then the act is not morally wrong.

C: Wilma's act of conceiving Pebbles is not morally wrong.

If we cannot find a premise in the argument to reject, then we have to accept the conclusion that Wilma did not act wrongly in conceiving Pebbles.

This particular case might not seem relevant to the rising global population, but the argument can be tweaked to have some significant moral implications for population policy. Suppose that we were considering whether to implement an international policy that only allows couples to have a maximum of two children rather than allowing individuals to have as many children as they wish. Under full compliance to a global two-child policy, the global population would eventually stabilize and then gradually reduce, but this outcome would take some time to occur. Suppose that demographic momentum ensures that population stabilization will take 100

years. Under this policy, many people will have children at different times or refrain from having children that they otherwise would have had, and over time, some people who would otherwise never have met will meet and start families together. Iterated over many generations, these outcomes result in a completely different set of people existing in 100 years than would have existed under the more liberal procreative policy. But this means that the people who would have existed under the more liberal procreative policy would not have been harmed had we not chosen the more restrictive policy. In fact, they *needed* us to choose that policy in order for them to exist at all. If it is true that we cannot wrong those that we cannot harm, then it appears that allowing for a more liberal procreative policy – even one that lowered overall welfare by promoting overpopulation – would not have wronged any future people.

Admittedly, the case sketched above requires a number of idealized conditions, but the thought experiment nevertheless illustrates how the Non-Identity Problem could ground an objection to certain population policies if the basis for those policies is that they harm future people. This strategy fails, however, because the Non-Identity Argument is unsound: the second, fourth, and fifth premises are all false. It is possible for one to be harmed by actions that do *not* make one worse off than she otherwise would have been, it is possible to wrong someone without harming them, and it is possible for actions to be morally wrong even if they do not wrong anyone.

Let's begin with the second premise: if A's act harms B, then A's act makes B worse off than B would otherwise have been. This premise reflects what is known as the counterfactual comparison notion of harm (CCH). The standard defense of CCH is that it is the notion of harm that best accords with common sense. On this basis, Boonin (2014) presents CCH as the default position "unless a better alternative comes along" (p. 52). There are important methodological

questions about appeals to common-sense morality (some of which were discussed in chapter 1), but even granting that common sense is an appropriate starting point for moral inquiry, this defense of CCH is flawed. Boonin provides no compelling evidence for the claim that CCH is in fact a part of common-sense morality.

Boonin supports CCH with some hypothetical anecdotes about how people would explain why they were harmed or did not harm someone else. Suppose I vandalize your car. What justification would you offer if you were pressed to explain why you had been harmed? Boonin (2014) claims that "you are likely to reply by pointing to the various ways in which my act has made you worse off than you would have been had I not vandalized your car" (p. 52). If you asked for compensation, it would presumably be the amount that would come closest to nullifying the extent that you have been made worse off. Additionally, if you had to explain why scratching your nose did not harm me, then "you are likely to appeal to the claim that your act did not in any way make me worse off than I would otherwise have been by way of rebutting the complaint" (p. 52).

This defense of CCH has a very serious shortcoming. The way to determine the contents of common sense morality would be to poll the general public on their views. Boonin has not conducted such surveys, and I am not aware of anyone who has done so. He is simply postulating that CCH is a part of common sense morality, and that strategy is indefensible. Why assume that ordinary people have any firm convictions about what account of harm is correct? Although harm is a component of virtually everyone's moral reasoning, I doubt it is common for ordinary people to reflect on what constitutes harm or what its necessary or sufficient conditions are. Thus, I suspect that their understanding of harm will usually be a mish-mash of inconsistent intuitions that does not converge neatly on any extant view. In the absence of evidence showing

convergence on a particular conception of harm, there is no reason to grant Boonin's assumption that CCH is part of common-sense morality.

A deeper problem with Boonin's defense of CCH is that it fails to handle cases of preemption. Consider this case from Hanser (2008):

> The Two Hit Men: Mr. Bad orders Hit Man 1 to shoot and kill you. Hit Man 1 doesn't always follow his orders, so Mr. Bad orders Hit Man 2 to shoot and kill you if Hit Man 1 fails to shoot and kill you. Hit Man 2 always follows his orders. As it happens, though, Hit Man 1 shoots and kills you and Hit Man 2's orders prove to be unnecessary. (p. 436)[6]

According to CCH, Hit Man 1 does not harm you because he does not make you worse off than you otherwise would have been. It would be an odd result if the most plausible account of harm entails that an act of murder does not constitute a harm so long as someone else was also planning to murder you! Boonin (2014) recognizes this point but still claims that a proponent of CCH should just bite the bullet (p. 58). In contrast to Boonin, I think the proper conclusion to draw is that CCH is wrong. Clearly, there are cases in which people can be harmed without being made worse off than they otherwise would have been. Given my earlier skepticism about CCH occupying a privileged position as an account of harm (because of its supposed presence in common-sense morality), I see no reason to cling to it as Boonin does.[7]

Boonin's main strategy for countering this concern is to highlight that the other accounts of harm have bigger problems than CCH, but this approach is misguided. Even if he succeeded in showing that CCH was better than all rival accounts currently on offer, that would not establish that CCH was *true*. We do not have to establish a full account of harm to reject the

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[6] Plenty of other philosophers have presented variants of preemption cases as a problem for CCH. For some examples, see Thomson (2011, pp. 446-447), Woollard (2012, p. 484), and Bradley (2012, p. 397).

[7] The non-identity problem is also frequently mentioned as a problem case for CCH, but it would be question-begging to present it as a problem case in this context. We would have to assume the Non-Identity Argument is unsound to make that claim, and determining the argument's soundness is precisely why we are examining CCH in the first place.

second premise of the Non-Identity Argument; we only have to establish that CCH should be rejected. We have more than enough reason to abandon CCH, even if we are unsure what a full and comprehensive account of harm would be.[8]

We can now turn to the fourth premise of the Non-Identity Argument: if an act does not harm anyone, then the act does not wrong anyone. This premise is false because it is vulnerable to a wealth of counterexamples. Some of these counterexamples are cases that involve violations of rights that do not harm anyone. Voyeurism, for instance, is wrong even when the act is never discovered by anyone because it violates a person's right to privacy. Similarly, sexually assaulting a person who is unconscious is wrong, even if no one ever learns about the act and it causes no physical harm, because it violates a person's right to bodily integrity. Another class of counterexamples would be instances of non-harmful promise-breaking. Even when one can break a promise without it being known and without harming anyone, this does not obviously permit one to break the promise. After all, the whole point of promises is that they should be upheld except in dire and extreme circumstances.

There are also counterexamples to this premise that relate to the mere *risk* of harm. Driving while intoxicated is wrong even in circumstances where no harm occurs because there is a non-trivial risk of harming someone else. But the wrongness of the action surely does not originate from whether or not the person actually harms someone. Whether a person is injured by a drunk driver may be solely a matter of luck – a result of where a person happens to be on the

[8] In previous work (Hedberg 2013), I argued that fully capturing the relevant notion of harm required two principles – one that captured CCH (or something similar to it) and one that specified a non-comparative component. Although I no longer think the particular account offered there is correct, I am still receptive to the more general idea that a full account of harm will contain (at least) these two distinct components.

sidewalk at a particular moment or when precisely someone happens to leave the parking lot.[9] Whether one's conduct is wrong, however, cannot hinge exclusively on luck. If luck alone can make that much of a difference to our moral responsibility, then we would have little control over our own moral conduct, and judgments about one's moral character would be arbitrary.[10]

Boonin's response to this line of reasoning is to highlight how these explanations do not account for how Wilma's specific act is wrong. He thinks it is possible to modify the fourth premise to avoid these shortcomings. Thus, "the question is not whether we can show that P4 is false. The question is whether we can show that it is false enough" (Boonin 2014, p. 109).[11] Even so, I believe that we can show this premise to be "false enough" to render the Non-Identity Argument unsound.

The most plausible objection to P4 is what Boonin refers to as a direct rights-based argument. The best candidate for a right that Wilma violates is a child's right "not to be born with important opportunities foreclosed" (Jecker 2012, p. 34).[12] Such a right explains not only why it is generally wrong to intentionally have a child who will be blind (or suffer some other significant disability) but also why it is wrong to have children in circumstances where they will not have a reasonable chance at a good life (e.g., because they are born into severe poverty, because they are born addicted to drugs). Pebbles is wronged by having her right to non-foreclosed opportunities violated, even though this rights violation does not necessarily harm her.

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[9] I borrow the example of a drunk driver from Rahul Kumar (2003, p. 103).
[10] The extent to which moral luck is an obstacle for contemporary moral theorizing remains a topic of controversy. For an overview, see Nelkin (2013).
[11] Strangely, Boonin never explicitly presents a version of this fourth premise that is immune from all these counterexamples and still makes the Non-Identity Argument work. He leaves that reconstruction to the reader.
[12] Velleman (2008) proposes a similar alternative: children have "a right to be born into good enough circumstances" (p. 275). These "good enough circumstances" would presumably include the condition that important opportunities have not been foreclosed.

Of course, one important aspect of Wilma's circumstances is that she can conceive a child whose right to non-foreclosed opportunities will not be violated. If Wilma were unable to conceive a child who would be sighted, then we might reason that her action is permissible even though it would violate a right of the child. The violation of a right is *prima facie* morally wrong, but an inability to conceive a sighted child might provide a basis for violating this right, so long as Wilma would be able to give her child a good life despite the child's blindness. The general point, however, is that there is a very strong presumption against violating a child's right to non-foreclosed opportunities.

Boonin (2014) expresses considerable skepticism that anything that happens to Pebbles could be considered a rights violation (pp. 111-113). He reasons that the only viable candidate for a right that Wilma could violate is Pebbles' right not to exist in her present condition, which is the strategy that Doran Smolkin (1999) adopts. Since Pebbles' present condition results in her having certain opportunities foreclosed, this interpretation is consistent with the aforementioned right of non-foreclosed opportunities.[13]

Boonin (2014) objects to this strategy on the grounds that it is not properly motivated: he claims that the only reason to endorse this solution is to avoid the conclusion of the Non-Identity Argument, which violates what he calls the "Independence Requirement" (pp. 20-21). According to the Independence Requirement, any reason for rejecting a premise in the Non-Identity Argument must be independent of the fact that rejecting that premise would enable us to avoid accepting the Non-Identity Argument's conclusion. Boonin focuses on Smolkin's (1999) presentation of a direct rights-based argument, and he is right that Smolkin offers little to

[13] Smolkin's considered position does not perfectly match the language used here. He later refines his claim to the following: "a person's life is complaint-warranting if and only if some act that was necessary for her to come into being also resulted in her being unable to lead a good life in any particular life stage" (Smolkin 1999, p. 206).

motivate his rights-based account other than the claim that it allows us to avoid the Non-Identity Problem. But the same is not true of the right not to have one's opportunities foreclosed. As I suggested earlier, this right has plausible support independent of any discussion of the Non-Identity Problem: it explains why it is wrong not to provide children with circumstances that are conducive to them living a good life. Since rights violations are *prima facie* morally wrong, the burden of proof would be on Wilma to show that she was justified in committing this rights violation when it could have easily been avoided at no significant cost to her. Since she could have easily had a child that was not born blind – a child that would not have had this right violated – the wrongness of her conceiving Pebbles is not overridden.[14] Thus, her conceiving Pebbles was morally wrong.

The flaws with P2 and P4 are hopefully sufficient to reject the Non-Identity Argument, but if further evidence is needed, there are also good grounds for rejecting P5. According to this premise, an act is not morally wrong if it does not wrong anyone. A straightforward way to refute this claim is via appeal to virtue ethical considerations. Virtue ethics is principally concerned with one's moral character. Its focus is not on the rightness or wrongness of particular actions but on our dispositions to behave in certain ways. Now imagine what the ideally virtuous parents would be like. They would deeply love and cherish their child, promote their child's welfare, respect their child's autonomy, and so on. Now consider what decision such a parent would make if placed in Wilma's position. Is there any virtuous parent who would choose to conceive a child immediately instead of taking the pill for two months and then conceiving?

[14] There is an assumption here that rights apply universally to all persons and specify appropriate thresholds of treatment below which no one should fall. As Caney (2010b) states, "[H]uman rights specify minimum moral thresholds to which all individuals are entitled, simply by virtue of their humanity, and which override all other moral values" (p. 165). This approach to rights is also defended by Shue (1996) and Bell (2011, pp. 104-110). Hence, the fact that Pebbles could not have existed without suffering this rights violation does not change the fact that her rights were violated.

Even if we assume that Pebbles herself was neither harmed nor wronged, conceiving Pebbles was still wrong because it instantiates a vice. Wilma is not properly concerned with conceiving a child who has the best possible chance at a good life. Parents should care about their child's welfare and potential for a good life regardless of who their child turns out to be. Intentionally choosing to create a child who will have lower welfare or greater obstacles toward living a good life than another child demonstrates that the parents are not sufficiently concerned with their child's welfare. Admittedly, few claim that parents are required to do everything they can to maximize their child's chances of living a flourishing life,[15] but we usually do expect parents to do what's reasonably possible to ensure that their children have a good chance at living such a life. Deliberately choosing to conceive a blind child rather than a sighted child for such frivolous reasons as Wilma's is inconsistent with this feature of being a good parent. Wilma's choice and the reason she makes it reveal that she does not have a strong commitment to promoting her children's flourishing. Her action is wrong because it manifests morally defective character.

Boonin (2014) does briefly acknowledge this virtue ethical objection to P5 (pp. 184-188), but he identifies the relevant vice as an insensitivity to suffering, particularly as discussed by Urbanek (2010). I do not think that the relevant character flaw is necessarily an insensitivity to suffering, however; it can be understood as a kind of parental negligence – a failure to care sufficiently about the impersonal welfare of one's future children. Consider David DeGrazia's (2012) remarks about a case very similar to Wilma's:

[15] Julian Savulescu (2001) is a notable exception. He defends the principle of Procreative Beneficence: "couples (or single reproducers) should select the child of the possible children they could have, who is expected to have the best life, or at least as good a life as the others, based on the relevant, available information" (p. 415). For further defense of this position, see Savulescu and Kahane (2009).

> ...it is very clear that the parents did not make this choice *in order to benefit this very child*. Indeed, their conduct expressed a highly cavalier attitude about their procreative options and their likely consequences. In this way, the parents expressed a profound lack of regard for *their offspring–whoever it would be*. … Although the couples disregard was not intentionally directed at the child they had, it was, in a sense, negligently directed at whatever child they might have. (pp. 180-181, original emphasis)

Wilma is displaying the same vice: she should care much more about the circumstances into which her child – whoever it will be – will be born, and she should avoid actions that lower the impersonal welfare of her future child for frivolous reasons.[16] Hence, P5 is false.

Before moving on from the Non-Identity Problem, two final remarks should be made. First, the Non-Identity Problem has a surprisingly narrow scope, a fact that is rarely highlighted when the issue is discussed.[17] The Non-Identity Problem only applies to narrow, person-affecting theories – that is, those that evaluate the rightness or wrongness of actions on the basis of how they affect particular, identifiable individuals. Consequentialist moral theories evaluate the rightness or wrongness of actions based on their overall consequences. Since these theories are concerned with aggregate goodness, they are not narrow person-affecting theories. Virtue ethical theories focus on developing virtuous character and acting in accordance with the virtues. They do not ground rightness or wrongness in narrow person-affecting moral principles.

Typically, the Non-Identity Problem is framed as applying to deontological moral theories, but even many deontological theories are not narrowly person-affecting the way that the Non-Identity Problem requires. As Rivka Weinberg (2016) explains,

> …[deontological moral theories] are not narrowly person-*affecting* in the sense relevant to the non-identity problem because they do not determine wrongdoing on the basis of the

[16] These remarks should not be confused with strict consequentialist reasoning. How our actions affect the welfare of others will be a significant component of any plausible view of morality, and nothing here commits me to the claim that *only* impersonal welfare matters to determining what we morally ought to do. The point is simply that parents should strive not to lower the impersonal welfare of their children unnecessarily.

[17] A notable exception is Weinberg (2016, ch. 3).

> of the *effect* of an act on an individual. They are not theories the determine permissibility of an act on the basis of consequences at all. Instead, deontological theories determine the permissibility of an act on the basis of its adherence to principles designed to treat people as having a special status as moral agents and ends-in-themselves. The non-identity problem does not apply to deontology because the non-identity problem is a problem only if permissibility of acts is determined by the act's *effects* or consequences on a particular person. Focusing on the effects or consequences of an act is a fundamentally nondeontological approach to ethics. (p. 105, original emphasis)

Most deontological theories will, for the reasons Weinberg mentions, not accept P4 of the Non-Identity Argument because the wrongness of an action will be determined by whether the action violates a particular moral principle – not by whether or not the action harms some particular identifiable person. Thus, the Non-Identity Problem is only applicable to a small subset of deontological moral theories that adopt the idiosyncratic notions of harm and wrongness that it presupposes.

Second, the analysis I have offered in this section only scratches the surface of the many responses that have been made to the Non-Identity Problem. It has been addressed in literally hundreds of venues, and there are dozens of proposed solutions.[18] Philosophers frequently disagree about the best way to address it, but there is broad consensus that it can be resolved in some way. The Non-Identity Problem, despite its frequent discussion in philosophical circles, is not a significant obstacle to reasoning about procreative or intergenerational ethics.[19]

The Asymmetry

The Asymmetry in the ethics of procreation consists of two distinct ethical claims. The first is that it is morally *wrong* to bring into existence a child who will have an abjectly miserable

[18] For some examples of these responses, see 't Hooft (1999, pp. 50-51), Woodward (1986), Kumar (2003), Davidson (2008, p. 482), Harman (2009b), Nolt (2011a, pp. 71-72), and Weinberg (2016, ch. 3).
[19] Even Boonin (2014) acknowledges that the practical implications of the Non-Identity Argument in large scale intergenerational cases may not be very significant even if the argument is sound (p. 216).

life; the second is that it is *permissible* not to bring into existence a child who will enjoy a very happy life. Both claims of the Asymmetry are supported by strong moral intuitions, but finding a plausible moral theory which can accommodate both claims has proven a difficult task. As a result, some philosophers have concluded that the Asymmetry is not defensible and that one of its claims must be false (e.g., McMahan 1981, 2009, 2013; Singer 1993; Persson 2009). If someone holds this position, then unless one is unwilling to abandon the claim that it is wrong to create a child who will have a miserable life, one must conclude that we have a moral obligation to procreate when doing so will result in the creation of someone with a great life.[20] But of course, this implies that many of us – namely, those who could provide such good lives to future people – may have duties to *increase* the human population rather than reduce it.

It would be implausible to claim that it is permissible to create a child who will live an unremittingly miserable life. Such an action harms the child by putting her in a state that is worse than experiencing nothing at all. One of the most basic moral principles is the duty to avoid causing suffering (when possible). Creating a child with a miserable life blatantly violates this principle. Moreover, parents have a general responsibility to promote the welfare of their children, and deliberately having a child with a poor quality of life does not adhere to this responsibility. An appropriately beneficent parent would not create conditions that ensure their child suffers so much during her life. Thus, the first half of the Asymmetry – the claim that it is wrong to create children who will lead miserable lives – is strongly supported.

Why does this matter with respect to overpopulation? Since the first claim of the Asymmetry is plausible, one may worry that we actually have a duty to procreate unless we can

[20] In practice, we obviously cannot predict precisely what a child's quality of life will be, but we can still make reasonably informed judgments about what children would have a high probability of living a good life.

vindicate the other half of the Asymmetry. A duty to procreate would complicate the moral picture a great deal and make it much more challenging to argue for a duty to reduce the global population. Fortunately, it is possible to bypass this obstacle by vindicating an alternative procreative asymmetry – one that differs from the Asymmetry that philosophers most frequently discuss.

As I have argued elsewhere (Hedberg 2016), the Asymmetry is actually ambiguous between two distinct sets of claims. The first set of claims can be put as follows (Roberts 2011a, p. 765):

Claim 1: It is wrong to bring a miserable child – a child whose life is less than worth living – into existence.

Claim 2: It is permissible not to bring a happy child – a child whose life is worth living or even well worth living – into existence.

These claims are almost always discussed as idealizations: it is assumed that the relevant acts of procreation do not impact the lives of anyone else except those who are created. In this manner, Claims 1 and 2 refer to instances of procreation in a vacuum. Thus, I label these claims as the Abstract Asymmetry.

The Abstract Asymmetry can be contrasted with the Real-World Asymmetry, which I represent as the union of two different claims:

Claim 3: Under ordinary conditions of human reproduction, people are not morally permitted to bring a child into existence who would have an abjectly miserable life.

Claim 4: Under ordinary conditions of human reproduction, people are not morally obligated to bring a child into existence who would have a very happy life.

I refer to these claims as the Real-World Asymmetry because they are, unlike their Abstract counterparts, explicitly grounded in the conditions of typical human reproduction. It is also worth noting that the Real-World Asymmetry leaves open the possibility that we can be obligated to perform these procreative actions under certain extreme circumstances. Perhaps, for instance, we may have an obligation to procreate if it is required for the continuity of the human species.

This distinction enables us to avoid positing a general duty to procreate. I contend that the Abstract Asymmetry is false but that the Real-World Asymmetry is true. The primary support for the Abstract Asymmetry is an appeal to intuition: it just doesn't seem like we have a duty to procreate, even in the idealized circumstances specified. But this is precisely the problem: given these idealized circumstances, how could anyone have a clear intuition about what our reproductive obligations are? No human being has ever witnessed or experienced a case of this costless procreation, so there is no reason to believe our judgments about such cases is reliable. Thus, we should be suspicious of our intuitions about the Abstract Asymmetry.

We should be especially willing to revise our intuitions about the Abstract Asymmetry because it violates the following moral principle.

> *Goodness for Free*: if we can perform an action that causes something good to happen without sacrificing anything at all, we are morally obligated to perform that action.

Virtually all moral decisions we make will involve costs of some sort, so this principle often will not apply to ordinary moral decision-making. It does, however, apply to Claim 2 of the Asymmetry. *Goodness for Free* is plausible because it highlights one of the most basic aspects of moral reasoning: it is morally preferable to bring about good outcomes. Certainly, other moral considerations may override the promotion of a good outcome. Donating money to charity may

make the world a better place, but it does not follow that I should steal from my friends to acquire more money to donate even if the world is made better (in terms of total welfare) by my actions. *Goodness for Free* specifies, however, that there are no other considerations in play – moral or otherwise. In Claim 2, we have a morally salient reason to bring a child into existence but no countervailing reason not to do so. Thus, we can only conclude that we *do* have an obligation to procreate in that otherworldly case.

The good news is that we do not need to support the Abstract Asymmetry to defend the claim that people generally do not have an obligation to procreate. I have already gestured at the reasons for not creating a miserable child: the most central reason is the duty not to cause unnecessary suffering. Supporting Claim 4 is more challenging, but there are two routes to doing so. The first originates from the existence of supererogatory actions – those that are morally good to do but not morally required. The paradigm examples of these actions usually involve heroic levels of self-sacrifice,[21] but they need not be limited to such extraordinarily demanding sacrifices. The existence of these actions stems from the recognition that worthy life pursuits are not just limited to doing morally good things: we have the moral latitude to sometimes to refrain from maximizing the good in favor of pursuing other aspects of our life plans.

Creating a happy child can be a good thing to do, but it is not something that people are morally required to do under ordinary circumstances. Pregnancy can be the most physically and emotionally challenging experience of a woman's life and frequently affects her physical appearance for the remainder of her life, and the responsibilities and burdens associated with

[21] J. O. Urmson (1958) is usually credited with initiating the discussion of supererogation in secular moral theory. His examples of supererogatory behavior were saints and heroes, and the philosophical literature on this topic has often focused on these particular examples. For useful surveys of the literature written in response to Urmson's article, see Jackson (1986) and Stanlick (1999).

parenting are among the greatest and most demanding that a person can experience. The investments of time, emotion, and financial resources required to be a good parent are extraordinary. They are also enduring: children do not typically leave their parents' care until they are close to twenty years old. Burdens of this severity and duration are not typically required except under the most dire of circumstances.

The second route to securing Claim 4 is to acknowledge the gender asymmetry in the act of procreation. Women typically bear far more of the costs of reproduction than men. Some of these costs are rooted in the biological differences between men and women. Others are rooted in culture: compared to men, women are still expected to bear more of the responsibilities in most of the world. If we posit a general obligation to produce happy children, women will be the ones who are forced to bear most of the responsibilities associated with fulfilling it. Beyond the obvious suffering that this would cause many women, this practice would also cultivate resentment and distrust in them and impede any serious efforts at the long-term attainment of gender equality. The children's lives may bring much more good into the world, but I doubt many would be prepared to make such massive sacrifices with respect to gender equality in order to achieve that happiness. Moreover, it is unclear that the long-term consequences of this pervasive and systematic oppression of women would ultimately result in the best overall consequences: social arrangements of this sort often lead to discontent, subordination, and even violent revolts.

With Claims 3 and 4 secured, the Real-World Asymmetry is supported, and that is all we need to deny that there exists a general obligation to create happy children. In this manner, even if we deny the Abstract Asymmetry, we do not encounter an objection to reducing human population.

Recap

The Repugnant Conclusion, the Non-Identity Problem, and the Asymmetry have all become foci of significant philosophical discussions. When we examine these issues in detail, however, we see that they do not provide strong reasons for skepticism about a duty to reduce population. In fact, on close examination, these problems are revealed to be solely theoretical in nature and lacking in practical application to our real-world circumstances. Perhaps in the future that will change, but as it stands, these three issues should not be a serious focus when we turn our attention to the global population growth under way in the twenty-first century. Our solution to this problem will not be meaningfully influenced by reflecting on the Repugnant Conclusion, the Nonidentity Problem, or the Asymmetry.[22]

[22] In chapter 1, I argued that these issues did constitute genuine moral problems according to Räikkä's (2000) criteria. One of these criteria is that the moral questions have "practical relevance in the sense that they concern the issue of what should actually be done" (p. 401). I am not reversing my position here. These three issues could *potentially* provide us with insight that would influence what we should do under various circumstances and the views we form on these issues *could* have implications for what we owe future people. In this sense, they certainly concern how we actually ought to act. What I have argued is that they do not *in fact* provide us with meaningful guidance about what to do about the specific problem of population growth in the 21st century.

CHAPTER 3: THE EXTREMES OF PROCREATIVE ETHICS

This chapter considers and evaluates two opposing views of procreative ethics. The first, which is commonly called Antinatalism, is the view that procreation is always (or at least usually) morally wrong.[1] The second, which I will call Procreative Liberty, is the view that everyone has a right to procreate as much as they wish. According to antinatalism, there is an extremely strong presumption against procreating. According to Procreative Liberty, there is a very strong presumption against placing any limitations on procreative freedom. If Antinatalism were correct, then we would likely want to promote population policies that would not just reduce population in the short term but those that would do so until population were reduced to zero. In contrast, if Procreative Liberty were correct, then we might not be able to enforce any restrictions on procreation whatsoever.

The purpose of this chapter is to demonstrate both that antinatalism in its extreme forms is false and that Procreative Liberty is false. Refuting these extreme positions will establish some bounds on what constitutes an acceptable procreative ethic and also set the stage for the principles of procreative and population ethics that will be defended in subsequent chapters.

I begin with the most extreme form of Antinatalism, as advocated by David Benatar (2006, 2015). According to this view, it is always wrong to procreate. Some readers may wonder why it is worth even considering a position so radically at odds with ordinary moral beliefs and human behavior, but over the last decade, philosophers have started to take challenges to the permissibility of procreation quite seriously. Take, for example, this excerpt from the opening

[1] As will become clear in my discussion of Antinatalism, some variations are global in scope and meant to apply to everyone while others are more localized and sensitive to context. Given the scope of our discussion, the focus will be on the forms of Antinatalism with a broad scope.

paragraph of Jamie Nelson's (2016) review of *Permissible Progeny? The Morality of Procreation and Parenting*:

> ...the tenor of the text is that, given environmental fragility and existing children in need of families, bearing and begetting as such are morally fraught enterprises, certainly on the defensive, and possibly best seen as indulgence in an expensive hobby. Antinatalism is taken in general quite seriously throughout, sometimes bracketed, but never directly confronted.

Nelson encapsulates a view that has been gradually gaining momentum in moral philosophy: despite the widespread belief that procreation is almost always something to be praised and celebrated, procreation is actually only permissible in a fairly narrow range of circumstances. This view may not be held by many people, but the correctness of a philosophical position is not determined solely by the proportion of people who hold the position. If the arguments in favor of Antinatalism are strong, then we must give them serious consideration regardless of their unpopularity.[2]

Benatar's Asymmetry Argument

David Benatar (2006; 2015, pp. 18-39) argues that it is always a harm to come into existence and that on these grounds there is a moral duty not to procreate.[3] Part of Benatar's reasoning here just reflects what many of us already know: if you live for any decent length of time, it is inevitable that you will endure some harm, and some of that harm may be pretty severe. But few people believe that this fact entails that procreation is impermissible. In most

[2] One might argue that there is no point in considering a view that would never be adopted as a social norm or matter of public policy. This objection will be treated near the end of the chapter, but for now, it is sufficient to note that moral imperatives that cannot be fully realized in practice can still often be approximated in some way. We can still consider what policies get *closest* to what is morally required.

[3] A further implication is that one should discontinue pregnancy when it is possible to do so. Benatar (2006) refers to this as the "pro-death" view of abortion: "On this view, it is not any given abortion (in the earlier stages of pregnancy) that requires justification, but rather any given failure to abort. For such a failure allows somebody to suffer the serious harm of coming into existence" (p. 161).

cases, people believe that the good people experience significantly outweighs the bad caused by their pain and suffering. Thus, overall, most people's lives are good, and it was better for them that they came into existence rather than never existing at all. Benatar's rebuttal to this objection is the foundation for his Asymmetry Argument against procreation.

Benatar (2015) endorses a cluster of evaluative judgments that he calls the Axiological Asymmetry. First, he claims that (1) the presence of harm is bad, and (2) the presence of benefit is good. Then he claims that (3) the absence of harm is good, even if that good is not enjoyed by anyone, whereas (4) the absence of benefit is not bad unless there is somebody for whom this absence is a deprivation (p. 23).[4] Benatar (2015, p. 23) represents these asymmetrical evaluations of harm and benefit in the graph depicted in *Figure 2* below.

Scenario A (X Exists)	Scenario B (X Never Exists)
(1) Presence of Harm (Bad) ↔	(3) Absence of Harm (Good)
(2) Presence of Benefit (Good) ↔	(4) Absence of Benefit (Not Bad)

Figure 2: Benatar's Axiological Asymmetry

[4] The same asymmetry can be found in Benatar (2006, p. 38), but the terms "harm" and "benefit" are replaced with "pain" and "pleasure" respectively. The (2015) formulation is closer to what Benatar actually means. Harm and benefit are broader concepts than pain and pleasure, and harm is the morally salient concept in his argument.

A person X exists in Scenario A but does not exist in Scenario B. In Scenario A, X experiences both harms and benefits; in Scenario B, X does not experience either harms or benefits. To determine which of these scenarios is preferable, Benatar argues that we must compare (1) with (3) and (2) with (4). He believes that there is a clear preference for (3) instead of (1) and no preference for (2) over (4). On his view, an absence of benefits is not bad unless a person exists to be deprived of the benefits. This claim explains why the absence of benefits in Scenario B is not analogous to the absence of benefits in Scenario A. Since (3) is preferable to (1) and (2) is not preferable to (4), he reasons that nonexistence is always preferable to existence.

Based on the argument outlined above, Benatar (2015) claims that coming into existence is always a harm, but he also acknowledges that this alone does not demonstrate that it is always *wrong* to bring people into existence (p. 40). Even so, given that a general principle of non-harm is one of the most foundational aspects of any plausible moral theory, it is not difficult to produce a straightforward argument that it is *prima facie* wrong to procreate, provided that that Axiological Asymmetry is endorsed.[5]

We should pause to digest Benatar's reasoning in a bit more depth. According to the Axiological Asymmetry, nonexistence always has one advantage over existence: the absence of harm. Benatar claims that the absence of harm is good even when no one exists to experience it, but while nonexistence does feature the absence of benefits, this absence is *not bad* because the absence of benefits is only bad when someone exists to experience the deprivation. In his first formulation of the axiological asymmetry (which uses "pain" and "pleasure" rather than "harm" and "benefit"), Benatar (2006) argues that we view the absence of pleasure as bad only in

[5] Given the ease with which this maneuver can be made, it is surprising that Benatar does not make this point. Instead, he opts to combine the Axiological Asymmetry with the Quality-of-Life Argument (which will be discussed in the next section) to show that coming into existence is not merely a minor harm but a very serious one.

relative terms – it is bad when a person is deprived of pleasure *relative to* the state the person would experience if they were to experience the pleasure:

> Just as absent pleasures that do deprive are 'bad' in the sense of 'worse', so absent pleasures that do not deprive are 'not bad' in the sense of 'not worse'. They are not worse than the presence of pleasures. It follows that the presence of pleasures is not better, and therefore that the presence of pleasures is not an advantage over absent pleasures that do not deprive. (pp. 41-42)

So whereas the absence of pain is impersonally good, the absence of pleasure is not impersonally bad. We can extent this same line of reasoning to the newer formulation of the Axiological Asymmetry: the absence of harm is impersonally good, but the absence of benefits is not. According to Benatar, if we accept this asymmetry about harm and benefit, then we ought to favor nonexistence over existence.

Now one might wonder why we should favor Benatar's asymmetry over alternative views. Benatar's central supporting argument is that this asymmetry best explains other asymmetries in the ethics of procreation. These other asymmetries include (Benatar 2015, pp. 25-27):

1. The Asymmetry: we have a duty to avoid bringing into existence those who would live miserable lives, but we have no duty to bring into existence people who would live happy lives.[6]
2. The prospective beneficent asymmetry: it would be strange to cite the benefits to the child as a reason for having a child but not similarly strange to cite the child's suffering as a reason not to have a child.
3. The retrospective beneficence asymmetry: it makes sense to regret bringing a suffering child into existence and to do so for the sake of the child, but it does not make sense to fail to bring a happy child into existence and regret this fact for the sake of the child.

[6] This is the same Asymmetry discussed in Chapter 2.

4. The asymmetry of distant suffering and absent happy people: we are saddened by the suffering of distant existing people but not similarly sad for absent people who could have led happy lives on vacant areas of Earth or on other planets.

Benatar holds that all of these intuitively plausible asymmetries can be explained by the Axiological Asymmetry. He also contends that the Axiological Asymmetry can resolve the Non-Identity Problem and avoid the Repugnant Conclusion (Benatar 2006, ch. 2; 2015, pp. 34-37). Regarding this latter point, he is surely correct. If coming into existence is always a harm, then all acts of procreation – including non-identity cases – will harm the person born, and if nonexistence is always preferable to existence, then it is clear that a world with a massive population is not the moral ideal. Rather, the moral ideal would be the world with as few inhabitants as possible. Nevertheless, whatever advantages Benatar's position might have, it should still be rejected.

The first important observation to make about Benatar's position is that it relies extensively on appeals to intuition. The central reason to endorse the four other asymmetries that Benatar discusses is that they appear to capture intuitions that are commonly shared in procreative ethics. The problem is that Benatar's conclusion – that coming into existence if always a harm – is one of the most counterintuitive claims that one can make within the ethics of procreation. Insofar as Benatar wants to defend his position via appeal to intuitions, I cannot see how he can succeed: the balance of intuitions likely favors rejecting his conclusion and either abandoning the other asymmetries or searching for alternative ways to explain them.[7]

[7] It is also telling that some philosophers use intuitive verdicts about thought experiments as a way to refute the axiological asymmetry (e.g., Overall 2012, pp. 98-103).

Additionally, Benatar's Axiological Asymmetry may not have the explanatory power that he believes it does. First, it is clear that not all of these four asymmetries may be true. In fact, I argued in the previous chapter that the Asymmetry, at least as commonly examined in the philosophical literature, is false. I do not think it is an advantage of Benatar's position that it "explains" why we should endorse an incorrect view. Second, as I argued in the prior chapter, there are alternative explanations for how we can avoid the Non-Identity Problem and the Repugnant Conclusion. I even argued that the intuition underlying the Repugnant Conclusion is unreliable, which leaves us to wonder whether it is really a favorable feature of Benatar's view that it avoids this rather innocuous conclusion.

The Axiological Asymmetry has deeper problems than weakness in its support, however. Claim (3) is simply false. It does not make sense to speak of something being "good" in the impersonal sense that the claim requires. Since the person in question does not exist, the absence of harm cannot be good *for that person*. Thus, when Benatar (2006) claims that "the avoidance of the bad by never existing is a real advantage over existence" (p. 14), we must wonder *for whom* it is an advantage. The goodness generated by the absence of harm is not good for any existing individual, and it is implausible to claim that goodness can be attributed to merely possible entities.[8] The only way to make sense of (3) is to posit the existence of some kind of free-floating goodness – goodness that is somehow disconnected from being good for any particular person or creature. But how are we to understand goodness that is completely unrelated to the good some individual or group of individuals? Furthermore, how could we recognize this goodness or make judgments about it in ways that are empirically informed or

[8] Overall (2012) echoes this thought when she notes that the term "good" is a person referring term: "A mere absence or avoidance is neither good nor bad unless it is good or bad *for someone*" (p. 105). DeGrazia (2010) and Harman (2009a) also criticize Benatar on these grounds.

reliable? When we speak of goodness for individuals, we can observe their behavior, ask them about their mental states and preferences, and in various other ways observe the effects of different forces on their welfare. We cannot do any of these things to assess the presence or value of free-floating goodness.[9]

The reliance on free-floating goodness is, in my view, a fatal theoretical flaw in the Axiological Asymmetry, but other substantive problems would undermine it even if this one could be overcome. Perhaps the biggest problem is that accepting the Axiological Asymmetry does not clearly entail that nonexistence is preferable to existence. This problem becomes obvious when we recast the argument in premise-conclusion format:

1. Nonexistence contains something good (i.e., the absence of harm) and something neutral (i.e., the absence of benefits).
2. Existence contains something good (i.e., the presence of benefits) and something bad (i.e., the presence of harm).
3. A package containing something good and something neutral is preferable to a package containing something good and something bad.
4. Therefore, existence is preferable to nonexistence.

The first two premises are just restatements of the different parts of the Axiological Asymmetry, but even granting those to Benatar, this argument clearly fails because the third premise is false. Which of these packages is to be preferred will depend greatly on the quantities of the goods and bads being weighed.[10] Moreover, human lives vary greatly in the quantity of benefits and harms

[9] DeGrazia (2012) makes a similar point when he identifies Benatar's reliance on "free-floating interests" as a problem with his view (p. 146).
[10] This weakness is highlighted nicely by Belshaw (2007), who goes so far as to call the argument "dreadful" because of this shortcoming.

experienced, so there is no *prima facie* reason to assume that the positive value of the benefits experienced will always be too low to make existence worthwhile.[11]

Benatar's response to this objection relies on an analogy. He asks us to imagine two people: S and H. S often gets sick but also has the capacity to recover quickly from sickness. H never gets sick but lacks the capacity to recover quickly from getting sick. Benatar (2006) argues that it would obviously be preferable to be H rather than S:

> The capacity for a quick recovery, although a good for S, is not a real advantage over H. This is because the absence of that capacity is not bad for H. This, in turn, is because the absence of that capacity is not a deprivation for H. H is not worse off than he would have been had he had the recuperative powers of S. S is not better off than H in any way, even though S is better off than he himself would have been had he lacked the capacity for rapid recovery. (p. 42)

Benatar (2006, p. 47) represents this assessment of S and H in *Figure 3* below:

	S	H	
–	(1) Presence of sickness (Bad)	(3) Absence of sickness (Good)	+
+	(2) Presence of capacity for quick recovery (Good)	(4) Absence of capacity for quick recovery (Not bad)	0

Figure 3: Benatar's Sickness Case

[11] Benatar does supplement this argument with further claims that attempt to establish that our lives are much worse than we typically believe. These empirical claims will be treated separately in the next subsection since they provide the basis for a different argument for Antinatalism.

Benatar reasons that the case of S and H is relevantly similar to the case of existence and nonexistence. Thus, he concludes that just as H's circumstances are preferable to S's, we should prefer nonexistence to existence.

The standard way to refute an analogical argument is to reveal a relevant dissimilarity between the cases being compared. Benatar's argument is susceptible to this strategy because there is a clear difference between the cases. S's capacity for quick recovery from illness is only valuable in circumstances where S gets sick. Since H never gets sick, the capacity for quick recovery from illness will never be valuable for him. The value of life's benefits is not contextualized in this way. For the case to be relevantly similar, the capacity to experience life's benefits (e.g., pleasure) would have to be valuable only in cases where it served to alleviate harms that were suffered. (After all, the capacity for quick recovery from illness is only valuable when it serves to alleviate the suffering caused by illness.) But the capacity to experience life's benefits is clearly valuable even in circumstances where it does *not* serve to alleviate pain. For example, while the sensation of pleasure often does accompany the amelioration of some painful state, such as when our hunger is sated by a delicious meal, there are also circumstances where pleasure does not seem to alleviate pain at all. Even if I am not in a state of discomfort, pleasurable experiences – perhaps the feeling of a gentle breeze, the sound of pleasant music, or an unexpected encounter with an old friend – remain valuable. The goodness associated with pleasure is not dependent on the ability to experience pain in the way that the goodness of quick recovery from illness is dependent on the ability to fall ill. Pleasure is just a good thing to experience, independent of its relationship to experiencing pain.[12] On these grounds, our judgments about the case of S and H can deviate from our judgments about existence and

[12] A similar appraisal of Benatar's analogy is offered by Smuts (2014, pp. 716-717).

nonexistence. S may not have any advantages over H, but an existing person *does* have an advantage over a merely possible one – the ability to experience life's benefits.

One final flaw in Benatar's Axiological Asymmetry is worth highlighting. This view simply has absurd implications, one of which Benatar (2006) highlights himself: "One of the implications of my argument is that a life filled with good and containing only the most minute quantity of bad—a life of utter bliss adulterated only by the pain of a single pin-prick—is worse than no life at all" (p. 48). It would be hard to find a better candidate for a *reductio ad absurdum*. Benatar (2006) is right to mention that "a brief sharp pain is a harm" (p. 49); his mistake is his claim that a blissful life with only this small quantity of pain "has *no advantages* over never existing" (p. 48, my emphasis). The ability to experience life's benefits *is* an advantage over the inability to experience them, and without that claim, we are stuck with this absurd conclusion – the claim that even a life better than any human life ever lived is worse than having never existed. Because the Axiological Asymmetry entails an absurd conclusion, it ought to be rejected.

Since its publication, Benatar's Axiological Asymmetry has been subjected to many criticisms, including some not illustrated here (e.g., Kaposy 2009, Bayne 2010, Bradley 2010, Brown 2011).[13] Despite its provocativeness, the arguments that support it are weak. If there is a good reason to embrace Antinatalism, then it must be found elsewhere. This is not Benatar's only argument supporting Antinatalism, however, so we can see whether his other arguments fare better.

[13] To his credit, Benatar does attempt to address many of his critics. See Benatar (2013).

Benatar's Quality-of-Life Argument

Benatar's second argument for Antinatalism is based on the following claim: the majority of human lives are very bad.[14] Because human lives are usually very bad, we are not justified in subjecting people to such lives, provided that we can avoid doing so. Any act of procreation is too risky because the odds are overwhelming that the person born will live a very bad life.

Benatar supports this argument with two general strategies. First, he highlights a variety of psychological phenomena that cause us to see our lives as being better than they really are (Benatar 2006, pp. 64-69; 2015, pp. 41-54). One of these is optimism bias – the general tendency of human beings to interpret our experiences in an optimistic fashion. This bias manifests when we, for example, tend to remember a greater number of positive events in our lives than negative events or when we overestimate how good events in the future will be.[15] Another is the general phenomenon of adaptation (or habituation), which refers to our tendency to adjust our expectations to suit our circumstances. A pronounced example of this occurs in cases where those who become paraplegic often become happy again, according to their own self-reports, within one year after losing the use of their legs (Brickman, Coates, and Janoff-Bulman 1978). Paraplegics adjust to their circumstances within one year and are then able to feel just as happy as they did before despite the loss they have experienced. In fact, we are remarkably resilient in the face of negative events: few bad things affect us for longer than three months (Suh, Diener, and Fujita 1996). The third major phenomenon that contributes to making inaccurate perceptions

[14] The most thorough presentations of this argument are found in Benatar (2006, pp. 60-92; 2015, pp. 40-77). In some respects, this argument is related to the Axiological Asymmetry. Benatar thinks the Axiological Asymmetry demonstrates that coming into existence is always a harm, and this argument is designed to give us a sense of just *how bad* the harm is. However, even if one rejects the Axiological Asymmetry, "one can recognize that a life containing a significant amount of bad is a harm" (Benatar 2006, p. 60). In this sense, it can be interpreted as an independent argument for the claim that it is morally wrong to procreate.

[15] For some examples of this research, see Matlin and Stang (1978), Taylor (1989), Weinstein (1980, 1984), and Taylor and Brown (1998).

of our own well-being is our tendency to make implicit comparisons between ourselves and others (Wood 1996). We often compare ourselves to those around us to assess how well our lives are going, but this entails that widely shared negative features of human life will be overlooked in our assessments of our own well-being. Moreover, we tend to compare ourselves with people who are worse off than we are (Brown and Dutton 1995), further biasing our assessments in an optimistic direction.

Benatar argues that these three psychological phenomena alter our perceptions such that our self-assessments of our own well-being are inflated: our lives are objectively worse than we usually believe. As far as this part of his argument goes, he is surely right. The empirical evidence supporting this idea is substantial, and these tendencies make sense from an evolutionary perspective. Those with a broadly optimistic outlook on their lives will, other things equal, be more likely to survive and reproduce than those who are more pessimistic.[16] As Benatar (2006) puts the point, these psychological phenomena "militate against suicide and in favor of reproduction" (p. 69).

Even if we have these optimistic biases, however, this fact does not entail that our lives are often very bad. After all, two of these biases can also make us perceive our life as being *worse* than it is objectively. Just as we adapt to negative events, we can also adapt to positive ones. As we become more successful, for instance, we will often raise our expectations to correspond with our success, such that continued success at the same level is no longer as fulfilling to us.[17] Similarly, if we are surrounded by people whose lives appear to be going particularly well, our tendency to compare ourselves with our peers may cause us to think that

[16] For more on this topic, see Tiger (1979).
[17] See Kahneman, Diener, and Scwartz (2003) for various essays on this phenomenon.

our own lives are going *worse* than they actually are. Benatar (2006) acknowledges the two-way nature of these tendencies, but he claims that the underlying optimism bias means that "both adaptation and comparison operate from an optimistic baseline" (p. 68). Benatar may be right that overall our perceptions are generally more positively influenced by the confluence of these factors than they are negatively affected, but his response is unsatisfactory. The fact that we often overestimate the goodness of our lives does not entail that our lives are bad. His claims are consistent with our lives being (objectively) good or decent despite our beliefs that our lives are *very* good or even sublime. For his argument to work, we need an explanation for why the gap between the perceived quality of our lives and their actual quality is as enormous as he suggests. To see if Benatar can provide that explanation, we must look at his second strategy for supporting the Quality-of-Life Argument.

According to an influential taxonomy of views concerning the quality of life, there are three accounts of what makes a life go well or poorly.[18] On hedonistic theories of well-being, lives fare well or poorly depending on the quantity of pleasure and pain that is experienced. On desire-fulfillment theories of well-being, lives fare well or poorly depending on the extent to which a person's desires are fulfilled. Finally, on objective list theories of well-being, lives fare well or poorly to the extent that they contain certain things that are objectively good or bad. Some items on the objective list are good or bad for one's life independent of their connection to pleasure and pain or to the person's desires. Benatar's second means of supporting the Quality-of-Life argument is to show that our lives fare poorly on all three of these theories.

Benatar's general strategy is highlighting the various negative aspects of our lives that we routinely minimize or overlook. From the hedonistic perspective, these take the form of minor

[18] This taxonomy of what makes a person's life go well comes from Parfit (1987, pp. 493-502).

pains and discomforts, such as hunger, thirst, allergies, headaches, nausea, and boredom (Benatar 2006, pp. 70-72). We are fairly familiar with the great tragedies that can befall human lives – early death, cancer, depression, and other chronic or life-threatening ills – but these more banal pains are not often taken to be bad-making features of our lives. Moreover, pleasures tend to be short-lived while pain and discomfort are often long-lasting (Benatar 2015, pp. 48-49). Chronic pain is an all-too-common experience, but there is no such thing as chronic pleasure.

When we consider desire fulfillment, Benatar (2006) notes, "Rather little of our lives is characterized by satisfied desires and rather a lot is marked by unsatisfied desires" (p. 74). Some of our desires are never satisfied, and the others are usually only satisfied after a significant time has passed. Thus, we spend much of our lives in a state of desire frustration. A further problem is that we are often caught in a treadmill of our desires: upon fulfilling one desire, another simply arises to take its place, which prevents long-term desire satisfaction.[19] The result is that our moments of desire fulfillment are rare and fleeting while our moments of desire frustration are pervasive.

Regarding objective list theories, Benatar's strategy is to evaluate human lives from the point of view of the universe. He questions why a death at the age of 40 is regarded as a tragedy while a death at 90 is not. If longer lives are better, then isn't the fact that the person did not live until 240 an indication that the person's life did not go particularly well?[20] The natural response is that it would be ludicrous to think one must live that long to live well, given that human beings cannot live anywhere near that long at present. Benatar (2006) rejects this response:

[19] This phenomenon led Abraham Maslow (1970) to remark, "It looks as if the human hope for eternal happiness can never be fulfilled. Certainly happiness does come and is obtainable and is real. But it looks as if we must accept its intrinsic transience, especially if we focus on its more intense forms" (p. xv).

[20] The basic point here can be made using possible ages. I use 240 because that is the number Benatar (2006) uses in his own writing (p. 82).

> But why must it be that the good life is within our reach? Perhaps the good life is something that is impossible to attain. It certainly sounds as though a life that is devoid of discomfort, pain, suffering, distress, stress, anxiety, frustration, and boredom, that lasts for much longer than ninety years, and that is filled with much more of what is good would be better than the sort of life the luckiest humans have. Why then do we not judge our lives in terms of that (impossible) standard? (p. 82)

Benatar contends that when we evaluate our lives from the view of the universe, they do not fare well and that this perspective is the proper one to take. There is little doubt that our lives are not too great when judged by such grand and idealistic standards. Even the best human lives have significant shortcomings in various respects (e.g., bad experiences, lack of knowledge, short duration).

Benatar's claims about how we ought to assess our lives from the perspective of hedonistic and desire-fulfillment theories are bold, but they do not hold up to scrutiny. One significant factor that Benatar overlooks is that many of the minor pains he mentions are either balanced by other feelings and sensations (such that we are not in constant states of discomfort) or even pleasant in certain contexts (Wasserman 2015, pp. 156-157). While it would be very bad to be in a constant state of hunger, it is hardly bad to feel hungry right before a large meal. The anticipation of satisfying that hunger and the actual satisfaction that follows can be far more pleasurable than that of a meal eaten on a partially full stomach. In similar fashion, feelings of minor discomfort are often nullified or entirely overridden by minor pleasurable sensations that we routinely fail to notice. Suppose, for instance, that the weather outside is a bit hotter than we would prefer, but that the surrounding greenery is also aesthetically pleasing to us. In practice, because both phenomena are commonplace, we might not notice either of these features of our surroundings.

Herein lies a representative example of a glaring error in Benatar's assessment of how well our lives go. Since he is making an empirical argument, he needs to explain – in detail – all

of life's goods and how they compare to all of life's bads (Marsh 2014, p. 447). Benatar has not undertaken this task: there is no serious effort to catalogue all the minor pleasures we routinely experience or grander pleasures and satisfactions (e.g., from accomplishing goals or completing major life projects). He may be right that our lives go *worse* than we often think, but that does not establish that our lives go *badly*. They might still go fairly well overall. To establish that lives go badly, we need more information.

An additional complication in Benatar's calculation is that certain things that people value and identify as making positive contributions to their lives cannot be neatly explained in terms of pleasurable and painful mental states. For example, people want their lives to be meaningful. Having a meaningful life is not equivalent to being happy or to having a certain portion of one's mental states be positive in nature. In fact, there is evidence that higher levels of worry, anxiety, and stress correlate with higher levels of meaningfulness (Baumeister et al. 2013). Those who center their lives around substantial and difficult projects – which will often be a deep source of meaning for the person pursuing them – are more likely to experience these unpleasant mental states, but that does not mean that they would rather pursue a different life plan or that they are acting irrationally. Rather, this phenomenon highlights how there is more that we care about in our lives than just the aggregation of our positive and negative mental states. Insofar as a hedonistic theory cannot properly take these other valuable components of our lives into account, it fails to accurately assess a human life's value.

Benatar's assessment of the desire-satisfaction view fares even more poorly. Ordinarily, the way we would appraise how well a life goes on the desire-satisfaction account would be to see how many desires the person has and how many of them are ultimately satisfied. Benatar does not undertake this task in an empirically informed way: there is no effort to gather empirical

evidence on how many desires people typically have or how many of them are typically fulfilled in a lifetime. Instead, he highlights the fact that many desires go unsatisfied:

> Because we typically want more than we get, more desires are never satisfied. For example, billions of people want to be younger, cleverer, better looking, to have more sex (and to have it with more or better looking people), to have a better job, to be more successful, to be richer, to have more leisure time, to be less susceptible to disease, and to live longer. Even when our desires are satisfied, they are rarely satisfied immediately and often take a very long time to be satisfied. The desires thus remain unsatisfied between when they arise and when they are eventually satisfied. When they are finally satisfied, the satisfaction either lasts or it does not. The latter is more common. Even when the satisfaction of a desire does last, new desires typically emerge. Thus the general pattern is a constant state of desiring punctuated by some relatively short periods of satisfaction. (Benatar 2013, p. 143)

The problem is that Benatar's conclusion – that we are dissatisfied far more often than we are satisfied – does not follow from this list of examples. What about all those desires that get satisfied? How numerous are they in comparison to these that go unsatisfied?

Jason Marsh (2014) illustrates this flaw in Benatar's reasoning by rewriting this passage through a more optimistic lens:

> Because we typically get what we want, most desires are satisfied. For example, billions of people want to spend time with their families, to talk to their friends, and to enjoy stories, music, good meals and the outdoors; they also want and get to have some kind of sex and to have some kind of job (which is more important than having even better versions of these things). True, the satisfaction of many, but not all, desires doesn't last, but then you get to have other desires, most of which are fulfilled. You meet new people, visit new websites, cities, restaurants, and the like. Clearly the general pattern for most people, then, is a constant state of desiring and a constant state of getting most of what one desires. In fact, even if we just focused on our capacity to think about what we want to, this alone leads to billions of satisfied desires everyday and could alone outnumber most frustrated desires. (p. 448)

Is this picture more accurate than Benatar's? Based on the information provided, we do not know. Even assuming that we can make this assessment in a consistent, non-arbitrary way, trying to answer this question would require a great deal of difficult empirical research. Whether or not such research could be done in a way that gives accurate assessments, it is clear that Benatar has

not tried to conduct this research or gather extant research on people's desires to adequately support his claims.

As we can see, a general problem for Benatar's analysis is that he pays insufficient attention to cataloging the positive features of life and rigorously comparing them to its negative features.[21] An equally significant problem is that there may be no way to individuate desires in a way that is informative and not arbitrary. The desire to finish a fiction novel, for instance, could be understood as a single desire (e.g., to finish the book in its entirety) or a series of smaller desires (to finish chapter 1, to finish chapter 2, etc.). Which of these portrayals is accurate? How many desires are in play here? There may be no consistent, non-arbitrary way to answer such questions. But if that is true, then there is no such thing as the *number* of desires that we have or the proportion of our desires that are satisfied or unsatisfied. As a result, Benatar's attempt to quantify satisfied desires and compare their proportion to unsatisfied desires will not yield viable results.[22] Ultimately, the weaknesses in his strategy render his evaluation of the quality of human lives, whether conducted on a hedonistic account or a desire-satisfaction account, thoroughly inconclusive. His position also does not prove any more defensible when we use objective list views to evaluate the quality of human lives.

The basic response to Benatar's claims about objective list views is to deny that the evaluative criteria for determining whether a human life is good should be the universe's point of view. In practice, we do not evaluate other species in this manner because we recognize that they

[21] Benatar and his critics also usually neglect the additional complication of how difficult it may be to actually compare the goods and bads of life in any sensible way. As Marsh (2014) notes, some of these goods and bads may be incommensurable with one another (p. 449, fn 23). The result is that there may not be a fact of the matter about whether certain lives are good or bad, all things considered. The goods and bads may just be too different to admit of a sensible comparison. For an overview of the problem of value incommensurability, see Hsieh (2016).

[22] Marsh's view, insofar as he assumes that desires can be coherently and sensibly individuated, is on similarly shaky ground.

have species-specific criteria for their flourishing. We do not, for example, evaluate whether our dog has lived a good life by virtue of how many novels she read. That would be absurd because dogs do not have the capacity to read, and it is not essential to what makes their lives go well. Instead, we will compare our dog's life – in terms of both quantity and quality – with other dogs. Similarly, it seems absurd to evaluate human beings according to standards that extend well beyond the capacities of their species. Our lives might be better if we could live for 240 years rather than typically dying around the age of 80, but that fact does not imply that a life of 80 years is bad – only that it is *less good* than its hypothetical counterpart. There is no compelling reason to hold human beings to impossibly high standards and thereby conclude that their lives are bad because they cannot meet those standards.

Benatar does attempt to respond to this objection. He considers the fact that we do not usually evaluate physics professors by supra-human standards of intellect and so should similarly not evaluate human lives according to supra-human standards of quality. Counter to this claim, Benatar (2006) argues that we "sometimes do and should judge the brightest people by supra-human standards" (p. 86). His illustrating case is the virtue of modesty. It is difficult to explain how modesty is a virtue that can be held by those who genuinely exemplify the best of human beings in a particular area. If they act modest and the appropriate comparison is only to other people, then either they are not accurately appraising their abilities or they are acting in ways inconsistent with their actual assessment of their abilities. The former behavior would represent an epistemic defect, and the latter would be an act of deception. Either way, modesty would not appear to be a virtue. Benatar (2006) claims that the best solution to this problem "is to say that although the modest person has an accurate perception of his strengths, he also recognizes that

there is a higher standard by which he falls short" (p. 86). This higher standard is *sub specie aeternitatis* – the point of view of the universe.

There are several lines of response that one can pursue regarding Benatar's points about modesty. One could obviously bite the bullet and deny that modesty is a virtue, but that line of response is rather unpopular.[23] After all, modesty appears to provide a check on the human tendency to overestimate oneself in comparison to others and to be a virtue on those grounds. Moreover, defending the claim that modesty is not a virtue would require more detail and rigor than I can offer here. An alternative strategy is to deny that the epistemic defect manifested by modesty prevents it from being a virtue. Julia Driver (1989, 1999) has been the strongest proponent of this position, going so far as to characterize modesty as a virtue of ignorance. Driver (1999) denies the claim that ignorance is always regarded as being negatively valuable, noting that ignorance of one's own beauty is thought to enhance it and that we often value children's naive innocence (p. 828). This strategy may worry some readers, however, since they may not share Driver's intuitions about these cases and since her account raises problems with the perception of a virtuous person as one who has an accurate understanding of herself and her abilities.[24] For these reasons, we ought to pursue a different line of reply.

The best response to Benatar's analysis of modesty is to deny the dilemma that he poses: there are ways to understand modesty as a virtue without entailing that the modest person is either epistemically defective or engaging in acts of deception. One promising strategy is to

[23] Most accounts of modesty presuppose that it is a virtue and that an account of modesty that cannot explain this fact is therefore defective. Those who believe that virtue consists in phronesis, however, will likely deny that modesty is a virtue. Phronesis requires, among other things, accurate self-knowledge and appropriate responsiveness to salient moral reasons. Modesty, if it requires that a person be unaware of their accomplishments or act as if they were unaware of them, appears to be incompatible with phronesis. For these reasons, Aristotle (1980) denied that it was a real virtue (Book IV.7).

[24] Driver's account has had many critics. For a sampling, see Schueler (1997, 1999), Ridge (2000), Brennan (2007), Allhoff (2010), and Wilson (2016).

understand modesty as a virtue of attention (Bommarito 2013). It manifests when we remain inattentive to certain skills or accomplishments that, if we were to focus on them, might foster arrogance in ourselves or envy in others. It can also manifest in circumstances where we are well aware of our accomplishments and abilities but also remain well aware of the roles that luck and circumstance have played in our achievements. In this manner, modesty does not require an inaccurate appraisal of one's self-worth or accomplishments, even in cases involving inattention. A person who is inattentive to something is not necessarily unaware of it (Bommarito 2013, pp. 99-100). Consider the common occurrences of getting lost in thought while driving and then being surprised when you have arrived at your destination or navigating around people and objects on your walk across campus while being immersed in a conversation with a colleague. In both cases, we clearly have some awareness of our surroundings, but our attention is not focused on them while we engage in other activities. Modesty functions in an analogous manner: one can be fully aware of the merits of her achievements and the remarkable skills she possesses but be inattentive to them in her dealings with others. This does not involve ignorance. It also does not require deception, since the modest person could freely acknowledge her feats and abilities in conversation when pressed by others to do so (and will often do so with suitable acknowledgement given to the luck-based factors that have contributed to these things). In short, we can account for modesty being a virtue without falling into Benatar's trap.

There is also a deeper problem with Benatar's claim that the best physicists, philosophers, writers, and so on should evaluate themselves in accordance to a higher standard – that is, the point of view of the universe. Such an outlook would not promote modesty:

> Holding ourselves to a higher standard than others is one way of being self-aggrandizing. Philosophers who, when hearing a paper at a conference, often think, "Oh, that's a pretty good paper *for them*. But if it were me, I would expect more of myself" are immodest in

> part because they take themselves to be worthy of a higher standard of evaluation than their colleagues. (Bommarito 2013, p. 99, original emphasis)

Comparing oneself to a grand standard while evaluating others according to a lower standard is a way of acknowledging – whether overtly or implicitly – that one is better than others, and it does so in a way that may well be more offensive to others than a candid, realistic acknowledgement of one's abilities.[25] In this manner, Benatar's account of modesty proves inaccurate, and on these grounds, we should reject his claim that it is appropriate to evaluate people by supra-human standards of quality. The failure of people to meet his supremely high standards does not entail that their lives fare poorly.[26]

In fact, once we abandon Benatar's imperative to evaluate human lives by such lofty standards, we can see that people actually do live good lives pretty frequently according to objective list theories. Consider some of the standard welfare criteria of these theories: longevity (in ordinary human terms), suitable level of knowledge and education (for a human being), ability to engage in self-expression, and freedom from oppression. Many people satisfy these conditions, so unless we have a compelling reason to adopt Benatar's standards of evaluation, we ought to conclude that human welfare, at least on objective list theories, is often fairly high.

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[25] In some cases, the person might be trying to compensate for the natural tendency to hold oneself to looser standards than others, but nevertheless, a statement that one should be held to higher standards than her peers still sends a message of immodesty.

[26] It is worth mentioning that this entire line of argument against Benatar assumes, as he does, that there is a "point of view of the universe" or perhaps a "view from nowhere" (Nagel 1986) – an objective, mind-independent viewpoint from which the universe can be evaluated. That assumption may not be worth granting. Value may only be intelligible as *value for* a particular entity. If the universe is understood as a single entity, it is not conscious (or even alive) and has no point of view. Things can go well or badly for individual organisms in the universe, but nothing can go better or worse for the universe itself. If there is no point of view of the universe, then Benatar's appeal to this standard is obviously groundless.

Benatar's Misanthropic Argument

While his earliest work on the ethics of procreation focused on the Axiological Asymmetry and the Quality-of-Life Argument, Benatar (2015) has recently advanced a new argument for Antinatalism. Rather than trying to establish that procreation harms the person who is created, this argument tries to establish that procreation is wrong because of the harm it causes to other people. Benatar (2015) labels the argument as "misanthropic" because it focuses on "the terrible evil that humans wreak, and on various negative aspects of our species" (p. 78). Benatar (2015, p. 79) presents the Misanthropic Argument as follows:

1. We have a (presumptive) duty to desist from bringing into existence new members of species that causes (and will likely continue to cause) vast amounts of pain, suffering, and death.
2. Humans cause vast amounts of pain, suffering, and death.
3. Therefore, we have a (presumptive) duty to desist from bringing new humans into existence.[27]

The argument has valid form, and the second premise is obviously true. Although Benatar (2015) devotes quite a bit of space to establish this premise (pp. 80-100), it should not be controversial. Even the most optimistic person must acknowledge that human beings often commit moral atrocities, and our history of violence, oppression, exploitation, and deception provides plenty of

[27] Harrison and Tanner (2011) defend a similar argument, but they describe the central idea in terms of an unjustifiable gamble. They describe procreating as taking "an unjustifiable gamble that future generations will behave responsibly… Given the rather pathetic, late-in-the-day changes humans have managed so far it is unlikely future generations will do any better" (p. 114). Thus, they claim that we should not bring more humans into existence: "Human beings are dangerous things; too dangerous" (p. 114). Fundamentally, I do not think their argument meaningfully differs in spirit or substance from Benatar's, even if the presentation of the argument is slightly different.

evidence for the claim. Thus, the first premise does all the argumentative work. Is this premise true?

Benatar thinks that this premise would be widely accepted if the species under consideration were not human. He asks us to imagine people breeding a destructive species of nonhuman animal or scientists releasing a deadly virus and argues that both of these practices would be widely condemned (pp. 101-102). The conclusion that he suggests is that our reluctance to accept this premise is rooted solely in a bias toward our own species. Here, however, Benatar makes two mistakes. First, he is wrong about our judgments about other species. Many predator species cause a great amount of suffering to other animals: they have to savagely kill other animals for their own sustenance. Yet there is not a widespread condemnation of these species or a strong public outcry for the elimination of predation. In fact, we sometimes undertake efforts to re-introduce predator species into environments where their numbers have dwindled. Certainly, predators do not cause as much harm as human beings – in large part because their numbers are so much smaller – but these observations provide some evidence that not everyone would immediately accept Benatar's judgment about the first premise even when it concerns nonhuman species.

The second mistake is that Benatar overlooks the fact that human beings also perform actions that are morally good. No one is morally perfect, but few are as monstrous as the murderers and animal abusers that he references. Surely the good that people do counts in favor of creating more of them, so we need further discussion of just how great the harms of the typical person are and how they compare to the good that the person does. Furthermore, there is some evidence that human beings are improving. We are, for instance, much less prone to violence than we were in the past (Pinker 2011), and there have been growing cultural trends in the

developed world of acceptance of people of different races, nationalities, genders, sexual orientations, and religions.[28] These trends suggest that humanity may not be the "moral disaster" that Benatar (2015, p. 111) claims we are.

Benatar (2015) does acknowledge this point and make an effort to establish that the harms that even normal people cause are substantial (pp. 107-109). After rightly pointing out some of the difficulties in determining how much good would nullify the bad, he notes that each new human being – at least under our current rates of consumption and given our current population size – "adds incrementally to the amount of animal suffering and death and, via the environmental impact, to the amount of harm to humans (and animals)" (Benatar 2015, p. 109). Moreover, some of the goods that human beings produce could be produced by fewer humans, so procreation can be a net harm in the context of a large and destructive population. Benatar also places a particular emphasis on the harm done to nonhuman animals, primarily through animal agriculture. After citing figures that suggest 166 billion animals are killed annually per year for human consumption, he notes that the vast majority of human beings contribute to this phenomenon. The end result is that a meat-eater is, on average, "responsible for the deaths (and suffering) of at least 27 animals per year—which amounts to at least 1690 animals over the course of a lifetime" (Benatar 2015, p. 110).[29]

One of the puzzling aspects of Benatar's position is that, given the significance that harm to animals and the environment plays in his argument, he does not argue for the eradication of industrialized farming or swift mitigation efforts toward climate change. Why are these not

[28] This claim does not imply that racism, sexism, and other forms of discrimination have been purged from society. The point is that equal rights and social standing for people is gradually becoming the norm, which is a stark contrast to the dominant and overt racism and sexism of the past.

[29] In this argument, Benatar assumes a very strong view of the moral significance of animal suffering – particularly those with a very low level of sentience – that some moral philosophers would reject. See, for example, Wasserman (2015, p. 166). Even so, I am willing to grant this assumption.

preferable alternatives to prohibiting procreation altogether? Perhaps there is an assumption that human beings will just continue to perform various evils in perpetuity and that this pattern can never be stopped. So the obligation to refrain from procreating is in part a practical one – the only feasible way that evils of this sort could be prevented. But it seems more likely that human beings will change their behaviors with respect to animal farming or emitting greenhouse gases than cease procreating altogether. (After all, many nations are already making efforts to address climate change.) Thus, if there is a feasibility condition in the argument, it would seem to count *against* Benatar's position. The more practical solutions – namely, trying to reduce animal suffering and live in more sustainable ways – are also likely to be more ethically preferable in practice because enforcing a prohibition on procreation would require massive systemic oppression and impose substantial suffering on many people.[30]

A further problem for Benatar's position is that his observations about collective human behavior have little import for individual procreative decision-making. One reasonable response to Benatar's long list of human evils is to instill parents with procreative caution: they should be reflective and determine whether they can provide their child with the proper upbringing and education so that their children will be extremely unlikely to commit, or be complicit in, dreadful wrongdoing (Wasserman 2015, pp. 167-168). Many parents can meet this obligation, and for them, it is not wrong to procreate. Benatar could well be right that there are some fairly significant restrictions on permissible procreation and that many people violate them, but that only tell us what we probably already suspected. Parents have very strong obligations to their children. Not everyone is able to raise children effectively, and even for those who are able to be

[30] The harmful effects of draconian population control schemes are well-documented. See Mosher (2008, chs. 3 and 5).

good parents, their life circumstances may only be conducive to raising children well at certain times or under certain financial conditions. Still, many people can meet these conditions, and so Benatar's prohibition on procreation is not as broad as he argues.

Consent-Based Arguments

Benatar is not the only person to offer an argument against procreation. Seana Shiffrin (1999) presents an argument that could yield the same conclusion. Her argument proceeds from two observations. First, coming into existence renders a person vulnerable to a wide range of harms. Second, a person cannot consent to coming into existence. Often, it is morally wrong to cause harm to someone else or to expose them to risk of harm unless they give consent to the action in question (e.g., before undergoing surgery). If consent is indeed required to nullify the harms that accompany continued existence, then procreation seems morally impermissible.

This reasoning proceeds too quickly, however. After all, we are sometimes justified in causing harm to someone when it prevents them from suffering a greater harm, particularly when it is impossible or unrealistic to acquire consent. If a speeding driver fails to stop at a red light when a pedestrian is crossing the street, I am justified in shoving the pedestrian to the ground if it is the only way to get him out of the driver's path even though obtaining his consent to this action is not possible and he may suffer minor physical injuries because of my action. But Shiffrin (1999) claims that this justification does not hold when we harm someone merely to provide the person harmed with a benefit (p. 127):

> Absent evidence that the person's will is to the contrary, it is permissible, perhaps obligatory to inflict the lesser harm of a broken arm in order to save a person from significant greater harm, such as drowning or brain damage from oxygen deprivation. But, it seems wrong to perform a procedure on an unconscious patient that will cause her harm but also redound to her a greater, *pure* benefit. At the very least, it is much harder to justify. For example, it seems wrong to break an unconscious patient's arm even if necessary to endow her with valuable, physical benefits, such as a supernormal memory,

> a useful store of encyclopedic knowledge, twenty IQ points worth of extra intellectual ability, or the ability to consume immoderate amounts of alcohol or fat without side effects. At the least, it would be much harder to justify than inflicting similar harm to avert a greater harm, such as death or significant disability.

Beyond these examples, Shiffrin also suggests that it would be wrong for a wealthy islander to air drop gold bars into a neighboring island community when doing so breaks someone's arm, even when this increased wealth makes the islanders (including the victim) better off overall and even when there are no other viable means of transporting his gold to this community.

Shiffrin may be right to stress the moral seriousness of imposing harm on others or even just exposing them to likely harms, but her supporting examples are problematic if we try to extend them to the case of procreation. The harm in these cases – breaking a person's arm – constitutes a rights violation.[31] Procreation, in contrast, does not involve any clear rights violations. For this reason, breaking a person's arm requires a particularly strong moral justification, but it remains unclear whether procreation requires a comparably strong moral justification, particularly when we acknowledge that we routinely expose our children to potential harms to provide them with pure benefits (DeGrazia 2012, p. 153). When we make our children play outside on a sunny day, we expose them to potential harms – bruises, cuts, splinters, and so on – that they would be much less likely to suffer if they stayed in a carpeted indoor environment, but we assume that whatever benefits come from being outdoors outweigh the risks of these harms. When we send our children to school, we know there is a chance they will be mocked, ridiculed, humiliated, or otherwise hurt by their peers, but we assume that the benefits associated with making friends and getting an education are worth the risk of suffering these harms. For these reasons, we should reject Shiffrin's claim that it is always wrong to

[31] Here, I echo a point made by Wasserman (2015, pp. 169-170).

expose someone to the risk of harm to provide pure benefits when the person affected cannot consent.

Jimmy Licon (2012) offers an alternative consent-based argument against the morality of procreation. His argument can be outlined as follows:

1. An individual is justified in subjecting someone to potential harm only if either: (a) they provide informed consent, (b) such is in their best interests, or (c) they deserve to be subjected to potential harm.
2. Bringing someone into existence is potentially subjecting them to harm.
3. Individuals that do not exist: (a) cannot give their consent to being brought into existence, (b) do not have interests to protect, and (c) do not deserve anything.
4. Hence, procreation is not morally justified. (Licon 2012, p. 88)

While this argument does avoid appealing to Shiffrin's principle about the wrongness of causing harm to bestow pure benefits, the argument on the whole is not any better than hers.

The central flaw in the argument is in its third premise. Licon claims that individuals who do not exist lack interests. As stated, this premise is false. The phrase "individuals who do not exist" could be interpreted to refer to future people, possible people, or both future people and possible people. The premise is only true if it is restricted to referring to possible people. As I use the term, a "future person" is someone who *will* exist later even though they do not at present.[32] A merely possible person is, in contrast, someone who *could* exist but never actually will exist. Merely possible people do not have interests (and never will), but future people *do* have interests. At a minimum, they have interests in the basic requirements for a decent human life. Indeed, much of our way of talking about future generations operates on the assumption that they

[32] I borrow this usage from Nolt (2016).

have interests that we can prevent or thwart. There is nothing incoherent in saying that someone's grandchildren, whomever they are, have an interest in a getting a good education, and there is nothing incoherent in saying that people living in 2100 have interests in clean air and a reliable supply of fresh water. Children who are not yet born but *will* be born are best understood as future people, and so they have interests that we can promote or thwart. When we promote these interests sufficiently well, doing so can justify exposing them to potential harms.

Perhaps Licon could respond by pointing out that while future people *will* have interests, they do not have interests *yet*. When we speak of our children having interests when they are not yet born, we may be misrepresenting what we really mean. Even if we can grant Licon this move, it does not salvage his argument. On this interpretation, the argument is invalid: we can affirm all three premises but deny the conclusion because future people *will* have interests to protect. Sufficiently protecting or promoting those interests is enough to justify the risk of harm, particularly when the probability of significant harm is extremely low and the probability of beneficial experiences is extremely high. This thought accords not only with my remarks in the prior paragraph but also with widespread considered judgments about when procreation is justified.[33] To make his argument valid, Licon would have to alter part (b) of the third premise to read "do not have interests to protect and will not have interests to protect." But this construction renders the premise clearly false, since future people will certainly have interests to protect. Thus, regardless of which change is made, the argument fails.

[33] Indeed, there is perhaps no more stable or widely shared judgment about the ethics of procreation than the claim that it is generally justified when the child has an excellent chance of living a good life overall.

Häyry's Risk-Aversion Argument

Matti Häyry offers a further argument against the permissibility of procreation. When it comes to procreative decisions, he endorses the maximin rule, a principle of reasoning endorsed by John Rawls (1999, §26-28) in the context of his political philosophy. The maximin rule states that in some situations where probabilities of specific outcomes are uncertain, we ought to choose the alternative in which the worst outcome is superior to the worst outcomes of the alternatives. In other words, we seek to minimize our potential losses.

Häyry argues that the maximin rule should be applied to reproductive decision-making because all lives carry a risk of being worse than having not been born at all, at least from the perspective of the person living such a life. The risk may be small, but it is always a possibility. Since we always have the option of refraining from procreation, we can always avoid this disastrous outcome, and Häyry (2004) thinks that is precisely what we should do:

> When people consider the possibility of having children, they confront the following choice. They can decide not to have children, in which case nobody will be harmed or benefited. The value of this choice, in terms of potential future individuals and their lives, is zero. Alternatively, they can decide to have children, in which case a new individual can be born. If this happens, the life of the future individual can be good or bad. The eventual value of the decision, depending on the luck of the reproducers, can be positive, zero, or negative. Since it is rational to avoid the possible negative outcome, when the alternative is zero, it is rational to choose not to have children. (p. 377)

If we genuinely believe that the rational and morally appropriate course of action is to avoid the worst possible outcome in this scenario, then Häyry is right: we should refrain from procreation. But is the maximin rule really the appropriate decision procedure under these circumstances?

Rawls (1999) notes that the maximin rule "is not, in general, a suitable guide for choices under uncertainty" (p. 133). He then specifies three conditions that must be met for an appeal to the maximin rule to be appropriate:

1. The probabilities of the possible outcomes are unknowable, or there exists some reason for discounting the estimated probabilities.
2. The person choosing cares very little about what she might gain above the minimum; it is not worth taking a chance to try to gain a further advantage.
3. The worst possible outcome is one that the person making the choice cannot accept – typically one that involves a grave risk.

In the case of procreation, only the third condition is met. We have strong reasons to believe that certain children will have a very high probability of living a good life and that certain children will not. Thus, we can form reasonable estimates about the probabilities of the possible outcomes. Furthermore, although not-yet-existing children cannot choose to be born, it is clear that they have something substantial to gain from taking the gamble – all their positive future experiences. So, if they could make a choice, they might well opt for the gamble, even knowing that there was a small probability of a disastrous outcome.[34]

These observations illustrate the general problem with Häyry's reasoning: it is excessively risk-averse. We do not apply maximin-style reasoning very often, even in scenarios involving life-and-death risks. Many actions, including those as common as driving cars, impose unlikely but severe risks on others. Moreover, in the realm of policy, we routinely avoid choosing the safest policy. A 20 mile-per-hour speed limit on highways would surely prevent many fatalities, but would anyone endorse such a policy? Even though the harms caused by higher speed limits are severe, many believe that the benefits offered by the higher speed limits

[34] Wasserman (2015, pp. 175-176), in his own critique of Häyry, also argues that the second condition is not met. But Wasserman suggests that the first condition *does* seem to apply to the case of procreation (although he provides no explanation for holding this view). While I admit that we may not be able to assign exact probabilities, we have fairly strong empirical evidence that the vast majority of people regard their lives as worth living, and so I am not skeptical about our ability to make probabilistic estimates, perhaps using ranges (e.g., 90-95%), to estimate the likelihood that a person's life will be worth living.

outweigh the costs associated with the harms. The mere possibility of severe harm does not provide a strong enough reason to categorically avoid an action that may result in that outcome, and so we do not have an obligation to avoid all procreation. Out duty is to minimize the risk of serious harm to our children *once they are born*, not to forego procreation altogether.

Contingent Anti-Natalist Arguments

The prior arguments for Antinatalism try to establish that procreation is always (or virtually always) wrong. Some other arguments for broadly Antinatalist conclusions are not so broad in scope and aim only to establish that Antinatalism is true for some particular group of people, perhaps given a certain set of empirical conditions that happen to be met at present. According to one such argument, there is a strong presumption to adopt a child rather than procreating.

Daniel Friedrich (2013) argues that some people are under a moral obligation to adopt children rather than procreating. His argument rests on an empirical observation and a moral principle. The empirical observation is that, for those of us who want to be parents, "we can protect parentless children from serious harm at little cost to ourselves by adopting them" (Friedrich 2013, p. 25). The moral principle Friedrich proposes is the claim that we ought to protect other people from serious harm when we can do so at little cost to ourselves. These two claims, if true, generate the conclusion that some people, if they are going to undertake the task of raising children, have a moral obligation to adopt children rather than creating their own.[35]

[35] Friedrich (2013, p. 28) acknowledges that many people do not want to raise children and that raising them is extremely demanding. Hence, he concedes that those who do not wish to have children can be exempt from the duty to adopt of those grounds. Thus, his argument applies only to those who intend to raise children.

Friedrich bolsters his case by considering a wide array of objections to his position. Most of these objections stem from false beliefs about adoptable children, such as claims that adoptable children are more likely to be maladjusted or have behavioral problems or that parents generally cannot love adopted children as much as their own biological children (Friedrich 2013, pp. 28-31). Friedrich rightly points out that many would probably be more willing to adopt if they were to abandon these false beliefs and give appropriate weight to the upsides associated with adoption. But he also makes a concession that threatens to undermine the argument's significance. For certain people, the experiences associated with pregnancy and childbirth as well as other aspects of having biological children (e.g., family resemblance) are significant parts of their life plans, and this fact will not change even after full consideration of all the information concerning the choice to adopt rather than procreate.[36] Friedrich (2013) states that such people are exempt from the duty to adopt (p. 31). While there is no way to know how many people satisfy this criterion, this admission demonstrates that the duty to adopt may only be applicable to a relatively narrow range of people. After all, biological and cultural factors incline people to prefer procreation over adoption, and people often structure their lives using the creation of a biological family as a focal point. Thus, a great many people may be beyond the scope of Friedrich's proposed duty to adopt.

A further limitation of Friedrich's argument is that there are only so many children in the world in need of adoption. Some have argued that the number of people seeking to adopt children is significantly greater than the number of children who have been identified as requiring adoption – in both the western and non-western world (e.g., Cantwell 2003;

[36] Rulli (2016) identifies the desire to experience pregnancy as the most plausible exception to the general duty to adopt.

Lammerant and Hofstetter 2007, pp. 4-5; Graff 2009). Friedrich (2013) notes that the number of children identified as *adoptable* is likely much lower than the number of children who are actually in need of adoption (p. 34). Many countries lack the resources or cultural environment needed to maintain institutions that could properly identify children who need to be adopted. The number of children who need to be adopted may actually be millions higher than the number who are presently available for adoption. The problem, of course, is that until those children actually *are* available for adoption, it is not possible for would-be parents to adopt them and therefore implausible to suggest that these prospective parents have a duty to do so. This limitation renders much of the purported duty to adopt moot, and furthermore, even if all these children in need could be adopted, they constitute a very small percentage of the global population. All these children could be adopted, and there would still be billions of people worldwide who would have to procreate to become parents. So even if this purported duty to adopt were optimally fulfilled, it would only reduce the number of procreating parents by a few million. While that would represent some progress, it would not do much to slow global population growth. An adequate response must do much more.

Beyond the practical limitations to Friedrich's argument, there also looms a significant theoretical worry. The moral principle that forms the foundation of his argument is the claim that we ought to prevent people from serious harm when we can do so at little cost to ourselves. If that principle is correct, one may wonder whether adoption is really the appropriate course of action to take. Friedrich (2013) acknowledges that it typically costs more than $200,000 to raise a child in the United States (p. 32).[37] A recent estimate by the United States Department of Agriculture concludes that a child born in the United States in 2015 will cost $233,610 to raise

[37] He cites USDA (2010, p. 39) regarding this estimate.

(Lino et al. 2017). The problem for Friedrich's position is that *a lot* more harm will be prevented by donating that money (or even just a significant portion of it) to cost-effective charities, such as the Against Malaria Foundation or Schistosomiasis Control Initiative.[38] Thus, one may wonder why – at least for those who do not view children as an indispensable part of their life plans – this principle of preventing harm does not entail that they should refrain from procreating altogether when they could use the money saved to prevent a much greater quantity of harm. This alternative argument has recently been developed at length by James Rachels (2014).

Rachels draws significantly on Peter Singer's (1972, 2009) work on world hunger and poverty. Singer (1972) defends the following moral principle: "If it is in our power to prevent something bad from happening, without thereby sacrificing anything of comparable moral importance, then we ought, morally, to do it" (p. 231). He also observes that there are millions of people across the world who are suffering and dying because they do not have adequate food, water, shelter or medical care. Suffering and death caused by a lack of food, water, shelter, and medical care are undeniably bad, and many of us have the ability to prevent these harms from occurring by donating to cost-effective charities. Moreover, these donations will often not deprive us of anything important. Almost anyone living in the western world surely purchases some luxuries that she could forego without any meaningful impact on her welfare. Thus, Singer reasons that many of us are morally obligated to donate a significant portion of our income to charities that will help prevent these harms.

Rachels' views his argument as a variant of Singer's that is designed to illuminate one of its surprising implications: taking this duty to reduce suffering seriously requires that many of us

[38] These charities persistently rank near the top of GiveWell's list of most cost-effective charities. See http://www.givewell.org/charities/top-charities for their current list.

refrain from procreating. Friedrich (2013) tries to avoid endorsing this position by arguing that we have a duty to prevent suffering only when we can do so "at little cost to ourselves" (pp. 25-26). He assumes that foregoing parenthood (both of biological and non-biological children) would be *very* costly for most people but also holds that foregoing parenthood only of one's biological children will often not be as costly. While this position is perfectly coherent, if one properly appreciates the moral weight of millions of people suffering and dying annually from easily preventable circumstances, it becomes more difficult to maintain. A desire to raise a single child, in terms of moral significance, does not remotely compare to the suffering and death that could be prevented through $200,000 worth of donations to cost-effective charities. Can those living in developed nations really justify spending so much on their own children when they could save the lives of *many* other children who are on the brink of death elsewhere in the world?[39]

Rachels' argument is very powerful, and while it would be psychologically challenging for most of us to live up to the standard that the argument requires (i.e., to prioritize the prevention of suffering to this degree), such difficulty does not obviously remove the obligation. Even if we were destined not to perfectly adhere to such an obligation, we could still have a duty to strive for it, and we might well come close to meeting the standard if we really tried. Even so, many feel that there must be a limit to what morality can reasonably demand of us and that this kind of obligation surpasses the threshold of what morality can require. The relevant question is why: if we cannot offer a good explanation, then this thought amounts to little more than complaining that being moral is difficult.

[39] The World Health Organization (2016) estimates that 5.9 million children under the age of 5 died in 2015 and that over half these deaths could have been prevented with access to cheap, routine medical interventions.

On my view, the limits to morality's demandingness originate from two sources: our limitations (both physical and psychological) as human beings and our desire to have a flourishing human life. When morality requires that we do something that we are physically or psychologically incapable of doing, then our limitations almost always release us from a duty to perform the task. This idea is often represented as the phrase "ought" implies "can." It captures the observation that it is not reasonable to morally require people to do things that they are incapable of doing. The other limitation on morality's demands can be understood as follows: when a moral imperative proves antithetical to one's goal of living well, then sometimes that moral imperative should no longer be regarded as a strict obligation. I say *sometimes* because our life plans are often malleable enough to accommodate moral imperatives without undercutting our goal of living well. Without this qualification, the claim could serve to justify moral apathy in cases where it is not justified.

There is nothing physically impossible about refraining from procreation, except in particularly dire circumstances.[40] Fortunately, these cases are rather rare. The more common challenge to a duty to refrain from procreation is likely psychological: not everyone may be capable of resisting the psychological urge to procreate. Rachels (2014) acknowledges that it may be permissible for such people to have children:

> I don't think it makes sense, either as social policy or as abstract philosophy, to hold people accountable for choices that are psychologically forced on them (even if they could physically do otherwise). For that reason, even though it would be regrettable for such people to have children (because their $227,000 could be better spent), I would not regard their decision to have children as immoral. Indeed, I'm not even sure I would regard it as a decision. (p. 578)

[40] These would be cases when a woman is a victim of an unwanted sexual encounter and prevented from taking any actions that might prevent pregnancy or end the pregnancy before birth.

This exception is reasonable, but it likely does not apply to most people. Many of the motivations that people have for wanting children do not involve a desperate psychological need for them. It might be a preference, of course, but a mere preference is not sufficient to ground the claim that one is psychologically *incapable* of doing otherwise. Ultimately, "ought" implies "can" does ground some exceptions to this purported duty to refrain from procreation, but it will not get most of us off the moral hook.

If an imperative to procreate is objectionable because it is too demanding, then the problem will usually be that it would impede the goal of living well. Bernard Williams (1973), in his critique of utilitarianism, connects this limitation to an agent's integrity. He argues that utilitarianism is objectionable because any commitment an agent has must be abandoned as soon as it becomes inconsistent with maximizing utility. Williams (1973) imagines a person being required to abandon central life projects to fulfill the obligation to maximize utility and states the following:

> It is absurd to demand that such a man, when the sums come in from the utility network which the projects of others have in part determined, that he should just step aside from his own project and decision and acknowledge the decision which utilitarian calculation requires. It is to alienate him in a real sense from his actions and the source of his action in his own convictions. It is to make him into a channel between the input of everyone's projects, including his own, and an output of optimific decision; but this is to neglect the extent to which *his* actions and *his* decisions have to be seen as the actions and decisions which flow from the projects and attitudes with which he is most closely identified. It is thus, in the most literal sense, an attack on his integrity. (pp. 116-117, original emphasis)

Williams might exaggerate when he suggests that utilitarianism assaults an agent's integrity, but the underlying point remains quite strong. We often structure our lives around certain personal and professional pursuits, and abandoning them would seem inconsistent with our character and opposed to our long-term life goals. When moral imperatives force us to abandon the individual pursuits that serve as the central source of our lives' meaningfulness, sometime those imperatives ought to be rejected.

Of course, the key question is whether a duty to refrain from procreation opposes a person's life plans in such a significant way. For many people, it is doubtful that a duty to refrain from procreation would have such a profound impact. About 40% of pregnancies worldwide are unintended (Sedgh, Singh, and Hussain 2014).[41] It is a safe bet that some of these pregnancies were not an essential part of the parents' life plans if they were unintentional, although those who identified the pregnancy as merely mistimed may have elected to have a child at some point later.

Additionally, many people who do have children intentionally do not do so because it is an indispensable part of their life plans. Other factors, such as social pressures and expectations or the desire to continue one's family line, often play a role. Moreover, some decide to have children based on the belief that doing so will make them happier – a belief that is not consistent with the empirical evidence about the effects of having children. In fact, much of the social scientific research on happiness suggests that having children *decreases* happiness (e.g., Alesina, Di Tella, and MacCulloch 2004; Di Tella, MacCulloch, and Oswald 2003; Twenge, Campbell, and Foster 2003; Gilbert 2007, pp. 242-244; Powdthavee 2008; Hansen 2012; Deaton and Stone 2014; Margolis and Myrskylä 2015).[42] Having children, on average, appears to have an adverse effect on one's marital satisfaction, life satisfaction, and general reported happiness.[43] Having a child may increase the perceived meaningfulness of one's life even if it diminishes one's well-being (Baumeister et al. 2013), but the key point is that people who believe having children will, on the whole, make their lives better are often mistaken.

[41] In some countries, the rate is higher. In the United States, for example, 45-50% of pregnancies are unplanned (Finer and Zolna 2016).
[42] In this context, happiness typically refers to a person's subjective well-being.
[43] There is some variability depending on where one lives. In most industrialized countries, having children seems to have a pronounced negative effect on parents' well-being, but in others (e.g., Portugal, Hungary), the effect appears to be positive (Glass, Simon, and Andersson 2016).

This last observation strikes many as counterintuitive, but the empirical evidence is overwhelming. There are also plausible error theories for why we would hold these beliefs even if they are false. Those who hold them are obviously more likely to reproduce, and so there may be an evolutionary explanation for why this belief persists over time. Furthermore , social and cultural expectations give us plenty of reasons to endorse these beliefs, and because people must invest so much into raising children, coming to believe that doing so was not worth it would create overwhelming cognitive dissonance.[44] So parents have strong motivations to affirm the value of having children, even if it does not reflect what social scientific research suggests.

Nevertheless, we must recognize that having children is an extremely strong desire for many people. For those who genuinely view rearing biological children as a central aspect of their life plans and base this belief on a reasonable appraisal of the research on having children, I think it is unreasonable to demand that they remain childless, even if the money required to raise their children would do more good in the world if spent elsewhere.[45] But if we are being honest, not many people meet this condition. How many people think so carefully and reflectively about the likely effects of their having a first (or second or third) child? Some do, but many do not. So while some may be able to justify their procreative activities, many cannot, and so the upshot of Rachels' argument is that many people who reproduce are unjustified in doing so – independent of concerns about overpopulation.

What can we conclude about these contingent Antinatalist arguments? In broad terms, none of them are successful in establishing a sweeping prohibition on procreation. Nonetheless,

[44] Cognitive dissonance is a well-established psychological phenomenon in which the recognition of inconsistent beliefs or attitudes creates a feeling of discomfort. Typically, this discomfort motivates individuals to resolve the inconsistency. For the classic psychological studies on cognitive dissonance, see Festinger and Carlsmith (1959) and Festinger, Riecken, and Schachter (1964).

[45] Rieder (2015) makes a similar point in his discussion of the "gestational project" that women often view as a central life project (pp. 301-302).

they do demonstrate that some people, particularly those who do not view procreation as a vital part of their life plans and who have significant financial resources at their disposal, have powerful moral reasons to refrain from procreation and either adopt a child instead (if parenthood of some form *is* essential to their life plans) or use some of the time and money saved by not raising children to help others in need.

The Other End of the Spectrum

As one can gather from this survey, there are many philosophical arguments that can be offered to support some version of Antinatalism. I have argued that they are all unconvincing, at least insofar as they attempt to establish a near universal duty not to procreate. This conclusion might comfort people on the opposite end of the spectrum – those who believe that procreation is not only permissible but also a fundamental right that all people should be able to exercise freely. Given the widespread practice of procreating, positions in favor of procreative freedom are likely to be more popular than any version of Antinatalism. In this section, I briefly appraise Procreative Liberty – the view that all people have a right to procreate as much as they wish.

Those who hold Procreative Liberty usually regard the choice to procreate as a crucial and indispensable freedom. John Robertson (1994) captures this idea nicely, noting that the experience of procreation is often central people's individual identity, a source of meaningfulness, a comfort in the face of death, and an expression of a couple's love for each other (p. 24). Because of the importance of procreation to so many people, Robertson (1994) states that our ethical outlook should "recognize a presumption in favor of most personal reproductive choices" (p. 24). That presumption can easily be reflected in a right to reproduce. If such a right exists, then one might think that procreative choices are immune from moral

criticisms and that there exists a strong imperative not to impose any constraints on procreative behavior.

Let us assume for the sake of argument that the right to procreate really is a fundamental and essential right. Does it follow from this claim that all people are permitted to procreate as much as they wish? Surely, it does not. Having the right to do something does not entail that doing it is morally right. I have a right to speak freely, but I can nevertheless speak in ways that are morally wrong. I could make disparaging remarks about minorities or mock my colleagues in an effort to humiliate them. Doing so would (usually) be wrong, even if I have the right to say such things. I may have the right to view sexually explicit content, but it may be morally wrong to do so because such material often objectifies women and reinforces harmful views of sexual interactions and personal relationships. I may have the right to vote, but I can still act wrongly when I vote (e.g., if I vote in favor of immoral policies, if I make no effort to become informed about what I am voting for).[46] Having the right to procreate does not establish that one ought to procreate or that one's doing so is always morally permissible.

Additionally, it is implausible to think that the right to procreate is limitless in scope because no rights are limitless in scope. Everyone has the right to life, but we recognize that we may permissibly violate this right when, for instance, a person threatens the lives of innocent others. Everyone has a right to bodily autonomy, but we recognize that this right does not permit me to physically assault someone else. Rights are constrained when exercising them inflicts harm on other people or conflicts with the rights of those other people.[47] Procreation can clearly harm other people. As emphasized in the discussion of Antinatalism, procreating carries a risk of

[46] In his recent book on the ethics of voting, Brennan (2011) makes the same point (pp. 5-6).
[47] My exercising my right to control my body by assaulting another person would, in addition to causing them harm, violate the other person's right to personal security.

severe harm to the child who is born. Moreover, since people consume resources to survive and because some of this consumption is harmful to present and future people, creating more people can and (as I will argue in the next chapter) often does harm others. Both these considerations provide grounds for restricting procreation under various circumstances.

Conly (2016) also persuasively argues that our right to have a child can only be interpreted as granting us the right to have *one* child. Rights must correspond to fundamental interests that we have, and the fundamental interests that are fulfilled by procreating can be adequately fulfilled by having just one child.[48] If we have an interest in having a biological child, that interest can be fulfilled by having a single child. One child is enough to continue genetic lineage, after all. If we have an interest in having a family, that interest can be fulfilled by having a single child. Having a *large* family might require additional procreation, but the right to procreate does not entail having a right to "the family that fulfills one's dreams" (Conly 2016, p. 51). We do not have a right to a family with four children any more than we have a right to a child who will become a professional athlete. Additionally, the notion that a larger family is better than a smaller family is dubious, and the central goods associated with family life do not require the participation of several biological children.[49] The right to procreate could also track an interest in being regarded by others as equally worthy of reproducing, but equal standing can be achieved if the constraints are enforced on everyone equally – for instance, if everyone is allowed to have one child.[50]

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[48] In fact, some of these interests – such as becoming a parent – can be satisfied through adoption and so do not require procreating at all.
[49] Adoption also presents an option for increasing family size without procreating.
[50] In chapter 6, I will actually argue that the constraints imposed on procreation in response to population growth ought *not* be enforced equally due to considerations of fairness, but the point here is that there is nothing inherent in the concept of restricting procreation that runs afoul of our interest in having equal standing with others.

The right to procreate without restriction might also be derived from a broader right to bodily autonomy, but that strategy is even less promising than the strategies suggested above. The right to bodily autonomy only allows us to exercise this freedom when doing so does not harm others, and procreation can harm others – both the person born and others affected by that person's use of resources – under a wide variety of circumstances. Appealing to a right of bodily autonomy will therefore be insufficient to justify procreation in cases where it causes harm. We may recognize a right to procreate, but this right is certainly not unlimited in its scope, and it plausibly extends only to a right to have one biological child.

To counter this point, one might argue that procreative acts do not cause harm in the way relevant to limiting our rights. Consider Travis Rieder's (2016a) remarks in his review of Conly's *One Child*:

> Conly is of course correct that having a right to bodily autonomy doesn't mean that one can do whatever she likes with her body. Although I have a right to swing my arm, I do not have a right to swing my arm where your face is located. However, this sort of argument is problematic in the context of overpopulation… *my procreating doesn't harm anyone* through its contribution to overpopulation. Precisely as she notes, environmental problems like climate change make traditional moral reasoning hard, because they involve massively complex collective action, and it just doesn't seem true that my taking almost any single action harms anyone. In a population of 7.3 billion people, any number of people that I can add to the population makes *virtually no difference*—the resources consumed by my child, against the earth's available resources, are *infinitesimal* (pp. 30-31, original emphasis).

Rieder does not think that procreative acts cause harm in the way that would justify restricting a person's rights because one more child born has such a miniscule impact on the Earth in the

grand scheme of things. Conly does not offer a substantive response to this concern,[51] but there appear to be two strategies she could pursue to rebut this criticism.

First, she might deny Rieder's claims about harm. One way of calculating the harm caused by collective action is to determine one's individual contribution, determine the total collective harm caused, and then calculate the individual harm that one is responsible for by multiplying the portion of one's individual contribution (which will be some value between 0 and 1) by the total harm caused. So if some collective activity caused the deaths of 100 people, and my contribution to this activity was 1/100th of the total, then I would be responsible for the harm of 1 person dying. This strategy has been employed by some philosophers to assess harm in cases of collective action (e.g., Nolt 2011b), but not everyone agrees that harm should be understood in this manner when the individual actions are innocuous in isolation. Fortunately, Conly has an alternative strategy available.

One plausible constraint on fundamental rights is that the exercise of these rights cannot be incompatible with respecting the fundamental rights of other people. In other words, fundamental rights impose a type of constraint on other fundamental rights. In a very basic case, a person's right to personal security places a constraint on my right to bodily autonomy: except in unusual circumstances, I cannot assault another person. The case with population is more complicated, but the underlying principle is no different. The collective exercise of an unlimited right to procreate will cause the rights of others – both in the present and future – to be violated, and the rights violated will be among the most critical rights they have: the right to life, the right to health, and the right the means of subsistence (Caney 2010b). These are rights that must be

[51] She acknowledges that the picture of harm is more complicated in the case of climate change than more typical circumstances (Conly 2016, p. 93), but as Rieder (2016a, p. 31) says, she does not seem to properly appreciate the significance of this observation.

fulfilled just to ensure a person's physical survival; a right to procreate is important, but it is not *that* important, so these other rights should take priority over the right to procreate when they come into conflict. Thus, the right to procreate cannot be understood as a right to *unlimited* procreation: it is limited by the extent to which its collective exercise affects the ability of others to have their basic rights respected.

In the past, there was often no danger of undermining others' rights by procreating excessively: in fact, for the vast majority of human history, we needed to be rather prolific in our procreation just to ensure the continuation of our species. But our circumstances have changed, and so our limits on the right to procreate must change as well. Does this mean that our right to procreate should be understood as allowing us to have only one child under present conditions? Conly (2016) believes that it does (pp. 217-220). As I will discuss in chapter 6, I am not sure such an extreme position is justified. Nevertheless, I think it is clear that the only right that is *guaranteed* by a right to procreate is a right to have one child. Whether we have a right to have more children or not will vary depending on our circumstances.[52]

Where We Stand

In this chapter, I have examined two deeply opposing views on the ethics of procreation: Antinatalism and Procreative Liberty. While I have argued that neither position is correct, the swath of arguments that attempt to support Antinatalism reveal something significant about our procreative acts: they are much more morally problematic than people usually appreciate. There are powerful moral reasons that count *against* having children, and often people procreate without taking these reasons into account. In these cases, the decision to procreate will often lack

[52] For further discussion of the right to procreate, see Overall (2012, ch. 2) and Conly (2016, ch. 2-3).

moral justification, given the risk of harm to the child born and the arguments in favor of either adopting a child or remaining childless.

We are left with a fairly surprising conclusion: procreation is permissible but not nearly as often as most believe. The presumption in procreative decisions would seem to be that we ought *not* procreate and that doing so permissibly requires a careful examination of the effects of our procreation in comparison to the effects of other actions – namely remaining childless and pursuing adoption. This outlook runs counter to common beliefs that procreation is almost always permissible and something that should typically be praised, but it also reflects the conclusion that many recent authors have reached on the subject (e.g., Overall 2012, Wasserman 2015, Weinberg 2016). The practice of human reproduction is fraught with moral peril, and as a result, we must conclude that ordinary moral beliefs about the ethics of procreation are deeply mistaken.

As I argued in the prior section, one of the major constraints on the right to procreate originates from the harms that procreation can cause. Thus, to understand exactly what constraints on procreation might be justified, we must consider just how significant the harms caused by population growth really are. That is the topic of the next chapter.

CHAPTER 4: HOW BAD IS THE POPULATION PROBLEM?

We have nearly seven and a half billion people on Earth, and that number keeps rising. To determine the moral significance of this fact, we have to assess its effects. Population growth is not necessarily a problem in isolation: it is not as if one additional person on the planet automatically means that someone else in the world must live a worse life. The real significance of population growth lies in its status as a multiplier of other bad things (Ryerson 2010). A growing population exacerbates many problems we are already struggling to deal with. To determine just how significant the population problem is, we have to examine the problems to which population growth contributes. This chapter is a survey of those problems, although I emphasize climate change and biodiversity loss more than the others.

Nevertheless, before focusing on these specific threats, we should begin with some general observations. The Earth has finite resources: there is only so much water, so much farmable land, and so much physical space that we can inhabit. Technological advancement may improve our ability to use these resources more efficiently, but there is nevertheless a limit on how far they can be stretched. Some have suggested that the long-term limit for the global population at a sustainable level is about two billion (Pimentel et al. 2010), which would suggest that the global population is already well beyond its sustainable carrying capacity. Such an estimate is unlikely to be accurate, however, because too many variables can alter what the Earth's carrying capacity. Technological improvements, especially in agriculture, may increase the Earth's carrying capacity while strains on available resources, such as soil erosion (Pimentel 2006) or overfishing (UN Food and Agricultural Organization 2016), decrease it. Perhaps this explains why Joel Cohen (1995) never concretely answers the titular question of his *How Many*

People Can the Earth Support? While the Earth's carrying capacity is finite, it is also constantly shifting. There is no precise, immutable number of people that the Earth can support.

Even without a firm carrying capacity, it is still easy to identify ways in which humanity is currently pushing ecological limits. While we are still currently able to produce enough food globally to feed everyone (if this food were distributed more equitably), a recent estimate from the UN Food and Agriculture Organization (2006) suggests that the necessary supply of food will increase dramatically – by up to 70% by 2050.[1] Additionally, under our current circumstances, it is foolish to imagine a world with an ideal distribution of food: the regional differences in population size and farmable land, especially when combined with national differences in political and economic circumstances, render an equitable distribution of food an impractical fantasy. There are almost 800 million people in the world who are undernourished (UN Food and Agricultural Organization 2015), and a population increase will only make it more difficult to provide the food that they need.

Water shortages are another serious concern. Groundwater plays a crucial role in irrigating crops, providing water to those who need it, and maintaining the health of local ecosystems (Giordano 2009, Siebert et al. 2010). Groundwater is a renewable resource, but it can still be depleted when our rate of consumption exceeds the rate at which it replenishes. Our current practices are depleting groundwater at 3.5 times the sustainable rate, leaving 1.7 billion people living in areas where their groundwater resources or the ecosystems that depend on groundwater (or both) are threatened (Gleeson et al. 2012). A greater population will make this overconsumption of groundwater even more difficult to reverse.

[1] A recent update to this report offered little change in these estimates, although the authors do express a bit more pessimism in the ability to meet the global demand for food in the future, citing an increased population projection for developing countries as a significant reason why (Alexandratos and Bruinsma 2016, p. 37).

Shortage of resources often leads to conflicts between or within nations, and we know all too well that this can result in war. Water shortage played a crucial role in triggering the recent civil war in Syria (Gleick 2014). A lack of available land and inequity in land distribution contributed significantly to the civil war that began in Rwanda in 1994 (André and Platteau 1998). As population grows, we can expect conflicts of this sort to arise more frequently.[2]

These general concerns may well be enough to make us mindful of our growing population, but the biggest problems to which population growth contributes are climate change and biodiversity loss. Each of those problems warrants a more thorough description.

Climate Change

The changes in global climate that are occurring in the 21st century are largely the result of people emitting greenhouse gases (GHGs) like carbon dioxide, methane, ozone, and nitrous oxide. These gases absorb infrared radiation from sunlight, thereby trapping it in the atmosphere for a period of time. During the last two centuries, increased emissions of GHGs have caused the average global temperature to rise significantly. Average global surface temperature increased from 1880-2012 by about 0.85°C (IPCC 2014b, p. 2).[3] That may not sound like a significant increase, but the average global temperature during the most recent ice age was only 5°C lower that the average global preindustrial temperature. Relatively small changes in global temperature can have enormous impacts.

The majority of the increase in global average temperature is a result of our emissions of carbon dioxide into the atmosphere. Pre-industrial levels of carbon dioxide were about 275 parts

[2] Beyond the broad effects surveyed here, it is worth noting that some of the adverse effects of population growth are more localized. For example, increasing population often leads to overcrowding in urban areas, which can have a variety of negative effects on human health (Gray 2001).

[3] Specifically, there is a 90% likelihood of the average warming having a value of between 0.65 and 1.06 °C with 0.85°C being the most likely value.

per million (ppm) by volume in the atmosphere. We have now surpassed 400 ppm of carbon dioxide in the atmosphere (Kahn 2016).[4] The effects of climate change on other human beings are significant and widespread. I will highlight some of the major effects, all of which are summarized in recent reports from the IPCC (2014a, 2014b).

Perhaps the most powerful way to understand the harm of climate change is to consider the number of deaths it will cause. One study from the World Health Organization (2005) concludes that climate change may have been responsible for at least 150,000 deaths in 2003. One of their later reports (World Health Organization 2009) reaches a similar conclusion: by 2004, the annual global death toll from climate change had reached 140,000 people. Figures from the Global Humanitarian Forum (2009) suggest that these estimates are too low: their research estimates that 300,000 people die from climate change annually with the majority of those deaths occurring in developing nations. More recent estimates are even bleaker. DARA (2012) suggests that the annual death toll from climate change is about 400,000. Their research, like the study conducted by the Global Humanitarian Forum, indicates that most of those deaths take place (and will continue to take place) in developing nations. They also project that the annual death toll from climate change could reach 700,000 by 2030.[5] An even more recent study estimates 529,000 annual deaths being caused by climate change due to its effects on agriculture and food security (Springmann et al. 2016).

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[4] Current levels of CO_2, gathered by the National Oceanic and Atmospheric Administration, are accessible through NASA's website at https://climate.nasa.gov/vital-signs/carbon-dioxide/.

[5] The World Health Organization (2014) estimates 250,000 annual deaths in 2030-2050 from climate change, but their estimate is not comprehensive because it does not account for certain "major pathways of potential health impact, such as the effects of economic damage, major heatwave events, river flooding and water scarcity" (p. 1). An additional survey on the effects of climate change on human health can be found in Kim, Kabir, and Jahan (2014).

Obviously, the particular numbers of these annual death tolls vary, but two facts are clear. First, on any plausible estimate, hundreds of thousands of people are already dying annually from climate change. Second, the number of annual deaths from climate change will almost surely increase as the effects of climate change become more severe. Even without increasing the rates of climate-change related deaths, there will still be tens of millions of deaths caused by climate change this century, a point highlighted by John Broome (2012, p. 33).

Another crucial feature of climate change is its long-lasting nature. The temperature increase resulting from climate change will, unless we perform extraordinary feats of geoengineering, persist for tens of thousands of years, if not longer (Archer et al. 2009). Zeebe (2013) reaches a similar, though more specific, estimate: according to his models, changes to surface temperatures will persist for 23,000 to 165,000 years. If we tie this observation with the estimate death tolls caused by climate change each year, we immediately reach a stark conclusion: climate change may lead to *billions* of deaths over the next millennium, depending on its severity and the extent to which we are able to adapt.[6]

We also cannot overlook the fact that many affected by climate change will not die but will nevertheless suffer significantly. Climate change will increase the prevalence of severe weather events, such as droughts, heatwaves, and hurricanes. Increased surface temperatures will make agriculture more difficult in certain parts of the world, and ocean acidification will reduce the food productivity of the oceans (IAP 2009). Temperature increases will alter and expand the range in which many insects can survive, causing more people to become vulnerable to various diseases they carry. These effects can cause death, of course, but more often they result in

[6] Suppose that the average annual deaths caused by climate change for the next 1000 years is 200,000 – a relatively low estimate given the studies I have cited. This would still translate to 2 billion deaths (1000 × 200,000) caused by climate change over the next millennium.

suffering. People survive but have their quality of life reduced, often severely – at least in the case of dehydration, malnourishment, and sickness. Although it is difficult to estimate the number of people who will suffer significantly (but not fatally) from climate change with precision, the widespread distribution of its effects and their severity indicate that these numbers are massive – in all likelihood at least comparable to the number of annual deaths caused by climate change.

Additionally, military leaders are also concerned about climate change threatening national security by creating mass migrations (Carrington 2016). Droughts and other resource shortages caused by heat waves and other severe weather events may destabilize regions and lead to war. Sea level rise will displace millions of people around the world as island nations disappear into the ocean and coastlines creep further inland.[7] The result is that millions of people will be displaced, many of whom will seek relocation to other countries. In this manner, climate change may cause a refugee crisis that is unprecedented in scope and magnitude.

Finally, climate change increases the rate of species extinctions (Thomas et al. 2004). As ocean and surface temperatures increase, species often become unable to survive in the niches that they inhabit. They migrate toward the poles or to higher elevations when possible, but many species are simply unable to adapt to their rapidly changing environments and go extinct. Of course, species extinctions occur from more than just climate change, and their decline is so significant that the topic warrants its own separate treatment.

[7] Some of these effects have already been observed. Five of the Solomon Islands vanished beneath the sea between 1947 and 2014, and six other islands in this area are experiencing severe shoreline recession (Albert et al. 2016). We have also begun seeing cities along the U.S. coastline flood as a result of climate change (Gillis 2016).

Biodiversity Loss

As I use the term, "biodiversity" refers to global species diversity. Thus, biodiversity loss refers to decrease in global species diversity caused by human action. Human-caused biodiversity loss has been occurring for some time, and climate change is not its only cause (Barnosky et al. 2011). But while we can say conclusively that biodiversity is in decline, it is challenging to determine just how steep the decline is (Wilson 2016, ch. 3). The main difficulty lies in determining what the pre-human rate of extinction is – that is, the rate at which species would go extinct if not for the impact of human beings. Without an accurate estimate of that rate, we cannot know how much our actions are increasing the rate at which extinctions would ordinarily occur. Obtaining accurate numbers on how many species exist and how many are being lost is similarly difficult. New species are discovered each year, and many extinctions likely go unnoticed because the species that go extinct are unknown to us. Even so, the estimates we have are truly disheartening. Excluding bacteria, there are an estimated 8.7 million species on Earth (Mora et al. 2011). While conservation biologists previously estimated the pre-human extinction rate at about 1 species per million per year, recent studies suggest that this figure is actually about 0.1 species per million per year (Pimm et al. 2014, De Vos et al. 2015). That means that the current estimate rate of species extinctions – roughly 100 per million per year – is an astonishing 1000 times the rate at which extinctions would occur without the impact of human actions!

The main contributors to biodiversity loss are captured in the acronym HIPPO (Wilson 2016, pp. 57-58): habitat destruction, invasive species, pollution, population growth, and overhunting (including overfishing). While population growth is listed as its own factor, it also contributes to all of the other items of this list. More people means a greater need for space and

resources, and this often leads to habitat destruction when land is cleared for housing or farming. More people means a greater need for food, which can cause regional overfishing as demand for fish increases. More people means more traveling and a greater need to transport goods across borders. Non-native species often get transported to new environments unintentionally, and sometimes, they can eliminate native species by overtaking their ecological niche.[8]

Naturally, the rapid loss of biodiversity has a lot of conservation biologists concerned. Biodiversity loss affects human beings in many ways. Perhaps most significantly, human beings are affected by reductions in biodiversity by being deprived of the ecosystem services that biodiversity enables. Ecosystem services refer to the "properties of ecosystems that either directly or indirectly benefit human endeavors, such as maintaining hydrologic cycles, regulating climate, cleansing air and water, maintaining atmospheric composition, pollination, soil genesis, and storing and cycling of nutrients" (Hooper et al. 2005, p. 7). These services would be costly to provide by alternative means (assuming that it was even feasible to do so), and these services provide the basic conditions necessary for human beings to survive. The loss of them would not be a trivial matter.

Biodiversity is also a source of much joy for people, whether it stems from aesthetic appreciation of exotic species (such as the peacock) or curious fascination with the most bizarre ones (such as the blob fish). Alan Carter (2010) even argues that the best reason to preserve biodiversity is rooted in aesthetics and that the loss of a species to the loss of an entire genre of music or film (pp. 73-75).[9] Certainly, there are many species that can be considered beautiful,

[8] Further details on the ways in which overpopulation contributes to biodiversity loss can be found in Foreman (2014, ch. 4).
[9] Darrel Moellendorf (2014) also argues that a central aspect of biodiversity's value for people is its aesthetic value (ch. 2).

such as the majestic bald eagle or the graceful antelope, but even species that strike us as outright hideous, such as the Amazonian giant centipede, can have robust aesthetic value. After all, well-made horror films have aesthetic value even if their tone, imagery, and subject matter are far from beautiful. Aesthetic value is not limited to beauty alone.

Biodiversity is also a bountiful source of knowledge. E. O. Wilson (1992) describes biodiversity as "The Great Encyclopedia of Life" – a relatively untapped font of knowledge that "would occupy 60 meters of library shelf per million species" even if each species occupied only a page in the volume (p. 151). Our scientific understanding of the nonhuman world is vastly incomplete, and the ability to study other life forms can offer crucial insights into how nonhuman life forms interact. Beyond fulfilling the scientific interests of many people, these discoveries can also give us insight into ways in which we might improve the welfare of human beings. For example, biodiversity provides a source biologically active compounds that can aid the development of medicines crucial for promoting human health (Butkus 2015).

Many further reasons for valuing biodiversity could be offered.[10] Nevertheless, not everyone really believes that biodiversity loss is important or that its loss is particularly bad. Don Maier (2012) offers a robust critique of the value of biodiversity in which he surveys 12 different reasons that one might value biodiversity and argues that none any of them can sufficiently ground biodiversity's value. His strategy is to propose a particular reason as the core of biodiversity's value and then raise counterexamples to this proposal. In the case of ecosystem services, for instance, Maier (2012) notes that the discussion of these services often omits

[10] For example, biodiversity may have value because of its ability to transform our values and alter our preferences (Norton 1987, Sarkar 2005) or because of its maintenance is necessary to secure future people's autonomy (Zwarthoed 2016). Additionally, Rolston (1988, ch. 1) lists fourteen different reasons for why human beings typically value nature, many of which can apply to why we should value biodiversity.

discussion of ecosystem disservices (p. 167) and proceeds to list many examples of ways in which the services that biodiversity provides are not always so beneficial. When discussing the claim that biodiversity is a source of valuable medicines and pharmaceuticals, Maier (2012) is quick to mention that only a small portion of all the existing species actually provide this benefit (pp. 196-206) and that biodiversity can often *increase* the incidence of disease (pp. 207-220). Once he finishes surveying one of these purported reasons to value biodiversity, he concludes that it cannot be the core of biodiversity's value and moves onto the next proposal. Once he has exhausted all possible proposals, he concludes that biodiversity must not be particularly valuable.

Defenders of biodiversity's value could respond to Maier in several ways. They may point out that Maier does not address nearly all the reasons on offer for thinking biodiversity is valuable. In other places, they may simply deny the plausibility of his arguments. For example, his reasons for thinking that biodiversity's value cannot be primarily epistemic is that there would be much to learn "from a vastly changed biological world that contained a significantly different set of species with significantly different population sizes (abundances)" and that "the very processes involved in bringing about such an altered world…would be a rich source of knowledge that could not be tapped except by observing them unfold" (Maier 2012, p. 235). Certainly, there might be some knowledge to gain from such events, but it is difficult to believe that this knowledge would actually be comparable to what we can learn by studying the vast array of different species around the world, especially since so many of them have yet to even be discovered. It is also doubtful that the knowledge obtained by facilitating a mass extinction would be as instrumentally valuable as greater knowledge of currently existing species. Studying currently extant species could yield new insight into ways that these species contribute (or could contribute) to human flourishing. Studying their demise might give us similar insight, but then

the species would be gone and unable to make those contributions: the instrumental value of this knowledge would be greatly diminished or lost entirely.

I cannot here survey every argument that Maier makes, but I will highlight a flaw that undermines his general argumentative strategy. The central problem is that Maier's overall argument is invalid. He assumes that because none of the individual reasons he considers can be the core of biodiversity's value, it is not valuable. But that does not follow. Suppose we ask the question, "What makes love valuable?" We might answer initially that love makes people happy, and this claim is often true: many people report being their happiest when they are deeply in love. But love can also be a source of great sorrow when our loved one suffers, dies, or leaves us. Thus, the core value of love cannot just be that it makes us happier. Perhaps we think love is a means of cultivating virtues like sympathy, empathy, and kindness. Certainly, it is not hard to see why loving someone will acquaint a person with these virtues, and yet, love can also serve as motivation for many despicable deeds when concern for one's beloved trumps other moral considerations. Thus, the core of love's value cannot be in the cultivation of moral virtue. Perhaps the phenomenon of loving someone is unique and provides special epistemic insights into human nature. There is little doubt that deeply loving someone profoundly changes one's outlook on the world, but simultaneously, we pursue love even after we have experienced it many times. There is also much we can learn from the loss of love. The unique knowledge that love often provides cannot be the core of its value.

We could repeat this process with love many more times without identifying any central reason why love is valuable. But does it follow from this observation that love has *no* value? Surely it does not: aside from the most nihilistic, we all agree that love is valuable. What this exercise shows is that love has many sources of value and that what makes it valuable in a

particular context can vary. An analogous explanation of biodiversity's value is consistent with accepting all Maier's criticisms of particular reasons that biodiversity is valuable.

Not all valuable things in the world have a single source of all their value. Beyond love, we might add items like friendship, beauty, moral virtue, wilderness, and sex. The value of biodiversity can be understood in the same way. Certainly, in some particular cases, its value will not originate in ecosystem services or its means for creating new medicines. Some species may not ultimately prove to be treasure troves of knowledge or to add great aesthetic value to the world. But how often is it going to be the case that *none* of the many reasons for thinking that biodiversity is valuable will apply? How frequently could we run through every single item on the list and check them all as being inapplicable? Much as love rarely fails to add something of great value to our lives, biodiversity rarely fails to contribute something of great value to the world. Thus, Maier's skepticism about the value of biodiversity is unwarranted.

For our purposes, we should also highlight one of the most significant reasons that people should care about biodiversity: its elimination can lead to ecosystem collapse. Maier may be skeptical about the relationship between biodiversity and the maintenance of ecosystem services, but robust meta-analyses demonstrate a general consensus that biodiversity correlates positively with ecosystem functioning (Balvanera et al. 2006, Cardinale et al. 2012). What this means is that greater biodiversity is generally associated with greater ecosystem functioning and lower biodiversity is generally associated with poorer ecosystem functioning. The relations between species and the role that each plays in maintaining ecosystem functioning will vary significantly across different ecosystems, but a substantial decrease in the number of species in an ecosystem is very likely to have an adverse effect on ecosystem functioning. We are on pace to eliminate between one-quarter and two-thirds of all currently existing species (Myers 1993, Myers and

Knoll 2001), and there is mounting evidence that we have initiated the world's sixth mass extinction event (Ceballos et al. 2015).

Since the loss of species will be so substantial, it is reasonable to be worried about the destruction of ecosystems and the elimination of the ecosystem services that they provide. This is one of the main reasons why E. O. Wilson (2016) states, "The ongoing mass extinction of species, and with it the extinction of genes and ecosystems, ranks with pandemics, world war, and climate change as among the deadliest threats that humanity has imposed on itself" (Wilson 2016, p. 187). The perceived gravity of the problem is why Wilson advocates setting aside half the Earth for the preservation of wildlife: an extreme problem sometimes calls for an extreme solution. Paul Watson (2012), comparing Earth to a spaceship, describes the problem as follows:

> Biodiversity destruction is the single greatest threat to human survival on this planet because it weakens and removes our custodians, the species that make it possible for us to be the passengers. What we are in effect doing is eroding the immune system of the planet, compromising the functioning of Earth's life-support system. We have become like a deadly autoimmune disease to Earth, killing the essential crewmembers as we overload our spaceship with human passengers. (p. 132)

If biodiversity loss continues at its current rates, the impact on humanity could be quite deadly.

Wilson and Watson's grave language may strike some as hyperbolic. Given humanity's resourcefulness and our prevalence across the globe, it seems doubtful that biodiversity loss could lead to our own extinction. What is more likely is that massive biodiversity loss will manifest in a variety of less extreme effects: economic costs from ecosystem services that disappear, a reduction in the availability of pharmaceuticals, greater difficulties providing vital resources in certain regions, the permanent loss of the knowledge and beauty associated with particular species, and so on. In more practical terms, these effects will not lead to our extinction but to people living in a bleaker world – one where resources are scarcer and our numbers are higher. Some will die as a result, and many more will suffer. These impacts are significant

enough to demand our attention even if the long-term continuation of our species is not in jeopardy.

What the Evidence Suggests

Human beings are approaching the limits of what the planet can sustain. We face the prospect of regional food and water shortages, significant threats to human health, widespread and rapid species extinctions, the displacement of hundreds of millions of people, and a drastic rise in the risk of war. These developing problems and possibility that they could soon get worse make the future look grim, even on the limited survey that I have done here.[11] At the time of writing, the Science and Security Board of the *Bulletin of the Atomic Scientists* (2017) have placed the Doomsday Clock at two and half minutes to midnight, citing climate change as one of the two major perils that place us on the precipice of global catastrophe.[12] If we are being honest in our evaluation of the evidence, there is no doubt that swift and substantial action is needed to avoid significant long-term environmental harms. Does this require us to stabilize and reduce global population? In the next chapter, I argue that the answer is yes.

[11] For a much more thorough survey of the effects of population growth, see Weisman (2013).
[12] The other peril is the potential use of nuclear weapons.

CHAPTER 5: INTERGENERATIONAL EQUITY AND POPULATION GROWTH

The takeaway from the previous chapter is simple: we face an assortment of environmental problems that threaten to harm hundreds of millions of people this century and potentially far more in the centuries that follow. While population growth is not the sole cause of the problems we have been considering, it is a central contributing factor (sometimes the primary contributing factor) to all of them. In this chapter, I argue that we have a collective duty first to stabilize global population and then to reduce it. I will discuss the policy implications of this general duty in chapter 6.

My overall argument is composed of several smaller arguments, each of which is defended in its own section, but before delving into the details, it is worth presenting the outline of the argument in its entirety:

1. We have obligations to avoid causing unnecessary massive harms to presently existing people.
2. Our obligations of non-harm are just as stringent toward future people as they are toward present people.
3. Therefore, we have obligations to avoid causing massive unnecessary harms to future people. [1, 2]
4. If we do not dramatically reduce our current levels of environmental degradation, then we will cause massive unnecessary harms to future people.
5. Therefore, we have obligations to dramatically reduce our current levels of environmental degradation. [3, 4]

6. Anthropogenic environmental degradation is the product of population and the average rate of environmental degradation per person.
7. Therefore, we have a collective obligation to either reduce our population, reduce the average rate of environmental degradation per person, or do both of these. [5, 6]
8. We cannot permissibly reduce population quickly enough to solve the problem at our current rates of environmental degradation per person.
9. We cannot feasibly reduce the average rate of environmental degradation per person sufficiently to solve the problem given the current size of the world's population.
10. Therefore, we have obligations both to reduce our rates of environmental degradation per person and to reduce our current population. [7, 8, 9]
11. We have a duty to reduce our current population. [10]

The argument is valid, so if each premise is true, then the conclusion must follow. In the remainder of this chapter, I walk through the many steps in the argument and defend each premise. I will devote the most time to defending claims (2) and (9) because I suspect these premises will meet the most resistance.

Equity of Non-Harm

The starting point for my argument is the claim that we have moral obligations to avoid causing massive harms to presently existing people. "Massive harms" refer to death and the various forms of significant suffering (e.g., debilitating illness, physical injury, psychological distress, starvation), so this obligation essentially amounts to a duty not to kill, maim, injure, imprison, or otherwise severely harm others without a very strong justification for doing so. This moral duty is fundamental to all plausible ethical theories: there is no viable moral code that

permits causing unnecessary suffering to other people. Rejecting this principle would seem to require being a skeptic about all of morality.

The second premise, however, is not so straightforwardly supported. I refer to this claim as *Equity of Non-Harm*: *o*ur obligations of non-harm are just as stringent toward future people as they are toward present people. One may recoil from this principle immediately, highlighting the fact that present people exist while future people do not. Present people are already here, and we do not know whether future people will come to be. That seems like a noteworthy difference that could make our duties of non-harm stronger with respect to present people. Some may have this reaction because of confusion about what we mean by a "future person." Recall (from chapter 3) that a "future person" is someone who *will* exist later even though they do not at present; a merely possible person, in contrast, is someone who *could* exist but never actually does. There are clearly morally significant differences between a present person and a merely possible person: one has interests and experiences; the other does not (and never will). But this difference does not manifest between present and future people: both have interests and experiences.

Others who object to *Equity of Harm* might endorse contract theories of ethics. These theories ground moral principles in "mutually agreeable reciprocity of cooperation between individuals" (Darwall 2002, p. 1). According to some of these theories, we cannot have obligations toward future people. These theories base moral obligations on agreement among people, and since future people do not yet exist, we cannot interact with them in the ways necessary to form fair and reciprocal agreements with them. Thus, we cannot have any obligations to those who do not yet exist.

The difficulties with making contract theories extend to future generations have been well documented (Gardiner 2009). Insofar as contract theories can only explain moral obligations

between contemporaries, this fact only shows that such theories are unsuitable for addressing intergenerational moral questions. If proponents of this view really hold that we have no obligations to those that do not yet exist, they will not be able to explain even some of the most basic moral convictions that we have about procreation. For example, if we cannot have obligations to future people, how can parents have an obligation to refrain from conceiving a child whose life will very likely be dreadful (e.g., because of genetic illness)? They will also not be able to explain why anything is wrong with harming people in the distant future – even when the harms are incredibly severe. There are several reasons to think that our duties of non-harm do not vary so drastically between present and future people.

First, consider a family of similar philosophical thought experiments involving morally wrong actions whose consequences are delayed to affect people who do not yet exist. To illustrate the kinds of cases that I have in mind, imagine that a despicable terrorist named Alec plants a time bomb beneath an elementary school with the intention of causing harm to its students. Suppose it blows up in one year, killing 10 students. Such an action is surely wrong – among the worst acts a person could commit. Now imagine the same scenario with one change: the bomb has a longer timer. In this scenario, it detonates 15 years after Alec places it but causes the same overall effects: 10 students die in the explosion. Does it make any difference that the children who were harmed did not exist when Alec first placed the bomb? Is Alec's action somehow less wrong and less heinous? Assuming that Alec had good reason to think the school would still exist 15 years after planting the bomb, this detail does not seem to matter: 10 deaths 15 years from now are just as morally bad as 10 deaths that occur right now.[1]

[1] I have used similar cases in previous work to illustrate the same point. See Hedberg (2013, pp. 29-31).

Second, consider the moral significance of spatial distance. The fact that a person lives in a particular location does not affect her moral status. Geographical location has no bearing on the moral value of human beings, the rights they have, or the extent to which their rights and welfare should be respected by others. If geographical location makes so little difference to what we owe others, then why would temporal location make a greater difference? My geographical location is a morally arbitrary factor about me – in large part determined by factors beyond my control – that says nothing about my character or my moral and intellectual capacities. We do not typically think that such morally arbitrary factors are a justification for regarding others as less than our moral equals. The same reasoning applies to temporal location. The time that a person lives is a morally arbitrary factor (completely outside one's own control) that says nothing about the person's character or moral and intellectual capacities. So just as my living in the United States does not in itself make my life more valuable or more worthy of moral protections than the life of someone who lives in Bangladesh, my living in 2017 does not in itself make my life more valuable than the life of someone who lives in a different time, whether they lived in 1917 or will live in 2117. Just as a person has the same moral status regardless of *where* they live, they have the same status regardless of *when* they live. Thus, whatever duties of non-harm we have to those living now should apply to those who will live in the future.

At this juncture, one might object that geographical distance actually does matter to what we owe other people because it affects our relationships with them. Typically, we hold that our special relationships with our families and members of our local communities create obligations that we do not have to distant strangers. In the same manner, our temporal distance from future people seems to restrict our relationship with them since we are unable to have any kind of

reciprocal interaction. Perhaps this difference could explain why our duties not to harm future people are not as strong as our duties not to harm present people.

While it is true that we generally have stronger duties to those who are geographically nearer to us, this fact does not result from geographical distance as such. What matters in such cases are the *relationships* that we form with others. After all, we can have special duties to friends or family members who are geographically distant from us, and advances in transportation and communication have made these relationships relatively common. The real question then is this: is the relationship that we have with future people sufficiently different from our relationship with present people to justify our having less stringent duties of non-harm? The answer to this question is no.

It is true that we have special duties to the small portion presently existing people with whom we form strong interpersonal relationships, but we also have moral duties that extend to *all* people, including those we have never met and never will meet. These include duties not to steal their property, physically assault them, jeopardize their welfare, or otherwise cause them harm. These obligations cannot plausibly be grounded in any relationship we form with all these people. The notion that we form a relationship with all presently existing people – even a very loose one – is dubious. We form morally significant relationships with only a very small portion of those who presently exist.

To the extent that special relationships affect our moral duties, they are usually taken to only affect our duties of assistance. I may well have duties to assist my friends and family (e.g., doing favors for them, helping them in emergencies, providing financial assistance to my children) that I do not have to strangers. But our duties not to harm or wrong others are usually taken to apply to everyone – strangers and close acquaintances alike. Just as it is wrong from me

to assault one of my close friends (except in unusual circumstances), it is wrong for me to assault a stranger. I should avoid harming other people regardless of my relationship with them. *Equity of Non-Harm*, as the name implies, only applies to duties not to harm others, so its stringency is not affected by whether or not we have personal relationships with others.

A third consideration that supports *Equity of Non-Harm* originates from the general trend in ethics to ground moral status in the capacities that a person or animal possesses. Many theorists in animal ethics have approached what we owe to nonhuman animals as dependent upon the animals' morally relevant capacities (Singer 2002; Regan 1983; Nussbaum 2006, ch. 6; DeGrazia 1996; Midgley 1983; Sapontzis 1987). The authors that use this approach attempt to establish our moral duties to animals by first identifying what features of human beings ground their robust moral status and then determining the extent to which certain animals possess these capacities. Underlying these approaches is a straightforward assumption about the moral status of human beings: a person's moral status is determined by certain morally relevant capacities. Philosophers do not all agree about what capacities are important, but this list often includes the capacity to feel pleasure and pain, to exercise autonomy, to make rational decisions, to understand oneself as an entity that continues to exist through time, to engage in linguistic communication, and to establish meaningful relationships with others.

According to these capacity-oriented accounts of moral status, if it is wrong to harm people who have certain morally relevant capacities, then it is also wrong to harm animals that possess the same morally relevant capacities. So if future people have the same morally relevant capacities as present people, and it is wrong to harm present people, then it will likewise be wrong to harm future people. Will future people have the same morally relevant capacities that we do? If we are speculating about the characteristics of human beings who might exist in a

million years, then it might be reasonable to think that such people would be significantly different from us. But on the shorter time scales in which we are considering our intergenerational moral duties, there can be no doubt that future people will be like us in all the morally relevant ways. They will have the same general psychological and biological characteristics that we possess. We have no reason to believe, for instance, that those living in 2100 will have lost the ability to reason or will have become unable to experience pleasure and pain. Since future people – at least those who will exist during the next several centuries – will have the same morally relevant capacities as present people, our duties not to harm future people are just as strong as those we have not to harm presently existing people.

These three threads of argument provide compelling support for *Equity of Non-Harm*, but economists might nonetheless be reluctant to accept it. Most economists employ a social discount rate to assess the value of future benefits and losses in comparison to benefits and losses that occur in the present. As Derek Parfit (1987) summarizes, "According to a Social Discount Rate, the present moral importance of future events, especially benefits and losses, declines at a rate of *n* percent per year" (p. 480). If a discount rate is used, then losses that occur in the future are not as morally significant as those that occur in the present, which means that preventing harm in the present should take priority over preventing harm in the future.

The social discount rate has already been criticized on various grounds (Parfit 1987, pp. 480-486; Kelleher 2012). The mere passage of time does not indicate that the moral significance of an event decreases. Often, the justification for a social discount rate reveals that the passage of time as such is not the real reason for discounting. For instance, some justify the social discount rate on the basis of distant future events having a lower probability of occurring than events that will occur in the immediate future. Granting this claim about the relative probability of events,

however, does not entail that future benefits and losses are *less valuable* than they are in the present; instead, what this would demonstrate is that it is harder to predict benefits and losses the further into the future they are projected to occur. These benefits and losses would still be just as morally significant in the future as they are in the present, if they were to occur. Harms that occur to future people are not less significant *just because* they take place in the future. Moreover, with respect to the environmental harms under discussion, we have compelling evidence that these harms will take place: the probability of their occurrence is overwhelmingly likely if our current activities do not change.

Recently, however, Duncan Purves (2016) has offered a creative defense of the social discount rate. Purves appeals to a line of reasoning related to the non-identity problem. Recall from chapter 2 that many of our present actions will determine the identities of future people. Policy changes that reduce our long-term environmental impacts would cause different people to meet and form relationships and for people to procreate at different times in their lives. As a result, if we do not adopt these policies, and some future people are adversely affected by climate change, biodiversity loss, and other environmental impacts, it is not the case that they would be worse off than they otherwise would have been. After all, if we had adopted the policies needed to reduce the impacts of environmental degradation, these people would never have been born at all. I argued in chapter 2 that it still makes sense to claim that these future people have been harmed because the counterfactual comparison notion of harm (CCH) is false.[2] According to this notion of harm, a person is harmed if and only if she is made worse off by some action than she otherwise would have been.

[2] It may be a sufficient condition for harm, but it is clearly not a necessary one.

Purves' argument draws on CCH but does not rely on it being a true and comprehensive account of what actions qualify as harms (although he often speaks as if CCH is correct). Instead, his central claim is that counterfactual-comparative harms are morally worse than (merely) non-counterfactual comparative harms:

> It is important here to acknowledge that some theories of harm imply that we can harm people in a non-counterfactual comparative sense, even when counterfactual comparative harm is absent. But, a proponent of these theories should acknowledge that an action is morally worse if, in addition to being harmful in the way specified by the theory, it is also harmful in a counterfactual comparative sense. (Purves 2016, p. 218)

To illustrate this point, Purves evaluates Hanser's (2008) event-based account of harm, according to which people are harmed when they are deprived of basic goods. Purves (2016) thinks that accounts like Hanser's – that is, accounts that do not invoke CCH – will be unable to explain the intuitive verdict about this case:

> **Burning Building** George sees two of his neighbors trapped in a burning building. Jane, one of the people trapped in the building, has a fatal heart condition such that if she is not killed by the fire, she will die from her heart conditions moments later. Elroy, the other people [sic] trapped in the building, has no such heart condition. If he is not killed by the fire, he will enjoy many more good years of life. (p. 217)

According to Purves, if George has full information about each of these people, he ought to save Elroy, and the reason he ought to save Elroy is that Elroy would suffer a greater harm by dying in the fire than Jane would. Elroy would be deprived of many good years of life if he died in the fire whereas Jane would be deprived of only a short bit more life. But on Hanser's account, both Elroy and Jane are harmed to the same degree by dying in the fire because they would lose all their basic goods. That verdict is problematic, according to Purves (2016): "clearly the harm to Elroy is greater, and it would be morally worse" (p.219).

We can (and should) grant Purves' claim that we should save Elroy in the Burning Building case, and this case illustrates well enough why CCH is "something we should care about" (Purves 2016, p. 217). If we do not save Elroy, then he will be deprived of life he

otherwise could live whereas Jane is not similarly deprived of life if she is not saved. Thus, there are circumstances where CCH matters to our moral evaluations. Nonetheless, all this can be granted without endorsing Purves' conclusions about the moral significance of harms to future people. Purves does not provide sufficient reason for thinking that counter-factual comparative harms are always worse than harms he would classify as non-comparative. Consider a couple, Tom and Sandy, living in the future. Both die in a tropical storm resulting from climate change. As it happens, Tom would have been born whether or not we enacted policies to significantly mitigate climate change, but Sandy would not have been born if we had done so. According to CHH, Tom is harmed by the storm and Sandy is not, even though they are both deprived of many years of good life by the event. Purves does not demonstrate that the harm to Sandy is less significant than the harm to Tom. The fact that CCH is morally significant does not demonstrate that non-comparative harms are automatically less significant.

Purves' conclusions do not have the same type of intuitive pull that his initial case analysis might possess when we apply them to long-term moral decisions. Do we really believe that 100 deaths caused by climate change in 2200 are less morally serious than 100 deaths caused by climate change that occur this year? After all, some of those born in 2200 will have their identities altered if we were to pursue policies to mitigate climate change. The fact that the conclusion Purves' view would support does not have widespread intuitive appeal highlights the shakiness of his arguments, even assuming that we grant his use of an intuition-pumping thought experiment to motivate his position.

One of the main reasons the intuitive appeal of CCH disappears in intergenerational cases is that it is being applied with an unusually broad scope. CCH, as employed in non-identity cases, "automatically aggregates all the consequences of an action and determines on the basis of

the resulting ensemble whether the action has caused harm" (Nolt 2013a, p. 115). In other contexts, CCH is never employed this way. Imagine that Jerry is crossing the street, and I strike him with my car while driving recklessly. He breaks his leg in several places and spends several weeks in a local hospital while recovering. As it happens, however, he falls in love with one of the nurses there, someone he would not have met had he not been admitted to the hospital. His love is ultimately reciprocated, and the two enjoy a lasting, loving relationship until they die. Did I harm Jerry by striking him that fateful day with my car? If we apply CCH in a very broad way, then it appears I did not, since my breaking his leg bestowed on him a benefit in the long term that was greater than the harm he initially suffered. But such an analysis is not consistent with how such a case would ordinarily be judged. Rather, it seems that my action caused two distinct effects – the harm of Jerry breaking his leg and the benefit of finding true love.

The peculiarity of applying CCH in this broad, effect-aggregating manner becomes apparent when we consider its implications. If we were to always apply CCH this way, then we would be fraught with uncertainty about whether many actions were really harmful. Knowing whether something was really a harm would require us to know *all* the action's long-term effects so that we could compare the harms and benefits accrued by the action. Since we virtually never have such knowledge, the concept of harm would become useless in our moral reasoning. Thus, when we apply CCH, we almost always apply it more narrowly. My striking Jerry with my car makes him worse off in the sense that he now has a broken leg, not in the sense that his *entire life* is now worse on the whole as a result of this event.[3]

The same analysis can be applied to identity-affecting cases. Let's return to Tom and Sandy's deaths in the tropical storm. Our failure to mitigate climate change harms Sandy by

[3] Here, I have benefited from reading some unpublished material by John Nolt.

causing her death, and it also benefits Sandy by providing the conditions necessary for her existence. These are distinct effects and should not be aggregated together. Just as Jerry being benefited does not erase the harm he suffered, Sandy being benefited does not erase the harm she suffers. Ultimately, we can understand the harm that Sandy suffers in either a non-comparative way or in a narrowly comparative way. On either account, the harm she suffers is morally significant and just as morally significant as counterfactual-comparative harm that Tom suffers.

Harms are bad and ought to be prevented. Furthermore, harms are just as morally serious whether they occur to present people or to future people. Therefore, just as we have an obligation to prevent present people from suffering massive, unnecessary harms, we also have an obligation to prevent future people from suffering massive, unnecessary harms.

Massive, Unnecessary Harm

We have a moral obligation to prevent future people from suffering massive, unnecessary harm. Furthermore, we know that environmental degradation will cause massive, unnecessary harm to future people if we continue with business as usual. The support for this claim can be found in the previous chapter. Climate change, biodiversity loss, and other changes to the natural environment could cause severe suffering and death to hundreds of millions (if not billions) of future people. These harms will be "massive" on any plausible meaning of the term.

These harms are also unnecessary. One could argue that our high rates of consumption are necessary to maintain our welfare, but such a claim is dubious. First, for many in the developed world, it is simply implausible to claim that all their ecologically damaging habits are essential to improving their well-being. Many authors have argued that the materialistic, consumption-driven lifestyles of the western world do not make our lives significantly better than they would be otherwise (Andreou 2010; Gambrel and Cafaro 2010; Gardiner 2012, pp.

244-245). Second, even assuming that many of the consumption-driven activities do increase people's welfare, it does not follow that the activities are *necessary* in any morally meaningful sense. The fact that stealing someone's property would improve my welfare does not entail that it would be morally justified. Some environmentally destructive activities really are necessary for people to survive in their current circumstances, but many of these activities are not necessary in this sense. For instance, we do not need our homes kept at a stable temperature of 72 degrees year round, and we do not need to purchase large, fuel-inefficient vehicles just because their appearance is appealing. We could refrain from these activities with only marginal costs to our well-being. Thus, the harms resulting from these activities are unnecessary.

Isolating the Population and Consumption Variables

Claim (6) in the argument is a simple equation that isolates the two main variables that combine to produce environmentally degradation. The first is the population size, and the second is the average rate of environmentally harmful consumption within the population. Thus, the equation is as follows:

> anthropogenic environmental degradation = population × average rate of environmental degradation per person

This formulation varies slightly from the IPAT equation, which is one of the standard ways of understanding environmentally destructive impact.[4] According to the IPAT equation, environmental impact (I) is the product of population (P), affluence (A), and technology (T). My equation effectively combines affluence and technology into a single variable, resulting in a simpler equation. I prefer this formulation because affluence and technology are difficult to

[4] For an overview of how the IPAT equation has been employed in the past, see Chertow (2000).

quantify in isolation and can pull in opposing directions. Increases in affluence generally result in greater environmental impact. Improvements in technology can result in more efficient use of resources, but often these improvements result in greater aggregate consumption because the economic demand for the resource increases.[5] The effects of technology on rates of consumption are thus quite difficult to quantify. For our purposes, it will be more fruitful to condense our analysis to two variables – population and consumption – and examine each to see what we can do to prevent environmental degradation.

According to my equation, there are two contributing factors to environmental degradation. Hence, if we want to lower environmental degradation, we have three options: lower only the first contributing factor, lower only the second contributing factor, or lower both contributing factors. In the next section, I argue that we should reduce both contributing factors.

Can We Just Reduce Rates of Consumption?

Acknowledging the need to reduce our overall ecological footprint does not automatically mean that we have a duty to reduce population. One might propose that we focus instead on reducing rates of environmentally harmful consumption, especially in the developed nations where consumption rates are particularly high. This approach to the problem has dominated the literature: as discussed in the opening chapter, explicit discussions of population over the last two decades have been rare. Population growth is one of the main causes of increasing GHG emissions around the world, and yet approaches to addressing climate change have largely ignored it (Cafaro 2012). Naomi Klein (2014), in her book-length discussion of climate change, dismisses any discussion of population in a meager two sentences that is representative of this

[5] This phenomenon is known as the Jevons paradox and is one of the most widely known paradoxes in environmental economics (York 2006).

trend. After noting that the 500 million richest people on Earth are responsible for roughly half of all global GHG emissions, she makes the following remark in a footnote:

> This is why the persistent posting of population control as solution to climate change is a distraction and a moral dead end. As this research makes clear, the most significant cause of rising emissions is not the reproductive behavior of the poor but the consumer behaviors of the rich. (Klein 2014, p. 114 fn)

Even if the primary cause of climate change is excessive consumption by the rich, it does not follow that population reduction does not matter and cannot contribute to solving the problem. Moreover, Klein appears to assume that efforts to lower fertility rates would focus exclusively on those in developing nations. As will become apparent in chapter 6, we can (and should) pursue measures of lowering fertility rates in developed nations as well.

There is no doubt that any serious attempt to resolve our environmental problems will require radical reduction in our environmentally destructive consumption, particularly in developed nations that contribute the most to climate change and other ecological harms. Demographic momentum caused by younger populations coming of reproductive age will ensure that population growth continues for at least a generation or two further into the future, so overlooking a devastating virus or a war of unprecedented magnitude, it is not possible to lower global population sufficiently to maintain these high rates of consumption and avoid the environmental problems discussed in the previous chapter. (I will assume that manufacturing such a virus or initiating a nuclear war would be unethical ways of solving our environmental problems.) The pivotal question then is whether reducing consumption rates will be *enough* if population continues to rise at projected rates.

The long-term emissions reductions necessary to avoid going above a 2°C average rise in global temperature (relative to preindustrial levels) are incredibly steep – over 5% per year for many nations (Raupach et al. 2014). To stay below this 2°C threshold, we must keep the

concentration of GHGs in the atmosphere to 450 parts per million (ppm). If we are to stabilize our GHGs at 450 ppm, then global GHG emissions will have to decline from 2010 levels by 40-70% by 2050 and decline to nearly zero by 2100 (IPCC 2014b, p. 20). Believing that the developed nations who must make drastic reductions can and will do so at the required pace is not only unrealistic but outright laughable. As it stands, the world is on pace for at least at least a 3°C rise by the end of the century (Brahic 2014), and we may cross the 2°C threshold as early as 2036 (Mann 2014). In the United States, the nation with the highest GHG emissions per capita, President Donald Trump is attempting to dismantle regulations on emissions from both vehicles and power plants, undoing much of the progress that Barack Obama made to address climate change and decrease pollution during his presidency (Davenport 2017, Thrush and Davenport 2017). Fighting our consumption habits also requires fighting social and cultural norms. Much of the material consumption in the western world is driven by our desire for a lofty social status rather than a need for basic goods or services (Conly 2016, p. 15). Nevertheless, this status is important to many people and not something they are willing to relinquish easily.

An additional obstacle toward reducing consumption is that many nations in the world must be allowed to *increase* their rates of consumption. According to data from The World Bank (2016), 767 million people in the world were living on less than the equivalent of $1.90 per day in 2013. This level of poverty translates to very little spending and very little consumption, but those living in such circumstances struggle to survive. It would be absurd to expect or demand that these people reduce their resource consumption. Rather, they must be permitted to consume *more* so that they can escape this dehumanizing poverty. Since many of the countries with large proportions of their citizens living in extreme poverty also have high fertility rates, their

increased consumption could increase environmental degradation substantially if their population growth continues.

In short, we have a lot of evidence that we are reluctant to reduce our rates of consumption, and furthermore, some populations must be allowed to increase their consumption in the near term. This information suggests that reducing consumption rates at the pace required to avoid severe harms from environmental degradation is extraordinarily unlikely. Intriguingly, however, we do have evidence that we are willing to lower our rates of procreation. In many nations around the world, people have done it voluntarily. The fertility rate worldwide is in decline, and this trend is particularly pronounced in western Europe, where countries like Denmark, Italy, and Germany have fertility rates far below replacement levels (CIA 2017). So there is little doubt that people can be motivated to procreate less.[6]

Furthermore, we know that procreative activities make an enormous contribution to increasing overall degradation, particularly procreation that occurs in the developed world. In one study examining the environmental consequences of having a child in the United States, the authors conclude:

> We would like all potential parents to be aware that, more than any other decision they ever make, their decision on whether or not to create a child will have the largest impact on our global environment. We conclude that the most effective way an individual can protect the global environment, and hence protect the well being of all living people, is to abstain from creating another human. (Hall et al. 1994, p. 523)

In a more recent study, Murtaugh and Schlax (2009) examine the carbon legacies of individuals and conclude that each new child in the United States adds about 9441 metric tons of CO_2 to an

[6] Conly (2016) makes the same observation (pp. 17-18).

individual's carbon legacy, an amount that is roughly 5.7 times a person's lifetime emissions.[7] To offer a basis for comparison, reducing one's weekly miles driven from 231 to 155 for 80 years would only save 147 metric tons of CO_2. Thus, on their calculations, the decision to procreate will likely overshadow *all* other life choices that an American makes in an effort to reduce her individual carbon footprint. While the carbon footprint of those in other countries is not increased as much by procreating, the effect is still substantial. A new father in China has increased his carbon legacy by 4.4 times by procreating; a new mother in India has increased her carbon legacy by 2.4 times by procreating (Murtaugh and Schlax 2009, p. 18). These figures are also not static. The per capita emissions in China and India have increased significantly since this study was done and are projected to continue increasing until at least 2030 (Yeo and Evans 2015).

On a broader scale, we have compelling evidence that population growth is one of the central contributors to anthropogenic environmental stressors (Rosa, York, and Dietz 2004; Dietz, Rosa, and York 2007). When we examine the growth of global GHG emissions, we see that they have correlated with population growth at almost a 1:1 ratio (Ryerson 2010). It does not seem possible to adequately respond to climate change without taking population seriously. The basic problem was described succinctly by Frederick Meyerson (2008) during a discussion held by the *Bulletin of Atomic Scientists*:

> Just stabilizing total emissions at current levels, while keeping pace with population growth, would require reducing global per-capita emissions by 1.2 percent each year. We haven't managed to decrease per-capita emissions by 1 percent in the last 38 years

[7] They calculate carbon legacy on the assumption that "a person is responsible for the emissions of his descendants, weighted by their relatedness to him. For a descendant that is *n* generations removed from the focal individual, the weight is $(1/2)^n$" (Martaugh and Schlax 2009, p. 14). So a person is responsible for one-half the emissions of her children, one-fourth the emissions of her grandchildren, one-eighth the emissions of her great-grandchildren, and so on.

> combined. The Intergovernmental Panel on Climate Change, former Vice President Al Gore, and many well-intentioned scientific, media, and activist campaigns haven't changed that fact. And because of the rapid economic growth and increased coal use in China and elsewhere, we may now be headed for higher per-capita emissions.

Historically, attempts to decrease rates of consumption have had very limited success, and future efforts may be undermined by continuing population growth. If we are serious about addressing these environmental problems, we cannot ignore population growth. The good news is that if we do decide to take population seriously, slowing the rise in population could make a substantial difference – not just in the distant future but also during this century.

Based on projections from the United Nations that estimate low, medium, and high fertility scenarios and the data we have about how population affects GHG emissions, following the low fertility path rather than the medium fertility path – a difference of about 0.5 births per woman – we could achieve 16-29% of the emissions reductions needed by 2050 to stay below the 2°C threshold (O'Neill et al. 2010). The authors of the study add, "By the end of the century, the effect of slower population growth would be even more significant, reducing total emissions from fossil fuel use by 37-41% across the two scenarios" (O'Neill et al. 2010, p. 17525). Even more encouragingly, some of the measures used to reduce population, such as increased funding to family planning services, are much more cost-effective in mitigating climate change than other methods (O'Neill and Wexler 2000; Wire 2009; Cafaro 2012). Moreover, for many people, increased access to family planning services may provide an easier means of decreasing their ecological footprint than reducing personal consumption. Reducing one's consumption usually requires some level of personal sacrifice, but as the data presented in earlier chapters indicates,

many people desire fewer children than they ultimately have (e.g., because of unintended pregnancies). Thus, it may be in their own best interests to reduce their fertility rates.[8]

The picture painted by all these facts is pretty clear. We cannot realistically address climate change and other environmental problems by focusing solely on reducing our rates of consumption or by focusing solely on reducing population. To be successful in responding to these problems, we need to make efforts to *both* reduce our rates of environmentally harmful consumption and reduce our population size. In the near term, the best we can achieve with respect to reducing population at the global level is slowing our growth, so that is what we should pursue.

The Techno-Optimism Objection

Before considering the policy implications of this argument, we must pause to consider two related objections. Population growth is not a new challenge for humanity. We have dealt with rapid population growth throughout the 20th century, and technological developments have helped us avert catastrophe. In the past, we have been warned about the devastation that population growth will cause, and these predictions have proven inaccurate. More than two centuries ago, Thomas Malthus claimed that population growth would outstrip food supply and soon lead to widespread starvation. He was obviously wrong about that.[9] Paul Erlich made a similar prediction in 1968 when he published *The Population Bomb*, suggesting that we could experience widespread starvation in the 1970s and 1980s. But this dire outcome did not come to pass.

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[8] Hickey, Rieder, and Earl (2016) make this same point and also add that preference-adjusting interventions (which I will discuss in the next chapter) could make people want fewer children (p. 870).

[9] Beyond getting his empirical claims wrong at the time, Malthus was also criticized by Karl Marx and Friedrich Engels. For an overview of their criticisms, see Charbit (2009, ch. 5).

Many people point to Malthus and Erlich's exaggerated claims about rising human population as evidence that such worries are unjustified. Technological progress has enabled us to accommodate our growing population. Malthus's predictions, for instance, were wrong primarily because he did not foresee how developments in agriculture would enable us to grow crops on land previously thought unfarmable. Perhaps further technological progress will enable us to accommodate our growing population as it did in the past.[10]

Unfortunately, as convenient as it would be if technology came to our rescue, it is unreasonable to rest our hopes entirely on technological progress. Even if some technological optimism is justified, the inaccurate predictions of the past are hardly a firm basis for skepticism about the problems caused by population growth in the twenty-first century. First, the warnings made by Malthus and Erlich both concerned food supply, but current discussions of environmental degradation are not exclusively concerned with food supply.[11] Granted, as discussed in chapter 4, there are concerns about how increased demand for food places additional stress on ecosystems and how increased temperatures caused by climate change may impact food supply by making us unable to farm previously farmable land and decreasing the food productivity of the ocean. But food supply is not the sole focus when we consider population growth in the 21st century.[12] Second, the environmental effects taking place around the world are being studied tirelessly by experts on every continent, and their conclusions largely converge on one unsettling fact: we are on the cusp of experiencing some very big problems.

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[10] For a recent discussion and endorsement of this claim, see Pearce (2010, pp. 204-208).
[11] Conly (2016) makes this same point (p. 150).
[12] One further reason that food supply is not the focus is that lab grown meat may become viable in the near future. A few years ago, it cost $325,000 to create an artificial hamburger in a lab (Fountain 2013). Within a few years, the price of creating these burgers has dropped to less than $12 (Crew 2015). Lab-grown meat may become economically viable within the next two decades, and it would provide an alternative means of meeting the world's demand for meet and will require far fewer resources – far fewer animals and much less land – to produce than meat that is produced through industrialized farming.

I already addressed the severity of our environmental problems in chapter 4, but it is worth reiterating a crucial feature of them here: *they are already happening*. Malthus and Erlich were concerned about famines that *might* happen if population growth continued. In contrast, we are not speculating that we *might* see a rise in average global temperature in the future – the temperature rise is already happening. We are not just viewing substantial biodiversity loss as a possibility – we are already seeing substantial biodiversity loss. Rather than being possible obstacles in the future, these problems are already upon us. The only pertinent question is what we are going to do about them; to pretend they do not exist or are unlikely to occur is unjustifiable.

It is likewise unjustifiable to assume that technological innovation will function as a silver bullet and provide a solution to these problems in the near future. Even if we acknowledge that a technological fix is *possible*, it does not follow from this fact that it is likely to occur or that we should expect it to occur.[13] Certainly, at this stage, we are not justified in acting as if such a miracle fix is right around the corner. Moreover, subjecting future people to such grave risk of harm is morally blameworthy even if those harms are miraculously avoided in the future. We routinely hold people accountable for engaging in actions that are unnecessarily risky even when their actions do not actually harm anyone. This is the central reason why we impose legal penalties for running red lights and driving drunk even when specific instances of those behaviors do not actually cause harm to anyone. Thus, a failure to keep the risks to future people within reasonable limits, given that we have the means to do so, is morally blameworthy.

[13] It is possible that technology will simply not advance fast enough to alleviate these problems, but it is also possible that the technology will exist but not bring us the solutions we need. Mazur and Saperstein (2010) point out that the beneficial effects of technology are sometimes only realized under favorable social and economic conditions. New options for contraception and abortion can improve women's reproductive health, for example, but they "have failed to improve women's lives where underlying health, rights, and poverty issues have not also been addressed" (Mazur and Saperstein 2010, p. 12).

The *Ultimate Resource* Objection

A variation of technology-driven optimism can be found in the influential work of Julian Simon (1996). He argues that people – primarily because of their ability to invent and adapt – are the ultimate resource. When a resource becomes scarce, he notes that the price of this resource increases and that people gain an incentive to use this resource more effectively or develop alternatives to it. As a result, supposed shortages of resources are routinely avoided, and we should not regard natural resources as "finite in any economic sense" (Simon 1996, p. 54).

Simon's key claim is that resource scarcity plays an important role in technological advancement. He summarizes the main argument for this claim as follows:

> More people, and increased income, cause resources to become more scarce in the short run. Heightened scarcity causes prices to rise. The higher prices present opportunity and prompt inventors and entrepreneurs to search for solutions. Many fail in the search, at a cost to themselves. But in a free society, solutions are eventually found. And in the longrun *the new developments leave us better off than if the problems had not arisen*. That is, prices eventually become lower than before the increased scarcity occurred. (Simon 1996, p. 59, original emphasis)

In this manner, Simon contends that resource scarcity has a positive influence on technological progress. The rising prices caused by resource scarcity provide an economic incentive for new discoveries to be made and then put into practice. Much of Simon's book is an examination of how this phenomenon has occurred in the past with other resources that became scarce at some point in the past.

Simon also argues that a growing population increases the rate of technological progress. He first observes that improvements in productivity come from people putting their minds to use. Since these improvements originate from people, "the amount of improvement plainly depends on the number of people available to use their minds" (Simon 1996, p. 372). If other variables are held constant between two independent societies, the society with the higher population will

develop more quickly because more people will be making contributions to its technological advancement.

These two argumentative threads combine to support the following conclusion: population growth drives technological advancement. Other things equal, a larger population results in the creation of a larger amount of knowledge because there are more people generating ideas and trying to put them into practice. Simultaneously, a larger population leads to faster resource depletion, resulting in an increased demand for these resources. As the prices of these resources rise, new economic opportunities emerge and provide an incentive to develop new ways of doing things (e.g., using the resource more efficiently, finding new sources of the resource, developing alternatives to the resource). In a free society, solutions are eventually found, and in the end, the prices of the resources end up being lower than they would have been if the original scarcity had never arisen. In this manner, we ultimately end up being better off for having endured this (temporary) resource scarcity. If one is persuaded by this line of reasoning, then significant restraints on population growth may seem not just unnecessary but *detrimental*, since reduced population growth will hinder our technological advancement.

Simon is right to point out that this trend has happened many times in human history. Even so, the argument has a number of significant problems. First, we should highlight that his understanding of "better off" is purely economic: being better off simply means that we are in an economically superior position to where we were previously. But that surely cannot be all we care about. If resource scarcity (even if temporary) is so pronounced and devastating that it results in the deaths of millions of people and the severe suffering of many million more, in what sense are we "better off" after this scarcity concludes? Even if we are better off in some narrowly economic sense, we may well be worse off in terms of aggregate human welfare, a measurement

that seems to have much greater moral significance.[14] This point is perhaps most poignant with respect to climate change.

Climate change can be interpreted as the scarcity of a resource – namely, the available carbon sinks on Earth. We have too few carbon sinks to accommodate our GHG production. There's certainly plenty of incentive to develop ways of increasing our available carbon sinks. This thought has motivated some to investigate the possibility of geoengineering the atmosphere to aid climate change mitigation, but all of them carry significant risks and uncertainties. Some also do not appear economically viable.[15] Herein lies a second problem with Simon's reasoning: he assumes that technological solutions to problems of scarcity will *always* be found within a viable timeframe. Certainly, that has been the case many times in human history, but what justifies assuming that it will always happen regardless of the circumstances? Recall from chapter 4 that the effects of climate change will be extremely long-lasting and impose great suffering and hardship on large numbers of people. We have already established that increasing population increases the severity of this environmental problem (and many others). When the moral stakes are this high, it is both irrational and morally unjustifiable to exacerbate the problem in the *hope* that it will motivate people to develop a solution to the problem.

Climate change in particular is an environmental problem that Simon does not properly address. In fact, some of his remarks about it are outright dismissive:

> "Given the history of such environmental scares—over all of human history—my guess is that global warming is likely to be simply another transient concern, barely worthy of consideration ten years from now should I then be writing again of these issues" (Simon 1996, p. 266).

[14] We are also unlikely to be better off if societies collapse, a possibility that cannot be overlooked. Recent work by Jared Diamond (2005) highlights how ecological catastrophes – particularly when a society fails to properly respond to them – can lead to a society's demise.
[15] See Boyd (2008) for a brief appraisal of different geoengineering schemes.

Obviously, Simon was wrong about climate change. Moreover, climate change is already causing hundreds of thousands of casualties per year. The problem is here – on our doorstep – and the miraculous technological advancement that would solve the problem is nowhere to be found. This seems to be a straightforward counterexample to the claim that all problems of resource scarcity are solved via technological advancement.

Simon was similarly mistaken about biodiversity. He claims that he and Aaron Wildavsky "documented the complete absence of evidence for the claim that species extinction is going up rapidly, or even going up at all" in the mid-1980s and that no one disputed their documents or "adduced any new evidence since then that would demonstrate rapid species extinction" (Simon 1996, p. 450). Whatever the state of conservation biology 30 years ago, the studies I have cited in chapter 4 provide ample evidence that we are experiencing rapid species extinctions. The consensus among conservation biologists on this point is overwhelming. Again, the problem is on our doorstep, and technological progress has not been able to solve it.[16] If we are serious about tackling the environmental problems we face, then we must reduce our rates of consumption and reduce our population. Technological advances can certainly play a role in our efforts to meet both these goals, but we cannot continue with business as usual under the expectation that technology will suddenly solve all our problems. Such a path would be both foolish and ethically unjustifiable.

[16] There are efforts underway to create synthetic organisms. In theory, these efforts could enable us to create new organisms that fill the same ecological role as species that have gone extinct or even to genuinely resurrect extinct species. But these efforts are nowhere near coming to fruition to the extent that would be required to genuinely avert biodiversity loss or recover from it. It was only quite recently that we even managed to create the first synthetic cell (Gibson et al. 2010).

CHAPTER 6: POLICY IMPLICATIONS AND OBJECTIONS

We have a collective duty to reduce our numbers. Doing so is necessary to adequately respond to the environmental degradation taking place around the globe. Now we turn to the challenge of practical application. What should be done to promote population stabilization and reduction? Part of population growth has been caused by an increase in the life expectancy of people around the world, particularly in Africa (Kweifio-Okai and Holder 2016, Johnson 2016). While reproductive rates have declined overall, decreases in the rate of population growth have been muted because of the decrease in death rates. However, since the increases in life expectancy are a result of better medical care and a significant reduction in human misery, it seems neither desirable nor ethical to reduce population by lowering life expectancy.[1] The obviously preferable way to reduce the population is to bring fewer people into existence.

In recent decades, discussions of reducing fertility rates have given rise to serious worries about morally problematic coercion. Such worries are not unfounded: the implementation of policies in China, India, and Peru aimed at reducing fertility rates resulted in forced abortions and sterilizations (Mosher 2008, chs. 3 and 5; Alvarado and Echegaray 2010). These practices are widely regarded as human rights violations and thought morally indefensible. The challenge we face is how to reduce population effectively without engaging in morally objectionable practices. As we shall see, meeting this challenge is no easy task.

We need to stabilize and reduce population as quickly as possible, but we also need to respect people's personal freedoms. To a degree, these needs are in tension with one another. Thus, the general principle regarding population policies might be put as follows:

[1] As I will discuss later, however, we may face circumstances where we must seriously consider rationing health care to the elderly.

Minimal Coercion: we ought to implement the *least coercive* set of population policies possible that will still address the problem effectively.

In this chapter, I consider a series of policies that could be implemented to reduce population and consider whether they are morally defensible. I start with the least controversial policy measure that would reduce fertility: increased access to contraception and family planning services.

Contraception, Family Planning, and Effective Education

Increasing access to contraception and family planning is one of few measures that enjoys substantial support among those writing the population crisis (e.g., Mazur 2010; Ryerson 2010; Cafaro 2012; Hickey, Rieder, and Earl 2016; Kukla 2016). It is not hard to see why. Increased access to family planning services enhances people's autonomy by providing couples with more options regarding their procreative choices. In this respect, it is the *opposite* of being coercive. When they have these options, many choose to have smaller families than they would otherwise have. Improved access to contraception results both in people having greater freedom *and* lowering fertility rates.

Much progress could be made in lowering fertility rates if we were to provide contraception to all who have an unmet need for it. Worldwide, only 56% of married women between the ages of 15 and 49 use modern methods of contraception, and in Africa, this figure dips to 30% (Population Reference Bureau 2016). About 12% of the women in the world want to delay or prevent childrearing but were not using any methods of contraception; in the developing world, this figure rises to 22% (UN Department of Economic and Social Affairs 2015). These figures highlight how increased funding for family planning programs could make a significant difference in slowing population growth. Just meeting the contraceptive needs of Africa could decrease the global population in 2030 by as much as 1 billion (Ford 2016).

Of course, we also have evidence that increased access to family planning services is not enough. A statistic from chapter 3 is worth reiterating here: globally, 40% of pregnancies are unplanned (Sedgh, Singh, and Hussain 2014). Even in regions of the world where contraception is readily available, a significant portion of pregnancies are unplanned. Thus, measures must be taken to improve people's awareness of how to use contraceptives effectively and the risks associated with not using them. The most straightforward way to accomplish this feat is to improve the availability and quality of sex education. What this entails may vary from nation to nation according to their educational system, but whatever education is provided should include information on how to use contraception effectively. Abstinence-only programs, which promote abstinence until marriage and do not cover contraceptive use, have been in place in certain regions in the United States for decades. While these programs have consistently received federal funding during the last 20 years, they have proven utterly ineffective in reducing rates of unintended pregnancies and sexually transmitted infections compared to comprehensive sex education (Advocates for Youth 2007, Stranger-Hall and Hall 2011, Breuner and Mattson 2016). Of course, the United States is no model for how to educate the youth about sex: only 24 states mandate sex education of any kind (Guttmacher Institute 2017). Given these facts, we should not be surprised that the United States has the highest rates of unintended pregnancy in the developed world.

The case for improving access to contraception and improving sex education is quite compelling. Doing so will enhance people's freedom (especially the reproductive freedom of women in the developing world) and improve their quality of life (since they will have fewer unwanted children) while also lowering fertility rates. These policies have, as Rebecca Kukla (2016) puts it, "no significant moral downside" (p. 845). The real question is whether or not

these measures would be enough to effectively respond to population growth. Suppose we improve sex education and give everyone in the world ready access to contraception. Under such circumstances, would the population problem be solved?

Unfortunately, it is difficult to know what the precise effects of meeting these two conditions would be. Certainly, it would be convenient if these changes alone solved the problem: then we would not need to worry about answering the more difficult ethical questions about coercive policies. Some do genuinely believe that improved access to contraception and increased awareness of how to use it effectively will solve the problem. In the introduction to her edited volume on the population problem, Laurie Mazur (2010) states, "It is not necessary to control anyone to slow population growth: Birthrates come down where individuals have the means and power to make their own reproductive choices" (p. 16).

Despite Mazur's optimism, I think it is naïve to believe that increased access to contraception and increased education about contraception will be sufficient to solve the problem, for three reasons. First, the data on population suggests that unmet contraceptive needs are not the only contributor to population size. Consider a few examples based on recent population data (Population Reference Bureau 2016). In Morocco, 57% of the married women aged 15-49 use modern contraceptive methods, and the fertility rate is 2.4; in Malawi, 58% of married women in this age range use modern contraceptive methods, and the fertility rate is 4.4. In Libya, only 20% of these women use modern contraceptive methods, but the fertility rate is only 2.4. Women of the same demographic in Senegal use modern contraceptives at almost the same rate as those in Libya (21%), and yet the fertility rate in Senegal is 5.0. Clearly, the use of modern contraceptive methods is not the only factor that determines fertility rates. One of the major influences on fertility rates in a given country is what family size is desired by the

country's citizens (Ryerson 2012, pp. 241-243). Economist Lant Pritchett (1994) went so far as to claim that the desire for children was the primary determinant of fertility rates and that "contraceptive access (or cost) or family planning effort more generally is not a dominant, or typically even a major, factor in determining fertility differences" (p. 39).

Second, even under a best-case scenario where we implement these measures to improve sex education and access to contraception[2] (as well as pursuing gender justice for women[3]) and almost immediately, we will not reduce fertility rates quickly enough to deal adequately with the environmental problems we now face. According to recent demographic models, the human population in this scenario would still closely approximate the nearly 11 billion that we will otherwise have on Earth in 2100; substantial reductions in the population are unlikely to occur until the following century (Bradshaw and Brook 2014, pp. 16611-16612). We must take significant action this century to avert severe climate change and biodiversity loss, so one worries that these actions, though important, will not be enough by themselves. As mentioned in chapter 5, mitigating climate change effectively this century with a continuously rising population is not feasible. We are already struggling to make progress on these problems with a population of 7.4 billion people. Increasing that number by 50% would make an adequate response to environmental degradation all but impossible to achieve.

Third, the regions of the world where population reduction would be most beneficial with respect to ameliorating environmental degradation are developed nations, since they have larger per capita ecological footprints. In these nations, access to contraception is not the primary

[2] Comprehensive sex education programs, access to contraception, and access to abortion would likely to encounter strong opposition in certain regions of the world from certain religious groups, so this scenario is much more utopian than what we could reasonable expect.

[3] There are compelling moral reasons to pursue gender equality that have nothing at all to do with lowering fertility rates, but it is true that removing laws that hinder women's participation in society and granting them the same educational opportunities as men generally correlate with lower fertility rates (Roudi Fahimi and Kent 2007).

challenge to lowering fertility rates. While these countries often already have fertility rates lower than replacement levels, hastening the pace of reduction could make a huge difference. People in sub-Saharan Africa and other developing nations have small per capita ecological footprints at present; hence, small declines in fertility rates of developed nations may be more valuable than larger declines in developing nations. Hickey, Rieder, and Earl (2016) offer a succinct encapsulation of the main point:

> While reducing fertility in developing nations is important, since their per capita GHG emissions are projected to increase significantly (and should be allowed to do so) over the next several decades, it is not nearly as critical as near-term reductions in the numbers of the world's wealthy. Although it would be difficult to lower the fertility rate in the United States from 1.9 to, say, 1.4, such a reduction would have a massive impact on both near-term and long-term global GHG emissions—much more even than proportionally larger fertility reductions in sub-Saharan Africa. (pp. 855-856)

Given the gravity of the problem and the need to act quickly, we must consider the ways in which we can lower fertility rates in the developed world even more, particularly in countries like the United States and Australia where the per capita ecological footprint is high and fertility rates are still close to two children per woman (CIA 2016). In most cases, citizens in these nations already have access to family planning services, so if we are looking to decrease fertility rates in these countries, we must pursue other measures.

At this juncture, the ethical landscape gets a lot more treacherous. We might pursue three additional strategies for reducing population: preference adjustment, incentivization, and coercion.[4] Preference adjustment refers to the strategy of trying to alter people's preferences so that they prefer to have fewer children. Incentivization refers to the strategy of providing incentives that might motivate people to have fewer children. Coercion involves the prevention of certain procreative acts. Perhaps the most well-known example of coercion was China's one-

[4] I borrow this schema for sorting these different strategies from Hickey, Rieder, and Earl (2016).

child policy. Ultimately, I will argue against the imposition of coercive policies but in (qualified) favor of preference-adjusting and incentivizing policies. But before doing so, I must clarify an implication of improving access to family planning services.

What about Abortion?

Readers may suspect that increasing access to family planning services entails that women should have the right to abort unwanted pregnancies and that this service should be readily available to them. While providing this service would give women an additional means of avoiding unwanted pregnancies and thus have a positive effect on curtailing population growth, the conclusion that access to abortion should be increased does not strictly follow from the imperative to increase access to family planning services or the more general imperative to slow population growth. Whether women should have increased access to abortion services depends on the moral status of the fetus.

Obviously, it is morally unacceptable to reduce population by murdering those who already exist. It is virtually always wrong to kill existing human beings, which is one of the most fundamental moral principles in all of ethics. If a fetus has a moral status comparable to adult human beings, then it follows that the imperative to reduce population will not justify killing a fetus. Thus, whether we should increase access to abortion as part of increasing access to family planning services hinges significantly on whether the fetus has such a robust moral status. In this manner, the imperative to reduce population does not serve as a decisive consideration that pro-choice advocates might use to defend the permissibility of abortion. The question of whether or not the fetus is a person – that is, an entity deserving of the same basic moral rights and protections as an adult human being – cannot be bypassed because of considerations about population.

The morality of abortion and the issues concerning fetal personhood are too complex to discuss in full here, but a few general remarks are worth making. First, even assuming that the fetus is a person from the moment of conception, there are compelling arguments that abortion remains permissible in certain circumstances (Thomson 1971). One such circumstance is when pregnancy occurs as a result of rape. When a women is impregnated against her will, it is unfair to demand that she endure the burdens of pregnancy, and while it is unfortunate that the fetus will die as a result, we do not typically require people to endure substantial burdens to save the lives of others when they are not responsible for the other person being in life-threatening circumstances. A woman carrying a child to term in the case of rape would thus be a supererogatory action; doing so is not a moral requirement. The other commonly recognized exception is when the continuation of pregnancy endangers the mother's life. In this case, the mother's right to self-defense justifies her ending the fetus's life to preserve her own.

As a second general point, it is implausible to regard a fetus as being a person from the moment of conception. As Mary Anne Warren (1973) argues, an early term fetus does not have *any* of the qualities that we typically associate with personhood. She identifies the following features as being typical components of personhood: consciousness and the capacity to feel pain, the ability to reason, engagement in self-motivated activity, the ability to communicate, and the presence of self-concepts and self-awareness (Warren 1973, p. 55). An early term fetus does not have *any* of these features. An entity probably does not need all of them to be a person, but it surely needs *at least one* of them. An early term fetus does not possess any level of conscious awareness, which seems like a prerequisite for possessing the other features of personhood. Thus, at least early in the pregnancy, its moral status should be similar to that of other living things that lack the capacity for consciousness (e.g., plants).

The moral picture gets more complicated as pregnancy progresses, however. At some point during pregnancy, the fetus becomes sentient: at that point, it has the capacity to feel pleasure and pain. There is disagreement about precisely when the fetus becomes sentient. Some have placed the threshold for sentience about 30 weeks after conception (Tawia 1992, Lee et al. 2005) while others contend that the fetus can feel pain closer to 20 weeks after conception (Grossu 2016). Once the fetus becomes sentient, it acquires an interest in avoiding pain, and this new capacity results in an elevation in its moral status. Past this point, the justification for an abortion must be significantly stronger than the justification offered for aborting a non-sentient fetus. In practice, recognizing the significance of sentience might result in a policy of permitting the abortion of fetuses during the first trimester (when the fetus is clearly not sentient) and only allowing abortions in exceptional circumstances after the first trimester (Sumner 1981, ch. 4). Such circumstances could include, for instance, a threat to the mother's health or the discovery of significant genetic defects in the fetus.[5]

Given my views about the moral status of the fetus, I believe that increasing access to family planning services should also entail giving women greater access to abortion services during (at least) the first trimester.[6] But this position does not result from thinking that the

[5] In cases where pregnancy results from rape, the woman would have plenty of time to determine that she was pregnant, deliberate about whether to carry the fetus to term, and then get an abortion (if she chooses) within the first trimester. Thus, allowing abortions in response to involuntary pregnancy may not require any special provision that extends beyond the first trimester.

[6] In one of the most widely anthologized papers on abortion, Don Marquis (1989) argues that abortion is wrong because it deprives the fetus of future experiences. Since Marquis believes this is the same reason killing an adult human being is wrong, he views abortion as being just as wrong as murdering an adult human being. At first glance, this argument might appear to bypass the question of whether the fetus is a person, which would suggest that my analysis of the moral status of the fetus is irrelevant to assessing the morality of abortion. However, Marquis's argument only establishes that the fetus has a valuable good that it can lose (i.e., its future); this does not establish that the fetus is the kind of entity that has a right to its future or that there is anything morally wrong with depriving it of this good (Sinnott-Armstrong 1999). So despite his intention to dodge the question, Marquis cannot avoid addressing whether or not the fetus is a person.

imperative to reduce population automatically warrants allowing more women to receive abortions. One could coherently hold all my views regarding the need to reduce population but hold a different view regarding the moral status of fetuses and thereby reach a different position on whether we should make it easier for women to obtain abortions.

Why Outright Coercion Should Be Avoided

Having addressed the link between population reduction and access to abortion, we can now return to the question of what population policies we should employ to curtail population growth. The most direct means of reducing population would involve direct coercion – government action that forces individuals to keep their family size small. Coercive population policies are not popular,[7] but we have some evidence that coercive policies can be effective: the one-child policy in China prevented at least 500 million births between 1970 and 2000 (Lee and Liang 2006). The main justification for implementing an extremely coercive policy is an appeal to the long-term benefits of doing so. As I have already mentioned, these policies have historically been associated with severe human rights violations in the form of forced abortions or sterilizations. They are also often associated with sex selection: in cultures where men are valued more than women, they create an incentive to abort fetuses identified as female and have

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Additionally, Lovering (2005) questions whether a fetus really has a future prior to being conscious. Possessing a future seems to require a psychologically continuous entity, and consciousness is a prerequisite for this kind of psychological continuity. If Lovering's view is correct, then Marquis' position may not turn out to be much different than the view I have sketched above, where abortions are permissible in the first trimester but often prohibited afterward.

[7] The philosopher who comes closest to defending them is Sarah Conly (2015, 2016), but even her proposals fall well short of the coercive policies under discussion here. While she thinks that a one-child policy is permissible when the harms caused by overpopulation are severe enough, she believes it should be enforced through economic penalties and not by bodily invasions (Conly 2016, ch. 4).

another child in the hope that it is a boy.[8] The only moral consideration that can justify these injustices is the overall outcome that results from the policy. The underlying thought is that if the harms of unchecked population growth are significant enough, then the particular injustices that occur can be justified. Unchecked population growth will certainly lead to some very bad outcomes, and reducing their impact would indeed be a substantial benefit. Is that enough to justify pursuing something as coercive as a one-child policy?

While some believe that the rights violations we have seen in the implementation of coercive population policies in the past are decisive reasons not to consider them, answering this question is not so simple. If circumstances are dire enough, we recognize that otherwise impermissible actions can become permissible. Killing an innocent person is one of the worst crimes one can commit, but if killing one innocent person is required to save the lives of ten other innocent people, then such a killing may well be morally permissible.[9] In this manner, few (if any) broad moral principles are absolute. So while we recognize that the human rights violations that took place as a result of coercive population policies in the past were heinous and deplorable, there are at least *possible* circumstances in which the risk of these abuses would be worth taking. Nevertheless, I do not think we should pursue a one-child policy or any similar policy that places strict, government-enforced limitations on people's rights to procreate.

If a one-child policy were to be seriously pursued, it would have to be a last resort – a final measure implemented solely for the sake of avoiding catastrophe after we have exhausted

[8] Conly (2016) points out that the main cause of sex selection is the prevalence of sexist attitudes in the background culture of these societies rather than coercive population policies as such (pp. 193-204). Even so, in practice, the fact that a strict limit on the number of children a couple can have could exacerbate gender inequality remains a strong reason to oppose the implementation of coercive population policies.

[9] A famous version of this type of case is found in Williams (1973, pp. 98-99). Williams describes a man named Jim facing the dilemma of killing a protestor of the government. If he accepts, then the other 19 protestors go free; if he declines, then the local military will execute all 20 of them.

our other options. We have clearly not exhausted all our other options. We could obviously improve access to family planning services in much of the world and do a better job of educating people on how to prevent unwanted pregnancy. Furthermore, as I will discuss in the next section, there are other options for motivating people to reduce their fertility rates that do not require these draconian tactics. We should seriously explore these options before concluding that we have to adopt coercive population policies.

Moreover, it is unclear whether a one-child policy, even if enacted globally, would be the best means of lowering fertility rates. Citing data from Bradshaw and Brook (2014), Conly (2016) notes that dropping the fertility rate to 1 per woman by 2045 through full or nearly full compliance to a global one-child policy would shrink the population to 3.45 billion by 2100 (p. 219). That would indeed by a drastic reduction in human population, but a global one-child policy would never decrease the fertility rate to that extent. As Rieder (2016a) mentions, the one-child policy in China, which was more extreme than the kind of policy that Conly would endorse, only lowered fertility rates to an average of 1.6 children per couple (p. 33). Moreover, the fact that many European countries already have fertility rates comparable to this figure indicates that other strategies for reducing fertility rates might be just as effective as these outright coercive measures.

There is also a more compelling practical reason not to pursue implementing anything resembling a one-child policy: doing so will almost surely be counterproductive to the general goal of reducing population. Coercive population policies have been widely condemned, and the repulsion people feel toward them has played a considerable role in silencing discussion about population. In democratic societies existing at this stage of the 21st century, coercive population policies are not viable because they will never garner the necessary support among voters. The

only likely result of pushing for them is that people will become more reluctant to discuss population at all. As a result, advocating a one-child policy will probably make it more difficult to get people to seriously consider other, less coercive measures of reducing fertility rates. In this manner, advocating for flagrantly coercive population policies with the aim of reducing population is a self-defeating strategy. We have to consider other means of reducing population growth beyond increasing access to family planning services, but one-child policies and similar proposals will not be part of the solution.

Preference Adjustment and Incentivization

There are two broad strategies for reducing fertility rates that are *more* coercive than the choice-enhancing measures of improving the availability of education and family planning services but *less* coercive than strict prohibitions on the number of children that people may have. The first is preference adjustment. This strategy involves trying to change cultural norms or individual desires to lower fertility rates. The second is incentivization. This strategy involves providing incentives for people to have fewer children. These incentives can involve providing benefits to those who have few children or imposing penalties on those who have too many children. Both these strategies are typically regarded as permissible and not thought to constitute rights violations. As Hickey, Rieder, and Earl (2016) note:

> In other contexts, we readily accept similar preference-adjusting or incentivizing interventions in order to advance public interests or protect others from harm. We attempt to influence people's sexual behavior and diet in order to minimize public health costs, but this does not necessarily infringe on their rights to self-determination and privacy. We offer various incentives to make certain careers more or less attractive, but this does not seem to infringe on one's right to live according to one's own conception of the good. (p. 857)

Given the general acceptance of these other practices, we ought to consider the effectiveness of them in the realm of procreation.

The primary means of adjusting people's preferences would be through the use of mass media – radio, television, poster campaigns, billboards, advertising on popular online video media (e.g., YouTube), and so on. Sometimes, preference adjustment takes the form of rational persuasion, which involves objective presentation of factual information. Other times, the persuasion is more subtle and involves trying to change behavior through tactics like appeals to emotion, celebrity endorsements, or presentation through a narrative. Although some might worry that these latter strategies constitute undesirable manipulation, the case for such an objection is feeble. These strategies are already widely employed in a variety of these contexts without causing controversy, and they do not need to present false information or to be undertaken covertly. Moreover, some cultures are dominated by pro-natalist values. These preference-adjusting campaigns could serve to counter this widespread pro-natalism and enhance individuals' autonomy by alleviating the social and cultural pressure to have children (Hickey, Rieder, and Earl 2016, p. 860).

Preference-adjusting interventions have been implemented before, and they have proven effective. Television shows that promoted family planning and small family size aired in Mexico during the 1970s and 1980s, and similar programs were later launched in India. Kenya and Tanzania promoted the same values through radio programs. In all these cases, the launch of these media programs was followed by a decline in fertility rates and an increase in contraceptive use (Ryerson 2012, pp. 244-248). These programs often shifted their audience's beliefs about the acceptability of family planning and their perceptions of family size. As a result, viewers became more likely to use contraception, delay childbearing, and have fewer children (Singhal and Rogers 1989; Rogers et al. 1999). William Ryerson (2012) estimates that expenses of $35 million per year would be sufficient to fund similar programs in all the world's major developing

countries (p. 448). Maybe that financial estimate is too optimistic, but it is clear that media-driven preference adjustment could be an effective policy tool with respect to reducing family size.

Incentives are also worth considering, although some incentives toe much closer to the line of unacceptable coercion than preference adjusting strategies. Negative incentives, such as severe fines or increased hospital delivery fees, may be indistinguishable from outright coercion when they are imposed on people who are in financially precarious circumstances. Moreover, some negative incentives in the past have been imposed in ways that are clearly objectionable. China's incentive-oriented policies often pressured mothers to abortion and infanticide (Thomas 1995, p. 10; Hesketh and Xing 1997), and India's incentives – clothing, electronics, and monetary payments designed to encourage sterilization or delayed childbearing – exploited the low literacy rate among the poor to sterilize thousands without their informed consent (Repetto 1968). While these incidents are morally repugnant, incentives nonetheless deserve examination. The evidence indicates that incentives can be effective in lowering fertility rates despite differences in cultural norms and resource availability (Heil, Gaalema, and Herrmann 2012). Thus, if we can adequately guard against abuses and avoid making them objectionably coercive, incentives may be worth employing.

Clearly, some measures can be taken to reduce the risk that incentives will be unduly coercive (Hickey, Reider, and Earl 2016). First, we should be transparent about the political goals behind the incentives, the methods that are used, and the actual outcomes that result from them. Second, we can restrict payment for incentives to the actual would-be procreators. In China, local and regional officials were offered incentives to reduce the fertility rates of their constituents (Thomas 1995, p. 7; Hesketh and Xing 1997), and in India, incentives were offered

to various intermediaries to encourage other people to be sterilized (Repetto 1968, p. 13). These practices increase the risk that would-be procreators will be pressured by others into altering their reproductive behavior rather than it resulting from their own voluntary decisions. Third, we can take precautions to try to reduce the impact of incentive-based interventions on vulnerable groups. One means of doing this would be to direct positive incentives toward these vulnerable groups and reserve negative incentives for other, less vulnerable groups. For example, we could offer cash payments and tax breaks to the poor and levy fines against the wealthy (Hickey, Rieder, and Earl 2016, p. 868). On such a scheme the poor would not be made worse off by a decision to have a large family; they would simply have to forego benefits that they would otherwise be able to obtain.[10]

Another incentivization strategy worth considering is the implementation of a cap-and-trade scheme in conjunction with an allowance to have a certain number of children.[11] Suppose we wanted to lower fertility rates in the United States to about 1.5 children per couple. We might grant everyone in the United States a sellable allowance of 0.75 children. Couples who had one child would then have their collective allowance reduced to 0.5 (0.25 per person). People who want only one child or who wish to remain childless could put the remaining sellable allowance up for sale in an open marketplace. In this manner, couples would have an economic incentive to have fewer children, and those who want larger families would have an alternative means of obtaining them. Couples who obtained allowances for large numbers of children could be

[10] This strategy has the added advantage of avoiding scenarios where children are heavily disadvantaged by the actions of their parents, a worry raised by Cripps (2016, p. 382). If the poor were subjected to fines, then there might be circumstances where a child's welfare is threatened because the parents are heavily fined for giving birth to the child. Such scenarios seem deeply unjust because children have no control over the circumstances of their birth.
[11] Programs of this sort have been implemented before with some success. A notable example is the EPA's Acid Rain Program. See EPA (2016) for an overview.

allowed to have the appropriate number without, say, losing the tax credits that are usually reserved for smaller families.[12]

Whatever incentivization schemes are put into practice, the thresholds for various incentives would need to be context-sensitive depending on the size of the individual ecological footprints in a given country. An average person living in Niger, for example, has an ecological footprint that is less than one-fifth of the ecological footprint of an average person living in the United States (Global Footprint Network 2016). It is therefore not reasonable for those living in Niger to face the same financial penalties (or loss of benefits) for having three children as those who have three children in the United States. Under current circumstances, such a policy would be unfair: it disproportionately restricts the freedom of people who are contributing relatively little to the environmental problems that motivate the policy. Furthermore, the people of Niger (like those in many other developing nations) should be allowed to increase their ecological footprints so that the country may develop and achieve a decent average standard of living, presumably lifting many citizens out of poverty in the process. To that end, it is reasonable incentivize citizens to lower their fertility rates so that the population does not expand so significantly that increasing per capita consumption becomes morally problematic. But the target for fertility rate reductions in Niger should not be as low as the target sought in the United States and other developed nations with large per capita ecological footprints, at least not until some of the necessary development begins to take place. Perhaps those in the United States really should only have an allowance of one child per couple whereas those in Niger are permitted without any

[12] I am not the first one to consider using a cap-and-trade scheme on children. Albert Mohler (2009) gestures at this possibility in response to Murtaugh and Schlax's (2009) study that measures the impact of procreation on the carbon legacy of individuals. But Mohler views this as a detestable possibility and claims that "the gift of children must never be seen as an assault upon the Earth." Obviously, I do not share his outlook on implementing a cap-and-trade scheme involving an allowed number of children.

penalty or loss of benefits to have two children per couple.[13] The specific numbers are debatable, of course, but the point is that some variability in the limits on reproduction is appropriate given the radical difference in ecological impact that the citizens in these countries have.

This variance in national population policy is an important way in which my position varies from Conly's (2016). Conly suggests that the imperative to have only one child ought to apply to everyone. In connection with the importance of our right to bodily autonomy, Conly (2016) notes that equality is extremely important to us: we want to be able to exercise our rights to the same extent that others can, and "the sense that we are equal to others, and that others recognize that, is essential to our well-being" (pp. 90-91). On this basis, she argues that the constraints on procreation "must apply equally to everyone—not more children for some and fewer for others" (Conly 2016, p. 92).

The problem with Conly's position on this matter is that the constraints on procreation are being proposed in response to a problem where the contributions to it are *not* equal. Thus, restricting everyone's procreation equally violates considerations of fairness: doing so suggests that everyone has made a roughly equal contribution to the problem, and that is not the case.[14] A fairer way to impose constraints on procreation will impose harsher constraints on those who have made larger contributions to the problem and lighter constraints on those who have made smaller contributions.[15] The impacts of environmental problems like climate change will also, in general, be felt more strongly by developing nations with relatively small ecological footprints.

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[13] This may also be reflected in the cap and trade scheme if such a scheme were implemented globally. So in this particular case, the right to have a person in the United States might be valued in the global marketplace as equivalent to twice the price of having a child in Niger.

[14] Chen (forthcoming) makes a similar observation in his review of Conly's *One Child*.

[15] In this manner, our population policies should strive to be consistent with the Polluter Pays principle – the notion that those who contribute to the problem should bear the burdens of solving the problem or compensating the

Beyond improving family planning services and education, I have gestured at some methods of preference adjustment and incentivization that could be employed as part of an effort to lower fertility rates around the globe. Improving family planning services and preference-adjustment campaigns would be the main strategies for reducing fertility in the developing world. Incentivization would be employed primarily in the developed world. Of the three interventions under consideration, incentivizing measures come the closest to being coercive, and it is morally appropriate to exert more pressure on wealthier individuals to lower fertility rates than on others (Hickey, Rieder, and Earl 2016, p. 868). Wealth is a reliable proxy of a person's ecological footprint, and so this reflects the view that those who are making larger contributions to the environmental problems under discussion should bear larger burdens with respect to addressing the problems.

I now turn to some objections to these policy proposals. I start with two objections I consider fairly weak and then consider a cluster of stronger, more troubling objections.

Antinatalist Stigma

Rebecca Kukla worries that pursuing preference-adjustment strategies through mass media would not be able to avoid sending the message that smaller families are a more responsible choice than larger families. Should these views become entrenched in the background culture, then women may no longer feel like they have the "unburdened option of choosing a larger family" (Kukla 2016, p. 872). She also worries that this could result in a loss of social and economic support for large families. Access to prenatal testing created a prevailing

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victims, at least in cases where the pollution is not caused by excusable ignorance. For a critical appraisal of the Polluter Pays principle in the case of Climate Change, see Caney (2010a).

norm of discontinuing pregnancies when the fetus has a genetic defect, and disability advocates worry that this norm may lead to reduced resources for those who choose to carry such a child to term (Kukla 2016, p. 873). Kukla has a similar fear about parents who want large families, provided that antinatalist values become sufficiently well-entrenched. She also highlights the ways in which vulnerable groups (e.g., the economically disadvantaged, women of color, the disabled) could be particularly harmed by these new cultural norms and the ways in which large-family stigma would hinder the reproductive autonomy of women even in the developed world.

Hickey, Rieder, and Earl (2016) stress that targeted messaging and careful forethought regarding the tactics used can avoid the concerns Kukla has in mind (p. 861). Perhaps some of these concerns can be alleviated, but I am not so sure all the undesirable effects can be avoided. However, I also believe they have a better response available. In chapter 3, I surveyed many arguments that supported Antinatalism. While I did not find any of the arguments wholly successful, the moral considerations underpinning them indicate that the standards for permissible procreation are very high. Many acts of procreation are undertaken without the appropriate level of caution or critical reflection on one's motivations for procreation. As a result, some children born under these circumstances are subjected to an unacceptable risk of harm. Since these acts are impermissible, changing cultural norms to favor *less* procreation would be preferable to the status quo; as things stand, procreative acts are too often approached without the care and deliberation that they warrant. Undoubtedly, there will be people who are made worse off by a change in cultural norms regarding procreation, just as there are currently people made worse off by cultural norms that put pressure on them to procreate. Neither the status quo nor a small-family social norm will be perfect, but a shift toward Antinatalism seems

preferable *independent of any concerns about population*. The fact that we also need to reduce population makes the case in favor of antinatalist preference adjustment even more compelling.

Would Significant Population Reduction Make Us Dumber?

A further worry one might have about reducing population concerns its long-term effects. This objection was illustrated in the 2006 film *Idiocracy*. The film opens with the observation that human beings living at the start of the 21st century are no longer affected by the traditional mechanisms of natural selection that would ensure that people of greater intelligence would be more likely to survive and reproduce. As a result, since the less intelligent members of society are more likely to reproduce, human civilization gradually becomes stupider and less civilized over 500 years. After awakening from a government experiment that left him in suspended animation until the year 2505, the protagonist Joe Bauers discovers that the United States has degenerated into complete idiocy and that he, despite being of only average intelligence five centuries earlier, is the smartest person in the world. During the remainder of the film, Joe is employed by the president of the United States, a former professional wrestler, to solve a variety of problems plaguing the country – problems that have been caused by utter foolishness and lack of forethought. The nation's crop shortage, for example, results from watering plants with the sports drink Brawndo instead of ordinary water.

Despite its status as a satire, *Idiocracy* offers the basis for a more serious concern about efforts to lower population. Specifically, will it result in the most intelligent members of society having small families while the less intelligent members have larger families? And if it does, will we gradually get less intelligent over time as intelligent people have fewer and fewer children? In the long term, such an outcome could prove very bad – worse than if we had a larger population with a greater number of intelligent people – because we will make less progress as a

society, which could even impede our efforts to develop the sustainable technologies that we so desperately need.

While this line of thought is intriguing, it is not a strong objection to taking measures to reduce population. First, it is not clear if there is such a thing as all-things-considered intelligence. Given the varied and multifaceted ways in which we reason about different things, it may be that intelligence is too varied to be reduced to a single component. One recent neuroscientific study concluded that different brain structures govern different tasks and that intelligence manifests in different circumstances according to which cognitive system is being used (Hampshire et al. 2012). On such a model, how one fares on an intelligence test may vary widely depending on what skills are being tested, and there may be no coherent way to aggregate these various intelligences into some holistic concept that we could designate as all-things-considered intelligence.

Second, I am not aware of any data showing that fertility rates negatively correlate with intelligence as such. There is substantial evidence that women with higher levels of education have fewer children on average (Jones and Tertilt 2008, Wetztein 2011), but level of education is not the same as one's intelligence.[16] The level of education that one attains can be influenced by many factors that have nothing to do with one's innate intelligence. Some professions require more education to pursue than others, and those who come from wealthy families will have an easier time obtaining an education than others will.

Third, assuming that a higher level of education does correlate with intelligence, some of the policies that I have put forward would actually be favorable to the objector. Those with

[16] A recent study also found that this trend was no longer the case in the United States: in the 2000s, women with advanced degrees increased their fertility levels significantly such that they are no longer clearly having fewer children than those with lower levels of education (Hazan and Zoabi 2015).

higher levels of education generally have better prospects at obtaining high-paying jobs, and the schemes that I have suggested would make it easier for those with higher incomes to maintain large families than those with more modest incomes.

Fourth, in order for my proposed policies to have the long-term effects that the objector fears, they would need to be enforced for a very long time (and would probably need to be more restrictive than what I am advocating). The need to lower fertility rates is a response to our current predicament. If adequate action is taken to mitigate the environmental degradation that is taking place, then we can return to higher fertility rates once our population has reached a sustainable number. The population policies we should pursue will change depending on our circumstances, and nothing prevents us from altering them in the future if it would be advantageous for us to do so.

Moral Tragedies and the Hard Questions

Now we turn to some of the bigger challenges to implementing strategies to reduce population. One of the unfortunate realities of the population predicament is that it may not be possible to solve the problem while avoiding all unjust outcomes. We know that failing to act will lead to substantial harm to future people – a great injustice. But there are also effects of implementing some of the policies I have put forward that may result in significant injustices. This combination of circumstances may suggest to some readers that none of our available options is morally permissible. Lisa Tessman (2015) describes these as cases of "moral failure"; they are also often called "moral dilemmas" (Sinnott-Armstrong 1988; McConnell 2014). I will refer to these scenarios as *moral tragedies*. I will not take a stand on whether these moral tragedies constitute genuine dilemmas in which all our options are morally wrong or whether they are just difficult moral decisions involving two bad options. In either case, we would still

need to make a decision about what to do, so I do not think this dispute matters much on the practical side of things.

The reason we find ourselves in circumstances of moral tragedy is because two conditions are met: (1) many future people will be severely harmed by environmental degradation if population is not reduced, and (2) most likely, some present people will be the victims of significant injustice as a result of population reduction. In chapter 4, I summarized the harms that jeopardize the welfare of future people. In this section, I will briefly summarize some of the injustices that present people may suffer if population reduction is pursued and consider the implications of these consequences for our moral decision-making.

One concern about decreasing population is that there will be too few young members of the population relative to the number of elderly people (Last 2013, ch. 5). One consequence of having a smaller working population is that the tax base declines, decreasing government revenue. Another is that there is an increased demand for medical care, which requires the government to spend more on health coverage. This combination of effects creates an obvious problem: either the young, working members of society must bear a greater burden to support the elderly, or medical care to the elderly must be more strictly rationed. To lessen the burden on the younger members of society, we might need to consider rationing life-extending health care to the elderly. Independent of any discussion of population reduction, some have argued that we ought to ration life-extending health care on the grounds that medical resources are limited and that keeping the very old alive for a bit longer through expensive procedures is an inappropriate use of limited resources (Callahan 1995).[17] The need to reduce population would seem to make

[17] For a recent overview of the issues involved in rationing health care, see Morreim et al. (2014).

the case for such rationing even stronger, but of course, doing so means that some older members of society will not receive treatments that could extend their lives.[18]

Population policies also raise significant concerns about equality. One major concern is that they will have a disproportionate impact on women, who bear a much larger role in reproduction than men. Rebecca Kukla (2016) encapsulates the concern as follows:

> I think we have plenty of reason to worry that any plausible interventions designed to reduce fertility will likely have a disproportionate impact on women. In turn, they will likely enhance an already problematic pattern of gender inequality, and intensify our interventionism and moralism then it comes to women's bodies and reproductive practices. And again, it is especially vexed to heighten such burdens on women while their sexual and reproductive autonomy is systematically insecure. (p. 876)

The main fear is that women will be subject to substantial pressure from others regarding their reproductive decisions and that, particularly in societies where their reproductive freedom is already compromised, their autonomy will be undermined. Some of these concerns can be mitigated by avoiding certain types of incentives. To offer one illustration, Hickey, Rieder, and Earl (2016) discuss paying women to attend family planning classes or visit a gynecologist (p. 867). Such incentives might be effective, but they seem to target women exclusively, suggesting that it is primarily a woman's responsibility to limit her fertility. Incentives should be gender neutral insofar as this is possible. Even so, given the prevailing view that women are the ones who are primarily responsible for their reproductive activities, it is probably naïve to think that these types of population policies could *completely* avoid having a disproportionate impact on women.

[18] There may also be situations where the conflict between population reduction and providing adequate medical care to everyone is more direct, such as if we must choose whether to fund family planning or health care (Mosher 2008, ch. 6).

Another concern about inequality stems from who would be able to have large families under the schemes I have proposed. Since those of lower socioeconomic status will be heavily incentivized to have smaller families (due to the financial benefits of doing so), large families may become common only among the very wealthy. After all, under the cap-and-trade scheme I have proposed, they would be able to afford allowances for many children. Furthermore, even without a cap-and-trade scheme in place, fines for having too many children would have to be utterly exorbitant to impact their financial status. In practice, many would be willing and able to pay the fines to have a larger family. The poor, who would be unable to do so, would be more likely to have smaller families, and in this manner, family size might become associated with social class. More worryingly, since the poor are disproportionately likely to be people of color, these policies could "end up enacting a kind of indirect eugenics" (Kukla 2016, p. 877). Again, this is a troubling implication that we might be able to mitigate but may not be able to completely avoid.

The considerations mentioned above are worrying, but perhaps no issue is more befitting of being called a moral tragedy than immigration policy. Considerations tied to population complicate this already challenging issue in problematic ways – so much so that some of the foundational considerations underpinning the issue have to be reassessed. For instance, the concept of moral equality is typically invoked to generate arguments in favor of an open-borders immigration policy – a policy in which people are free to cross national borders and relocate to another country with few or very limited restrictions.[19] It is clear that one's country of origin plays a very central role in one's life prospects: people born in the United States will typically have far better life prospects than those born in Kenya, for example. Yet we do not think that a

[19] For some examples, see Cole (2012) and Carens (1987; 2013, ch. 11).

person being born in a particular country has any effect on their moral value or the moral significance of their rights and interests. So on what basis do we justify preventing individuals from migrating to improve their life prospects?

Opponents of open-border positions have generally acknowledged that the moral equality of persons generates strong objections to their views. Consider Christopher Wellman's (2008) diagnosis of the moral-equality objection to closed borders:

> For several reasons, this case for open borders presents an especially imposing obstacle to the prima facie case for the right to restrict immigration outlined above. For starters, both its moral and empirical premises seem unexceptional. How could one plausibly deny either that all humans are in some fundamental sense equally deserving of moral consideration or that the staggering inequalities across the globe dramatically affect people's life prospects for living a decent life. Indeed, looked at from this perspective, sorting humans according to the countries in which they were born appears tantamount to a geographical caste system. (p. 120)

Wellman then attempts to refute this objection. David Miller (2016, ch. 2) and Michael Blake (2013) similarly recognize the significance of respecting moral equality and attempt to address the problem that it poses for their defenses of closed-border positions.

Overpopulation complicates the debate. An appeal to moral equality does not obviously favor an open-border position if it is understood to extend across generations. In chapter 5, I argued that we have to regard the harm done to future people as just as morally significant as the harm done to present people. Future people, at least in this regard, should be regarded as the moral equals of present people. I also argued that we must stabilize and reduce population to adequately respond to ongoing environmental degradation. Some developed nations, though they have achieved fertility rates at or below replacement levels, are still growing because of immigration, and when citizens from countries with low per capita rates of consumption immigrate to countries with higher rates of consumption, their individual ecological footprint increases. As a result, the global environmental degradation is increased. Thus, in the interests of

protecting future people form harm, some developed nations may need to restrict immigration to prevent their populations from growing.[20] On these grounds, an appeal to moral equality does not clearly count in favor of an open-borders immigration policy under current conditions.

A further complication arises when we consider climate refugees. The emissions of developed nations have contributed the most significantly to climate change, so there is a strong case for claiming that they are morally obligated to accommodate those in developing nations who are displaced by it (Nawrotzki 2014). But admitting climate refugees will increase the population of these developed nations and thereby increase their overall ecological footprint and make it harder for them to lower their overall GHG emissions. Limiting immigration to only *climate* refugees might lessen the severity of this problem, but the cost of doing so is that other refugees, whose lives are in immediate danger, would need to be turned away.

Determining what immigration policies are morally justifiable cannot be done by considering just one or two arguments,[21] but my aim is not to resolve the immigration debate here. Rather, I am highlighting yet another way in which our collective obligation to reduce population forces us to make very difficult decisions about what we do. We are faced in a situation where severe harm will befall some no matter what we do. If we take no action on population or take only limited action (e.g., providing contraceptive services to the developing world), then our response to the problem will be inadequate, and future people will suffer severe harms as a result. If we make a more robust effort to reduce population, then present people will be harmed. In both scenarios, the people who will be harmed are likely to be members of

[20] This argument is presented at length with respect to the United States in Cafaro and Staples (2009) and Cafaro (2015).
[21] As the surveys of Wilcox (2009) and Wellman (2015) indicate, there are a plethora of arguments to be considered in the debate about immigration policy, both for and against open borders.

vulnerable groups – those who are nonwhite and poor. Remember that the impacts of climate change will be felt (and are being felt) disproportionately on those in the developing world. Whichever path we choose, great moral tragedy will occur. So what do we do?

Under such circumstances, considerations of justice do not offer us a resolution. It is not possible to do justice to all parties involved or protect all parties from harm. The best we can hope to achieve is to minimize the injustice that occurs and the harm that is suffered. One way to pursue this strategy is adopting a consequentialism of rights, a strategy discussed by Darrel Moellendorf (2014) in the context of climate change mitigation. He recognizes the possibility that some people who will not have their human rights violated under business-as-usual scenarios will have their human rights violated if we undertake mitigation measures (Moellendorf 2014, pp. 231-232). If this picture is accurate, then one may wonder how a rights-based approach favors a policy of mitigation rather than business as usual. After all, rights are being violated in both scenarios. Moellendorf (2014) suggests that this problem might be resolved by pursuing "the course of action that is likely to lead to maximal satisfaction of rights" (p. 232). Of course, this maximizing approach to human rights does run the risk of not according strong enough protections to the rights of minorities, since the rights of the majority would appear to always trump the rights of minorities in rights conflicts between these groups, so perhaps sometimes the rights of minorities would have to be given disproportionate weight in the calculation. (This consideration is also not relevant to the case we are addressing because the interests of minority groups will be jeopardized in both scenarios we are considering.)

Another wrinkle to this consequentialism of rights is that some rights violations are worse than others. Violating someone's right to life is a more serious moral wrong than violating someone's right to bodily autonomy, though both rights are significant. As mentioned briefly in

chapter 3, the rights that will be violated as a result from unimpeded environmental degradation will be among the most severe (e.g., the right to life, the right to health, the right to physical security). There rights violations could be experienced by hundreds of millions of people this century. Given the staggering numbers and the severity of the rights violations under discussion, we should prioritize reducing population to avoid these rights violations and accept that some rights violations, most likely in the form of inequality or coercion that violates reproductive rights, will be experienced by present people as a result, despite our best efforts to avoid these outcomes. These results are regrettable, but it would be morally worse for us to *not* take these measures to respond to population growth.

This resolution will no doubt strike some readers as troubling. It certainly troubles me. I would much rather arrive at a solution in which all parties can be treated fairly and protected from harm. But our circumstances have made such a solution impossible, and we do ourselves no favors by denying this fact. Moreover, as bad as our options may seem under current circumstances, they will only get *worse* the longer that we wait to act. The longer we wait to slow population growth, the harder it will be to make the reductions in our collective ecological footprint in time to avert serious harms. Thus, while there are risks associated with pursuing preference-adjustment and incentivization, these measures must be taken seriously and should be gradually and cautiously implemented as part of the effort to lower fertility rates. As mentioned earlier, incentives would be primarily reserved for developed nations, and increased access to family planning services would be primarily aimed at developing nations. Preference-adjusting interventions likely have a role to play in both of these groups (in part because of the reasons unrelated to population growth that favor a less permissive attitude toward the moral acceptability of procreation). Pursuing these measures is far from a perfect solution, but if the

aim is to minimize the injustice done to both present and future people, then I believe this combination of strategies represents our best option.

CHAPTER 7: THE ETHICS OF INDIVIDUAL PROCREATIVE DECISION-MAKING

In previous chapters, I argued that we have a collective duty to reduce human population and surveyed several possible policies that we could enact to accomplish that goal. I have also considered the undesirable implications of putting these policies into practice but concluded that they ought to be pursued (with caution) nonetheless. However, in the immediate future, it is unlikely that the policies I have suggested will be put into action. Even so, individuals still face important moral questions regarding their own procreative decisions. In light of what has been discussed with regard to population, how many children are people morally permitted to have?

While prior chapters have focused on the global scope of the population problem and what we collectively ought to do, it is not societies or nations that have children. People have children. Furthermore, since extremely coercive policies – that is, those that involve mandatory abortions or sterilizations – are morally objectionable and impractical, population reduction must be achieved by individuals' choices. Thus, we must consider just how many children would-be parents can permissibly have.

Remembering What's Been Rejected

In chapter 3, I considered two extreme positions regarding the ethics of procreation: Antinatalism and Procreative Liberty. According to Antinatalism, it is always morally wrong to procreate. According to the view I call Procreative Liberty, everyone has a right to procreate an unlimited number of times. Although I will not repeat the arguments here, it is worth remembering that both these views have already been dismissed. This observation is important because it gives us some insight into what an acceptable ethics of individual procreation will look like.

Antinatalism is false, so there must be some circumstances in which procreation is permissible. But Procreative Liberty is also false, so people do not have a right to have as many children as they like regardless of the circumstances. The correct position must lie somewhere between these two extremes. These boundaries do not have much practical import, however, unless we can be more specific. After all, the view that it is only permissible to have one child is much different than the view that we must limit ourselves to ten children or fewer.

In what follows, I will argue that couples should generally limit themselves to having two or fewer biological children – the equivalent of one biological child per person. Certainly, there will be some exceptions to this general rule, such as when a woman becomes pregnant with triplets or when someone has purchased the rights to additional child through the cap-and-trade scheme I suggested in chapter 6. The general point, however, is that couples are usually acting wrongly if they choose to have more than two children – whether or not the policies I have proposed are put into effect. Call this the *Two or Less* view.

Christine Overall (2012) and Travis Rieder (2016b) have each already made arguments defending views similar to Two or Less, although they suggest these positions only apply to those in the developed world. Since those in the developing world have radically smaller ecological footprints than those in developed nations, large families do not produce the same ecological consequences in those regions. Thus, both authors limit the scope of their arguments to those living in affluent societies.

Overall arrives at her two-child limit by trying to balance the considerations in favor of procreative limitation with the fact that procreation and child-rearing plays such a central role in people's life plans. She objects to a one-child-per-person view by appealing to the general demandingness of such an obligation, the recognition that such a view does not permit all

individuals to replace themselves, concerns about the effects of eliminating sibling relationships altogether, and worries about how a one-child policy could lead to sex selection (Overall 2012, pp. 181-183). Based on these considerations, Overall (2012) concludes that "an obligation to have only one child is at most supererogatory and unlikely to be sustainable" (p. 183). The more sensible position, she reasons, is to claim that adults have the responsibility to limit themselves to procreative replacement when their children will have large ecological footprints.

Travis Rieder (2016b) does not follow Overall in endorsing a concrete limit on how many children one may permissibly have. Instead, he articulates reasons for having zero, one, or two children and then concludes that "whichever precise number may be correct, it seems plausible that the principles articulated here entail a duty for many of us to have at most two children" (Rieder 2016b, p. 37). In other words, Rieder thinks that two is the maximum number of permissible children that a family can have in the developed world. The main principle to which Rieder (2016b) appeals is a duty not to contribute to massive systematic harms – "a duty not to inject oneself as an active contributor into the large, causally complex machine" that generates the catastrophic harm in question (p. 29). Rieder views climate change as an example of a massive systematic harm, and procreative activities often make a substantial contribution to it. Thus, those whose procreative activities make such a substantial contribution to climate change have an obligation to limit their procreative activities and adopt a small family ethic.

My argument for Two or Less differs from these prior arguments for the position in two ways. First, my argument appeals to the virtues of integrity and mindfulness. The moral considerations that Overall and Rieder examine are almost exclusively either consequentialist (e.g., the bad effects of procreation) or deontological (e.g., duties of non-contribution to harm, concerns about fairness and equity) in nature. Appeals to virtue and character do not play a

significant role in their arguments.[1] Second, my argument is not limited in scope to those in the developed world. My argument is intended to apply to anyone making a procreative decision, regardless of where they currently live. In what follows, I will present my argument for Two or Less and defend it from various objections.

The Integrity Argument for Two or Less[2]

The first argument for Two or Less appeals to the concept of integrity, a commonly cited virtue. However, despite the general consensus that integrity is a character trait well worth having, a precise definition of it is elusive. There are many conceptions of integrity, and each of them has distinct advantages and disadvantages compared to its competitors (Scherkoske 2013). Moreover, integrity is sometimes used in a more general way to identify one's quality of being a morally good person; as Robert Audi and Patrick Murphy (2006) put the point, "In a great many cases, 'integrity' is a specific sounding term for something like moral soundness, whose exact character is left unspecified" (p. 8). This general definition is too vague to be useful: it says nothing about what specific features of integrity are morally praiseworthy or what specific qualities one must possess to have integrity.

Fortunately, better definitions of integrity are available. Marion Hourdequin (2010), drawing on Audi and Murphy (2006), highlights two central meanings of integrity: "integration" and "being integral" (p. 448). She states that being integral "involves the internalisation of certain commitments, such that these commitments are central to an individual's identity" (p.

[1] Drawing on Jamieson (2014), Rieder (2016b) does acknowledge a small subset of virtues (pp. 56-59), but they do not play a role in his argument for Two or Less. Rather, he suggests that these virtues could play a role in explaining why we ought to limit our procreative activities even if we had no strict obligations to limit our procreation. My argument, in contrast, will appeal to virtues to establish a genuine obligation for individuals to limit procreation to one child per person.

[2] Various portions of this section draw on a related paper that examines whether individuals have a duty to reduce their individual greenhouse gas emissions. See Hedberg (forthcoming).

448). Integration is related to being integral because it concerns how one unifies the various commitments she has so as to avoid conflicts among them. Integration is a special type of unity among the elements of character that minimizes conflicts among these elements so that "they form a coherent, ideally a harmonious, structure" (Audi and Murphy 2006, p. 9). In other words, integrity involves a certain unity of identity: a person of integrity maintains consistency among her beliefs and behavior across all her different spheres of identity. Hourdequin (2010) applies this view of integrity to the case of climate change to argue in favor of a duty to reduce greenhouse gas emissions. She argues that a person committed to working toward a solution to climate change in the political sphere will, in order to satisfy *integration*, also be committed to reducing her contribution to climate change in the personal sphere. A failure to act in this way suggests that this person lacks the "kind of unity that integrity recommends" because her commitments would be embodied in only a single sphere of her existence rather than all the different spheres she inhabits (p. 449).

I will ultimately make an argument similar to Hourdequin's but about population rather than climate change. Nevertheless, it is worth acknowledging that this account of integrity cannot be supported so swiftly. As Scherkoske's (2013) survey indicates, there are at least six distinct accounts of integrity as a moral virtue.[3] Given that controversy, one may wonder why we should accept an approach to integrity similar to Hourdequin's rather than one of the competing views. Fortunately, the appeal to integrity that I will be making relies only on a few of integrity's most fundamental features – features that any plausible account of integrity will possess.

[3] There is also an error-theoretic account – which suggests that integrity is not a virtue at all – and an account of integrity as an *epistemic* virtue. The dominant view is that integrity is a moral virtue, which implies that most analyses of integrity assume both the error-theoretic and epistemic accounts of integrity are false. My own account of integrity will bypass issues about what particular account of integrity is correct, but my later remarks about integrity's value can be interpreted as an argument against the error-theoretic account.

Scherkoske (2013) identifies eight "data points" concerning integrity, which refer to the general ideas that the concept of integrity typically identifies (pp. 29-30):

- *Stickiness*: Integrity is tied importantly to sticking by one's values and convictions.
- *Integrity-Within-Reason*: A person of integrity must be responsive to reasons; integrity is not dogmatism.
- *Range*: Integrity is not limited in application to just moral convictions.
- *Truthfulness*: Integrity is centrally tied to traits such as honesty and sincerity.
- *Coherence*: A person of integrity must have her values and convictions properly cohere with her conduct.
- *Resoluteness*: People of integrity stand by their convictions both individually and socially and display a special kind of resolve.
- *Moral Sanity*: One cannot have integrity if one is grossly immoral.
- *Judgment*: We are keen to ensure that the people from whom we seek guidance or mentoring are people of integrity.

A full account of integrity might feature all of these traits (provided all of them could be endorsed without creating any inconsistency), but since it is controversial whether many of these data points are central to the concept of integrity, we will be better served by limiting ourselves to the most central elements of this virtue and crafting an argument that only appeals to these features.

Coherence, Stickiness, and Resoluteness are the core features of integrity: no plausible account of integrity can omit any of these elements. Coherence refers to the trait of ensuring a tight connection between one's beliefs and one's actions; it is the feature of integrity that explains why hypocrisy (which is simply the lack of this coherence) is such a fundamental

violation of integrity. Stickiness and Resoluteness are related concepts, so much so that Scherkoske (2013) even describes Resoluteness as a type of "virtuous 'stickiness'" (p. 29). The main difference is that Stickiness refers to the willingness to stay mentally committed to one's principles while Resoluteness refers to the willingness to demonstrate commitment to those principles through one's actions. In this manner, Resoluteness can be seen as Stickiness that manifests properly in one's actions.[4]

The Integrity Argument for Two or Less can be sustained so long as the account of integrity that is endorsed satisfies Coherence, Stickiness, and Resoluteness. A complete account of integrity may well involve more than accommodating *just* these three data points. It may be impossible for a thoroughgoing Nazi to possess integrity, no matter how well he satisfies Stickiness, Coherence, and Resoluteness.[5] To reiterate, however, I want to keep my account of integrity minimal so that this argument is not taken to hinge on a convoluted and controversial conception of it. I maintain that Coherence, Stickiness and Resoluteness are necessary ingredients any plausible account of integrity and take no stand here on whether anything further is required. Call this resulting conception of integrity CSR+. The "+" acknowledges that a full account of integrity may include other important features.

Having specified the details of the CSR+ account of integrity, we can now examine the argument that uses integrity to argue for Two or Less:

(1) Individuals have a general *prima facie* obligation to facilitate a collective political solution to overpopulation.

[4] As this phrasing suggests, it is possible to read Resoluteness in a robust way that encompasses Stickiness, but the convention in the literature has been to separate these traits.
[5] It is worth noting that Moral Sanity, even if required, would not threaten the Integrity Argument because working toward a solution to overpopulation is a morally worthy cause.

(2) Individuals ought to live with integrity.

(3) Individuals ought to be mindful of the effects of their actions.

(4) If individuals have a general *prima facie* obligation to facilitate a collective political solution to overpopulation, ought to live with integrity, and ought to be mindful of the effects of their actions, then they also have a *prima facie* obligation to refrain from having more than two children.

(5) Therefore, individuals have a *prima facie* obligation to refrain from having more than two children. [1-4]

The argument has valid form, so any flaws it contains must reside in the premises. I have already made the case for (1) in chapters 4 and 5 of the dissertation. It should be obvious at this point that we have a collective duty to stabilize and reduce global population. Individuals are limited in what they can do to enact change themselves, but at a minimum, they should adopt a commitment to cooperate in the quest to find a solution. Minimally, those in democratic societies with the power to vote should, when possible, strive to elect politicians who take overpopulation seriously and are committed to developing a solution to it. I will leave it open what more this obligation may require, but the general point is that it is a commitment that all should share.

Supporting (2) is more complicated. To explain why one ought to live with integrity, we need to consider why integrity is valuable – why it is something worth cultivating in ourselves. A skeptic might wonder, especially given the disagreement over what integrity is, whether integrity is actually just misidentified as various other virtues. Perhaps it does not really identify anything valuable after all. The skeptic is right in thinking that integrity is a mysterious concept and that

its careless use has been the cause of some significant philosophical confusion.[6] Nevertheless, there seems be a fairly significant consensus in the literature on at least one trait of integrity: it is a good thing (Scherkoske 2013).[7] And on reflection, we can offer several reasons for thinking that integrity is valuable.

Integrity's value can in part be illustrated by considering how people react to certain unusual cases. Consider this example from Thomas Hill (1979):

> She [an old woman in Nazi Germany] lives on modest savings and offers no support to the Nazi regime either physically or morally. When the latest discriminatory laws against Jews are enforced, she is moved to protest. As a non-Jew she could have remained silent and thereby avoided much subsequent harassment. She is regarded as a silly eccentric and so cannot expect to make an impact on others, much less to stop the Nazi machinery. She still feels she should speak up, but she wonders why (p. 84).[8]

This woman takes a stand against the Nazi regime even though it works against her self-interest and even though her protest is unlikely to contribute to solving the problem, but most do not regard her behavior as being irrational. In fact, we often praise individuals who take these kinds of symbolic stands to oppose practices that appear grossly unjust, even when their protests work to their individual disadvantage and do not make a difference to solving the problem. One explanation for this praiseworthiness is that these individuals exemplify integrity: they are unwilling to abandon their deeply held moral convictions even when it is disadvantageous for them not to do so.

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[6] The relative scarcity of explicit discussion of integrity in classic virtue ethics literature also contributes to this problem, as noted by Audi and Murphy (2006, pp. 3-4).
[7] This is especially true in the literature on business ethics. See Audi and Murphy (2006, pp. 7-8).
[8] Hill (1979) examines acts of symbolic protest from a more deontological perspective; my borrowing of his case does not mean that I read him as endorsing my integrity-based analysis.

Hourdequin (2010) provides two additional reasons to believe that integrity is valuable. First, integrity takes proper account of human psychology: it explains why it is undesirable and unrealistic to promote or allow for serious discord among one's political and personal commitments. People are generally happier when their aims and values within the different spheres they inhabit are unified rather than in conflict because they will avoid the unpleasant cognitive dissonance that such discord creates. Second, integrity is valuable because it communicates to others the seriousness with which people hold their particular commitments. In Hourdequin's (2010) words:

> Interpersonally, integrity is a virtue from the perspective of intersubjective intelligibility and in affirming to others the authenticity of one's commitments. Where we see in others a lack of coherence between their political commitments and personal choices, we often wonder how to make sense of this apparent mismatch, and we may question the sincerity with which certain commitments are held. A politician's environmental commitments, as embodied in public pronouncements and legislative support, for example, may be called into question if he or she lives a lavish and environmentally damaging lifestyle (p. 451).

In this manner, some of integrity's value can be explained through consequentialist considerations: if we want to enact serious political change, we must appropriately unify our commitments so that others will take them seriously. In our personal actions, we must manifest the social change that we want to see in the world. If we do not act this way, then others will question whether we are really as committed to our cause as we claim.

It is crucial not to underestimate the value of integrity with respect to its social significance. Dale Jamieson (1992) highlighted its importance with respect to climate change 25 years ago when he noted that approaching climate change from the perspective of calculating

probable outcomes had “made us cynical calculators and institutionalized hypocrisy” (p. 150). Since we can all reason that our individual contributions to climate change are small and (seemingly) negligible, the effects of climate change seem fated to occur regardless of what we (individually) do, which means that we have no reason to change our individual behavior. If everyone reasons this way, the large-scale social change required will not come to pass. Thus, if this social change is to occur, “it is important that there be people of integrity and character who act on the basis of principles and ideals” (pp. 150–151). This does not mean that the value of integrity is reducible to its utility in solving climate change or other collective action problems. Rather, the point is that promoting integrity (and other relevant virtues) is particularly important in the context of collective action problems. When confronted with these kinds of problems, even the staunchest utilitarians have reasons to take virtue seriously (Jamieson 2007).

We can see from the prior arguments that the claim that we should live with integrity is more than mere rhetorical banter. Integrity is a genuine virtue, and thus, it is a character trait worth cultivating in ourselves. Premise (2) is defensible. The next challenge is supporting premise (3).

One of the unfortunate aspects of living in contemporary society, especially in the wake of globalization, is that our actions often have very far-reaching consequences. If we are to act in morally responsible ways, we have to develop some awareness of these consequences. Dale Jamieson (2007) refers to this process as the cultivation of mindfulness, a virtue that proves particularly important in the context of environmental decision-making:

> Much of our environmentally destructive behavior is unthinking, even mechanical. In order to improve our behavior we need to appreciate the consequences of our actions that are remote in time and space. A virtuous green would see herself as taking on the moral weight of production and disposal when she purchases an article of clothing (for example). She makes herself responsible for the cultivation of the cotton, the impacts of the dyeing process, the energy costs of the transport, and so on. Making decisions in this

> way would be encouraged by the recognition of a morally admirable trait that is rarely exemplified and hardly ever noticed in our society. (Jamieson 2007, pp. 181-182)

Mindfulness is not just an environmental virtue, however. A general imperative to be minimally informed is required for us to act appropriately with respect to any moral decision.

Exercising moral virtues and acting rightly requires being informed (Kawall 2010; Jenni 2003). If we do not have accurate information, we are at risk of making moral mistakes when we act. Thus, we have a general duty to be mindful of the effects of our actions and try to understand how they could impact others. Certainly, it is beyond human capacities to be fully informed about every morally significant event currently occurring, but we at least ought to investigate the matters that are most salient and in which we are personally implicated, particularly when the information about these issues is prevalent and can be accessed at low costs to us (Kawall 2010, pp. 111–116).

Admittedly, living up to the requirement expressed in premise (3) can be challenging. We are relatively unaccustomed to thinking with the long-term vision that mindfulness requires. Even so, being aware of the consequences of one's actions is a fundamental requirement of acting ethically. In light of the fact that our actions can have a substantial impact upon those who are geographically and temporally distant from us, we have three options: we can give up on trying to live ethically, we can live in ways that ensure our actions do not have far-reaching consequences, or we can try to be mindful of the consequences of our actions and reduce their negative impacts. If we take moral demands seriously, then the first option is unacceptable. The second option might be acceptable, if we are willing to live in the minimalist ways that it would require. Most of us, however, are not willing to forego the social and individual benefits provided by globalization and technological progress. We are not willing to disconnect from the power grid and pursue life in a rustic mountain village. Thus, for most of us, we are left only

with the third option – trying to be aware of the consequences of our actions and curtail our harmful behaviors accordingly.

With premise (3) defended, we can now turn to premise (4). This portion of the argument is where CSR+ does its work. If CSR+ is endorsed, then (4) becomes a fairly strong claim. Coherence captures the notion that such a person should bring their conviction in the political sphere into alignment with their behavior in the personal sphere. Stickiness and Resoluteness establish that this person should hold firm to their convictions and resist temptations to compromise them, abandon them, or fail to act on them.[9] Thus, if one seeks to maintain integrity, adopting a political commitment to work toward stabilizing and reducing human population entails adopting a personal commitment not to promote population growth in one's own actions. If both members of a couple claim that it is important to reduce population growth but then proceed to have three children or more in a series of intentional ordinary pregnancies, they are either acting incoherently, failing to live up to their own moral standards because of weakness of will, or inadequately informed about the consequences of their procreative activities.[10]

At this juncture, one might suggest that it is not possible for some people in the world to acquire accurate information about the impact of population growth. Uncovering the truth about the impacts of population growth is not as easy as it could be, especially since it has received less

[9] This is particularly important with respect to GHG emissions because most developed countries (especially the consumerist United States) present many temptations for frivolously increasing one's individual emissions, sometimes without even receiving any meaningful benefit from doing so.

[10] A moral assessment of procreative decisions where the members of the couple disagree about how many children per person can be permissibly conceived would be more complicated. I assume that we can make compromises in relationships – even about important things – without violating our personal integrity. My hope, however, is that the arguments in prior chapters will illustrate that we all should share the political commitment to cooperate in reducing human population and that we should be particularly reluctant to renege on this commitment at either the personal or political level. The problem is just too grave to be lax in these commitments.

coverage in the recent past than it deserves.[11] Nevertheless, given the scope and magnitude of population growth's impacts and the fact that all individuals affect population size through their procreative decisions, this issue is one that we should be particularly committed to researching and understanding. There are surely some people who are genuinely unable to learn about the effects of population growth – perhaps because they live in dire poverty with no internet access and few other resources for acquiring information – and for this reason, the Integrity Argument will probably not apply to them. They may not be blameworthy for underestimating the moral significance of their procreative decisions and may be able to maintain integrity by acting in ways that are consistent with their false beliefs. Even so, maintaining integrity by holding false beliefs is not a morally or epistemically laudable ambition, and the sources cited elsewhere in this manuscript indicate that accurate information on population growth's impacts can usually be found without great difficulty. While the number of people who are genuinely unable to uncover accurate information about population growth is hard to specify, we should not conclude that these exceptions undercut the general rule. Given the stakes, the presumption should be that people have this obligation and need to inquire about the subject before we absolve them of their obligation.[12]

If this reasoning is correct, then all four premises are true, and we must accept the argument's conclusion: we have a *prima facie* obligation to refrain from having more than two children. This obligation may be overridden in extreme cases, but the presumption is that two

[11] The mass media often ignores or understates the significance of population growth, but the problem runs deeper than that. Shragg (2015) documents a number of environmental organizations and institutes that do not acknowledge the contribution of overpopulation to the environmental problems that they are trying to resolve (pp. 23-32). Some examples include the Jane Goodall Institute, The Nature Conservancy, and the Rainforest Action Network.

[12] This requirement holds with respect to procreation in general, independent of overpopulation. As discussed in chapter 3, many moral considerations suggest that procreation is not permissible nearly as often as people typically believe. So people should investigate whether their circumstances permit procreation even when population growth is not a concern.

children is the limit. This presumption will be particularly strong for those living in the developed world where the environmental impact of having children is extremely high, but this argument is intended to apply to everyone. Under present circumstances, the political commitment that starts the argument is one that *all* human beings should share.

Objections to the Integrity Argument

Even if the prior reasoning appears persuasive, one might think that having integrity is actually not worth cultivating because living with integrity is too demanding. Most believe that there are limits to what morality can reasonably demand of us. As individuals, we must be allowed some choice in how we live so that we can pursue personal projects and ambitions that are important to us; otherwise, life would cease to have the meaningfulness that we usually associate with human flourishing. According to this objection, it might be morally praiseworthy to live with integrity to the degree required by the Integrity Argument, but doing so is supererogatory.

Consider the earlier example of the woman who voices her criticism of the Nazis. This behavior may be morally praiseworthy, and it may exemplify integrity. Still, it does not follow from those facts alone that acting with integrity is all-things-considered desirable. Living with integrity could, at least in the context of how we impact the environment, be quite demanding given the severity of the environmental problems we face and the various ways in which the great majority of us contribute to the problem. The demandingness may be particularly pronounced for those in the developed world since people in these countries have such substantial ecological footprints. In many cases, radically reducing our ecological footprint may have negative effects not only on us but also on our families, friends, and others who depend on us. If living with integrity really demands so much of us, then perhaps it is not really something

worth cultivating in ourselves. One could just bite the bullet and claim that integrity is, perhaps like many other virtues, a challenging character trait to develop and sustain, but such a response is unlikely to placate objectors. The Integrity Argument requires a stronger defense.

By way of an initial response, appeals to demandingness are sometimes greatly exaggerated. Many so-called "sacrifices" of living in a more eco-friendly way are not really sacrifices at all; they are just lifestyle changes. Some of them even work to our advantage in the long run. Some people will be a little uncomfortable in the summer if they set the air conditioner to 75 degrees instead of 72, but in a few weeks, they will adapt. Then this lifestyle change will actually be to their benefit because they will save money on utility expenses. It is also worth reiterating a point made in chapter 5: the values and lifestyles that our consumption supports do not clearly make our lives significantly better (Andreou 2010; Gambrel and Cafaro 2010; Gardiner 2012, pp. 244–245). The claim that a lifestyle change is "too demanding" may often serve as a mere rationalization for avoiding minor lifestyle changes. Tying these thoughts together, the general point is that living in a more eco-friendly way need not be construed as a debilitating sacrifice. Like the bullet-biting reply, however, this point cannot suffice as a response by itself. What about *real* sacrifices? Are we really required to limit our family size or potentially forego child-rearing experiences altogether?

Integrity does not make such harsh demands on a person. Remember that one of the core features of integrity is *Coherence* – the unity of one's values and convictions. We are all likely to have a large number of values and convictions that conflict with our commitment to reducing our ecological footprint. We may value the welfare of our spouse or children and not want to subject them to harsh lifestyle changes that would make their lives significantly worse. We might find great aesthetic value in film but recognize that we cannot easily view films without using

electronic devices that are powered by fossil fuels. We may love our family members and value getting to see them over the holidays even though it requires us to fly across the country (an activity that emits a lot of GHGs). In these cases, we have conflicts between various values we hold, and we have to determine how to settle them. In all likelihood, different values will survive these conflicts in different contexts. We might even compromise between values, for instance, by deciding to only fly across the country twice a year instead of three or four times. It is obvious, however, that if we *never* choose to act in ways that reduce our ecological footprint, then we lack integrity: either we are rationalizing our unwillingness to change our ways, or we do not genuinely hold the commitments that we claim to hold.

Remember that the Integrity Argument allows individuals to permissibly have up to two children, even if they live in a part of the world where their environmental footprints are large. Moreover, as discussed in chapter 3, the fundamental interests associated with having children can be achieved by having only *one* child. Having two children (or fewer) is not a debilitating sacrifice. In fact, even just limiting the scope to our contributions to climate change, some philosophers have argued for far harsher duties regarding how much we ought to reduce our ecological footprints.[13] Given how large a role population growth plays in exacerbating environmental problems (especially climate change), a limit of one child per person is perfectly reasonable: couples will still be able to enjoy the most substantial benefits associated with having children while tempering their impact on the environment. The Integrity Argument should not be dismissed because of concerns about demandingness.

[13] Nolt (2013b) argues that we have a moral obligation to stop using all unnecessary GHG-emitting devices. Broome (2014, ch. 5) argues that individuals are required to live in a carbon neutral way – that is, they must live such that the net balance of carbon emitted into the atmosphere over their lives is zero. On Broome's view, this does not mean that we refrain from emitting all GHGs: we can achieve this carbon neutrality through offsetting our emissions.

A skeptic might think the concern about demandingness could be put a different way, however. Perhaps the problem is that people, even when they have access to the relevant information, are incapable of psychologically accepting the implications of the facts. Perhaps they cannot grasp the significance of the information or are in the grip of fear or anger so deep that they cannot take the facts at face value. For these reasons, living up to the requirements of integrity and mindfulness is too demanding because doing so violates the principle of "ought" implies "can" (which I briefly discussed in chapter 3). According to this principle, people cannot be morally obligated to do what they cannot in fact do: being morally required to φ entails an ability to φ. Such a principle is deeply appealing because it explains why we routinely excuse otherwise unethical behavior when we realize the person could not have reasonably avoided acting as they did. If people really are incapable of cultivating this degree of integrity and mindfulness, then perhaps we ought to excuse them from this obligation.

It is possible to challenge the "ought" implies "can" principle,[14] but I will grant it for the sake of argument. How many people genuinely lack the ability to cultivate this degree of integrity and mindfulness? The answer depends in part on our perspective. Developing these virtues will usually take some time and effort. The development and maintenance of integrity is an ongoing, interminable process because we are often tempted to abandon or compromise our values. With mindfulness, the challenge is different but no less significant: we have to be constantly receptive to information and how that information applies to the geographically and temporally distant effects of our actions. Nevertheless, the development of these virtues can be achieved with practice – a process sometimes called habituation. This process is not foreign to how we might approach other problems in environmental ethics. Many believe, for instance, that

[14] See, for example, Martin (2009) and Graham (2011).

it is wrong to consume factory-farmed meat, but it may be difficult to instantly cull all factory farmed meat from one's diet. Rather than give up hope, however, one should work to *reduce* one's meat consumption gradually over time until this eating habit can finally be abandoned altogether.

The real question is whether people are willing and able to engage in the process of habituation to the degree necessary to realize the necessary level of integrity and mindfulness. An empirical question of this sort is hard to resolve, and I imagine there are some for whom it will be psychologically impossible. But I also believe that we ought not to underestimate people's potential in this regard. Too often, concerns about psychological difficulty are used as a means of rationalizing moral apathy. Too often, they serve as a justification for not taking any action in the first place. We may not have a clear grasp of what we are psychologically capable of, but adopting a defeatist attitude about cultivating these virtues is a surefire way to fail in our quest to cultivate them. We will do better to assume that their cultivation is possible and strive to achieve that goal, even if that goal turns out to be more of an ideal than something that is achievable for everyone. In short, there are good reasons to act as if these virtues are attainable even if some will fail in their efforts to cultivate them. We should strive to *expand* the scope of our moral awareness and the extent to which we live up to our values and not be content with leaving them where they are, at least so long as we can clearly do better.[15]

An alternative objection may arise from the argument's starting assumption. While it is clear that population growth is a significant problem, a pessimist about our current political systems might reject the claim that we have any individual obligation to adopt the political

[15] The view expressed here is similar in spirit to one defended by Raterman (2012). According to his position, while we are not required to become environmental martyrs, we should generally strive to do more than whatever we currently do with respect to limiting our contributions to environmental harm.

commitment that begins the argument. Take the United States as an illustrative example. The national political system is beholden to large financial donors who are invested in maintaining a carbon-based economy and maintaining economic growth, and the system strongly discourages genuine third-party alternatives. Under these circumstances, it may not seem like adopting a political commitment accomplishes much. After all, are any politicians seriously going to push for constraints on procreative freedom? This line of thought may prove even more powerful in countries like Denmark or Russia where the political pull is often in the direction of encouraging their citizens to have *more* children. Guaranteed ineffectiveness in the political arena would undermine the presence of a duty to work toward a collective solution to overpopulation and thereby threaten the Integrity Argument's starting point. Since it would be impossible to achieve a collective solution to overpopulation, one would have little reason to pursue the attainment of that solution.

There are two basic responses to this objection. The first, which we might call the optimistic response, is to deny that political action is doomed to be insignificant or ineffective. Just as there are corporate and political interests in avoiding discussion or pursuit of population reduction, there are also corporate and political interests interested in encouraging people to have fewer children. These are not just limited to organizations with environmental aims, such as the Population Institute; they also include organizations that are simply interested in promoting women's sexual and reproductive health, such as Planned Parenthood.[16] The political landscape, in other words, is not a one-way street. Furthermore, it is becoming more socially acceptable (at least in many areas of the world) to have fewer children, and we have evidence from prior

[16] Earlier in this chapter, I mentioned that I would not specify in great detail precisely what – beyond responsible voting – the political obligation requires. However, for those worried that voting may be ineffective, involvement in these organizations may serve as an alternative means of adopting the political commitment.

chapters that people can be motivated to have fewer children through means that are not as politically objectionable as extremely coercive measures. There is no reason to assume that cultural shifts in procreative norms could not make certain political views palatable even though they are presently unfavorable. In the United States, such a cultural shift took place rather rapidly with respect to general acceptance of homosexuality. The political picture is not yet bleak enough to give up hope in the effectiveness of political action.[17]

Additionally, even if one remains worried about the effectiveness of political action, I argue that such a defeatist perspective ought to be avoided. Adopting an attitude of resignation with respect to political action toward population growth only makes it more likely that the problem will remain unsolved until it is too late to escape its gravest effects. If belief in political ineffectiveness becomes widespread, it may result in a self-fulfilling prophecy by inhibiting the social change that is a necessary catalyst for a lasting solution to population growth. Given the severity of the impacts of population growth and the many problems to which it contributes, we *must* resist adopting this outlook: we should not promote this attitude in ourselves or others and must act *as if* political action (of some sort) can make a difference, even if our doubts persist. If we act to the contrary, then we are only increasing the chances that our worries will be realized and that our efforts at avoiding environmental catastrophe will fail.

Why Not One Child?

Suppose that my reasoning thus far has been persuasive. Many readers will be left with a curious question: why don't the arguments from the previous sections lead us to the conclusion

[17] Karen Shragg (2015) is one activist who has recently argued that the population problem is solvable, although she does not think that the solution will start with appealing directly to politicians. She believes that first a grassroots movement will need to demonstrate to politicians that there is a "groundswell of concern out there demanding their action" (Shragg 2015, p. 76).

that we should limit ourselves to a single child? In chapter 3, I argued that the fundamental interests associated with rearing children can be satisfied with only one child. In chapter 4, I emphasized the severity of various environmental crises on the horizon and the ways in which population growth contributes to these problems. If the problems are really as serious as I have indicated, why are couples permitted to have two children rather than just one?

Overall actually considers a similar concern in her own treatment of the issue and offers several responses. Some of her responses appeal to the effects of a one-child imperative, such as encouraging people to have families where children never have siblings and the ways in which this could promote sex selection (Overall 2012, p. 182). She also notes that such an obligation would be hard to sustain at a societal level because noncompliance of others and the knowledge that future people might not need to make these procreative sacrifices could undercut one's motivation to live up to this one-child imperative (pp. 181-182). These concerns, however, are best understood as reasons why such an obligation might not be feasible as a social policy or might be challenging for individuals to adhere to. Such concerns are reasonable but not pertinent to what is under discussion here. In this chapter, we are trying to establish what individuals morally ought to do. General concerns about policy implications or the effects of people not living up to their moral obligations do not establish that they lack the moral obligation to limit themselves to one child per couple.

Overall also offers an argument against a one-child obligation based on a right for individuals to replace themselves through procreation. Since her articulation of the argument is brief, I present the relevant passage here in its entirety:

> ...I suggest that a further problem with the one-child-per-couple obligation is that it implicitly negates one person in the couple. If a couple has two children, however, there is a child for each one—not in the sense that each raises only one child, but in the sense that each individual has replaced himself or herself. By contrast, a moral rule of only one

> child per couple says, in effect, "You ought not to replace yourself." (Perhaps it would also carry the message "You do not deserve to be replaced.") (Overall 2012, p. 182)

Overall's reasoning here is hard to decipher, but the core idea appears to be that there is something morally objectionable about the following moral principle: you ought not to replace yourself. The underlying thought may be that all people, merely by virtue of being rational and autonomous agents, have a right to replace themselves through procreation. Alternatively, the parenthetical remark may indicate the real problem – the concern that such a moral imperative would carry with it a pejorative message that we ought not promote.

Unfortunately, I cannot see an interpretation of this argument that renders it plausible. The moral rule we are considering is contingent upon certain background conditions – namely, overpopulation and its ongoing effects – and so the moral rule of one-child-per-couple would say something more akin to "Under current conditions of overpopulation, not all people ought to replace themselves." This principle clearly doesn't connote the pejorative implication that people "do not deserve" to be replaced since it is derived from tragic social circumstances. (The rationale for the principle has nothing to do with what people deserve.) The notion that a person in a couple is "negated" when they are only allowed to have one child is also puzzling: it is not as if parents designate that a particular child is the father's replacement or the mother's replacement. Both parents claim the child as *theirs*. Why is it so important that parents be allowed to have enough children to ensure numerical replacement, particularly when the consequences of their doing so contribute to such significant detrimental consequences?

Overall later suggests that what is objectionable about a one-child-per-couple obligation is that it does not properly acknowledge the value of adult human beings. Although not directly stated, this claim can be inferred from what she says about the benefits of a one-child-per-person obligation:

> All persons get to (try to) have a child of "their own," if they want one, and the value of every adult is implicitly endorsed through the fact that each one is allowed to reproduce herself or himself. Such a responsibility implies that every person is sufficiently valuable to be worth replacing… (Overall 2012, p. 183).

The suggestion here is that a one-child-per-couple policy would *not* imply that every person is sufficiently valuable to be worth replacing, but Overall is mistaken in her belief that a one-child-per-couple obligation entails this claim about the value of people's lives. In fact, the justification for this restriction on procreation arises directly from a concern about the value of people's lives – particularly, the negative value associated with widespread human suffering. In advocating a one-child-per-couple obligation, we would be claiming that the welfare loss of present and future people is so significant that we must limit our procreative activities. This reasoning does not imply making judgments about who is worth replacing and who is not. In fact, what we hope in the long term is that we can create background conditions that will enable people to "replace themselves" through procreation with greater liberty. In light of these considerations, I cannot see a reason why the parents' ability to achieve numerical replacement could be regarded as so morally important as to render a one-child-per-couple obligation problematic.

Overall does, however, allude to one other argument against a one-child-per-couple obligation that is more promising than these others. She notes that this procreative limitation could be a substantial hardship for many people, especially for single people who will not be able to procreate unless they can find another single person who has no children. Based on these considerations, she remarks that a one-child-per-couple obligation is "at most supererogatory" (Overall 2012, p. 183). Given the hardship that a one-child policy imposes on many people and the central role that child-rearing plays in so many people's lives, an obligation for couples to restrict themselves to only one child.

While I believe that it is morally better – at least at the present time and under ordinary circumstances – to have only a single child or to have none at all, it is only morally required that a couple not have more than two. The replacement rate is approximately 2.1 births per woman, so having two children will not increase the overall population in the long term (though it will also not do much to slow its growth). Stabilizing and reducing human population can only be achieved through large-scale collective action, so it is unreasonable to demand that individuals undertake severe sacrifices in the absence of a collective scheme to address the problem unless their actions are making the problem worse. People value their children for many reasons, and children often occupy a prominent role in people's life plans.[18] A birth rate of two children per woman does not make the population problem worse: collectively, we need to aim for a lower birth rate than this, but at least this birth rate would eventually bring us to a population that was not continuously growing in size. A birth rate of three children per woman, on the other hand, would clearly make the problem worse because it would cause the population to grow.

The general moral principle applicable to cases of individual procreation might be put this way: absent any collective scheme to stabilize or reduce human population, individuals ought to act in such a way that their individual actions do not clearly make the population problem worse. In practice, this means that all couples should strive for two children or fewer and that all individuals should refrain from procreating more than the equivalent of one child per person. The prima facie obligation established by the Integrity Argument applies to everyone,

[18] See Dillard (2010) for a survey of the reasons that people value having children.

regardless of where they live, and although there will be exceptions in unusual cases,[19] the standard of Two or Less is one we should all follow.

[19] Since those in developing countries have a lower ecological footprint than those in the developed world, citizens in developing countries will sometimes have an easier time arguing that their individual circumstances constitute an exception to this general obligation. Nevertheless, the obligation extends to everyone, and the default position is that two children is the maximum.

CHAPTER 8: LINGERING QUESTIONS

Overpopulation contributes to a host of environmental problems, the most notable of which are climate change and biodiversity loss. Since these problems cannot be addressed entirely by reducing our rates of environmentally harmful consumption, we must also strive to halt population growth and (in the long term) reduce global population to a level that we can sustain for the long term. In pursuing the goal of population reduction, we want to enact policies that are no more coercive than what is required to solve the problem. Thus, we should start by increasing access to contraception and family planning services, increasing educational opportunities for women in the developing world, and promoting awareness of the contributions that population growth makes to various problems around the world. These measures, however, are unlikely to be enough on their own, and so we will also need to consider methods of preference adjustment and incentivization that could be effective in lowering fertility rates. Even if no substantial policy efforts are made to reduce population, I have also argued that individuals should have two or fewer children on the grounds of maintaining integrity.

Despite the arguments I have presented thus far, several important questions about this issue remain unaddressed. In this chapter, I raise some of these lingering questions and highlight some of the moral considerations that future research on solving the population problem will need to investigate.

What About the Nonhuman Community?

Throughout this dissertation, I have assumed an anthropocentric perspective. I have only examined the effects of environmental degradation insofar as they matter to human beings. I believe, along with many other environmental ethicists, that some members of the nonhuman

community have direct moral standing and that their interests ought to be considered when we make moral decisions, but I have said nothing about how much these interests matter or how they ought to be factored into our deliberations about solving the population problem. Even in my discussion of biodiversity loss, biodiversity was only presented as valuable in virtue of its instrumental value to human beings.

While I encourage other environmental ethicists to catalogue the effects of population growth on the nonhuman community and debate the moral significance of those effects, I have deliberately avoided doing so for two reasons. First, I have sought to demonstrate that we should stabilize and reduce population *even if we adopt the most minimal assumptions about moral status possible*. Non-anthropocentric arguments do not carry the same weight in policy discussions as anthropocentric arguments, and hinging my arguments on claims about the moral status of animals may allow skeptics about their status to easily dismiss my arguments. My arguments do not hinge on any controversial claims about the moral standing on nonhuman life (or anything else in the nonhuman world).

Second, however strong my arguments are, they will be *much stronger* if the moral significance of animal suffering is taken into account and if species extinctions are evaluated through a non-anthropocentric lens. When assessing the gravity of the population problem, I gave no weight to animal suffering, and I said nothing about how biodiversity loss adversely affects the lives of animals in various ecosystems. To the extent that these non-anthropocentric considerations are morally significant, they will only increase the significance of the population problem. This effect will likely be most pronounced with respect to animal agriculture. We

slaughter billions of animals annually for human consumption,[1] and billions more are harvested from the sea.[2] People require food for sustenance, so the more people there are, the greater the need to slaughter animals for consumption. While it is possible for many of us to survive on vegetarian diets, most in the world do not, and under current circumstances, rising population leads to rising pressures to farm more animals and harvest more fish. The way these creatures are raised and harvested often subjects them to severe suffering.[3] To name a few of the more common ways these animals suffer, fish often die of suffocation, pigs and other animals have their throats cut or stabbed (often without being stunned beforehand), chickens live in cramped and crowded battery cages where they lack the space to even stretch their wings, and veal calves are confined to such small spaces that they can barely move at all. Any ethic that takes animal suffering seriously will regard these harms as quite severe, particularly given their enormous frequency: to reiterate, the number of animals under killed for human consumption every year is well over 100 billion on even the most conservative estimates.

If what I have argued in earlier sections of the dissertation is correct, then we have a moral duty to stabilize and reduce population when we limit moral consideration to just human beings and human interests. If we extend the scope of moral consideration to include members of the nonhuman community, then we will only find further support for such a duty. For this reason,

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[1] Current data is compiled by the United Nations Food and Agriculture Organization (2017) and can be accessed at http://www.fao.org/faostat/en/#data. Their data from 2010 concludes that roughly 63 billion animals were slaughtered that year, and this figure recurs in the literature somewhat frequently (e.g., Benatar 2015, p. 116 fn 43; Wadiwel 2015, p. 6 fn 17), although their estimates exclude animals that die in the process of collecting animal products (like eggs and milk) or are killed by human beings for recreational purposes.

[2] The number of marine animals that die annually is quite difficult to estimate due to variance in regional fisheries and the fact that catches are reported in weight rather than individual fish caught. Estimates range from 90 billion (ADAPTT 2017) to over 1 trillion (Mood & Brooke 2010).

[3] A brief but chilling list of the types of suffering these animals endure is found in Benatar (2015, pp.94-95).

my arguments in prior chapters very likely *under*state the moral importance attached to the population problem.

How Many People Should We Aim For?

Throughout this dissertation, I have stressed a need to eventually reduce our population below our current levels. I have not, however, specified exactly what number we should target in the long term. As mentioned in chapter 1, some have advocated that we pursue a target of two billion people, an approximation of how many people the Earth could sustainably support if everyone lived a lifestyle similar to those currently living in Europe (Smail 1997, Foreman 2012). Karen Shragg (2015) sets the number even lower – 1.5 billion (p. 94).

I have not specified a number because I expect this number will change significantly in the future. Given the current population – about 7.4 billion people – it is clear that we should aim for something lower. That will be even truer in the future when global population approaches 9 billion, an outcome that is virtually guaranteed regardless of what population policies we pursue, since it will take time to alter our demographic trajectory. Simultaneously, technological improvements could alter the number of people that the planet can sustain: the number of people we can accommodate on Earth is not infinite, but this number is also not static. So for now we should aim to stop population growth and start shrinking our numbers. Once our numbers are on the way down, we can reassess exactly how much shrinking should take place. I do not think we can specify in advance what our long-term target should be.

What About Religious Exemptions?

Some readers may be curious whether certain individuals may be exempt from general population policies. Specifically, some may believe that restrictions on procreation would be a violation of their religious freedom. Sometimes, we recognize religious exemptions to state laws

that allow individuals or organizations not to abide by certain laws that conflict with their religious beliefs. Could this exempt certain individuals from a duty to abide by whatever population restrictions (or recommendations) are put in place?

One simple way to answer this question in the negative is to deny that religious beliefs deserve any special privilege over other beliefs. On such a view, religious beliefs should not ground exemptions to laws any more than other beliefs do, which means that religious beliefs will generally not provide the basis for being exempt from state laws. Although this line of argument has been endorsed by some (e.g., Leiter 2012), I suspect that such a view is too strong because it undervalues the role that religious belief often plays in people's lives. Religious beliefs are very personal and precious to many people, and so it is worth taking the possibility of religious exemptions seriously.

Even so, we often recognize that constraints on the exercise of religious belief are appropriate when the beliefs can cause harm to others. We would never condone a practice of human sacrifice, for instance, even if adherents of a certain religion genuinely believed that it was required by their faith. As discussed in chapter 3, population growth does not cause harm in quite the same way that directly killing or injuring a person does, but given the widespread nature of the harms and the need to curtail them, imposing restrictions on people's freedoms may be appropriate. As I argued in chapter 3, rights are often constrained by the presence of other rights. The exercise of religious freedom is one such right, and like the right to procreation, it can be limited when the harms associated with its collective exercise are inconsistent with respecting the most fundamental rights of other people (e.g., right to life, right to health, right to physical security).

It is also important to recognize that none of the policies I have proposed would *prevent* people from having more children than the established standard. They would have to deal with economic penalties (either a loss of certain tax exemptions or a fine), but they would not be strictly required (via abortion or sterilization) to limit their number of children. That will, of course, make the pursuit of lifestyles associated with certain religious beliefs more difficult, but this may be the best balance that can be struck. We are, after all, trying to reach a compromise between two important moral goals – trying to properly respect people's religious freedom and trying to ensure that the welfare of future people is properly protected. As the discussion of moral tragedy in chapter 6 indicates, many of the problems created by population growth are unlikely to have tidy solutions.

Can We Actually Solve the Problem?

The final question to consider in this dissertation is whether it is actually possible to solve the myriad of environmental problems we now face. A reader could theoretically agree with everything I have argued but still believe that we should not make extensive sacrifices of our procreative liberties to avert these catastrophes because their outcomes are unavoidable. We have known about climate change for some time, but international discussion has not led to widespread reduction in global GHG emissions. We may know about the contributions that population growth makes to climate change, biodiversity loss, and other environmental problems, but we have also examined evidence that demographic momentum ensures that population growth will continue for the next few generations regardless of whether any major efforts to limit procreation are undertaken. These considerations can lead one to a rather pessimistic outlook on our situation. Scientist Stephen Emmott (2013) expresses this sentiment rather bluntly in the final lines of *Ten Billion*:

> As I said in the beginning, we can rightly call the situation we're in an unprecedented emergency.
>
> We urgently need to do—and I mean actually do—something radical to avert a global catastrophe. But I don't think we will.
>
> I think we're fucked. (pp. 215-216)

If there genuinely is nothing that can be done to avert the harms that await, then our attempts to do so may appear pointless. Why should we make sacrifices for the welfare of future people if those sacrifices will not make a difference?

This line of thought is a product of a common but inaccurate way of thinking about moral problems. We have a tendency to view them as being either solvable or unsolvable and believe that there is a sharp distinction between these categories. If we believe a moral problem is solvable, we strive to solve it. If we believe a moral problem is unsolvable, then we try to figure out how best to live with it, since it would be pointless to try to solve it. Many moral problems *are* genuinely solvable. If you steal from someone, you can return their property or provide them adequate compensation. If you say something offensive, you can apologize to the offended parties and make amends. But moral problems that occur on a grand scale often do not allow for comprehensive or straightforward solutions, and I suspect that most of them are not "solvable" in any strict sense.

Virtually anyone with a functioning moral compass will acknowledge that the elimination of race-related discrimination is a morally worthy pursuit, but is it possible to *fully* eliminate racism? I doubt it. No matter how much progress is made, it is a safe bet that certain forms of racial discrimination will persist. After all, the abundant research on implicit bias reveals that even those who consciously reject prejudiced ways of thinking can unintentionally express racist

attitudes and preferences through subconscious cognitive processes.[4] This means that racism may be an unsolvable moral problem,[5] but this fact does not make trying to eliminate racism a less worthwhile pursuit. Moreover, the moral progress we have made with respect to eliminating racism is undeniable and has improved the lives of billions of people during that time. The world is surely a better place now that race-based slavery has been widely condemned and that members of all races are typically regarded as having equal moral and legal status.

There is no doubt that our actions will lead to many destructive outcomes in the 21st century. Many species will go extinct. Some natural environments will be destroyed. Some low-lying island nations will be swallowed by the ocean, and their populations will have to relocate. We will witness more frequent extreme weather events. Members of some nations will suffer from harsh heat waves, droughts, and famine. These effects are already observable to some extent, and they will only get worse as time passes. In some cases, the damage done may well be irreversible, but just because these problems cannot be fully prevented (or solved) does not mean that the situation is hopeless.

The scope of harm done to present and future people (and to the nonhuman world) will vary drastically depending on what we do this century. Some harm has already been done, and more will come. But how much more? In large part, we will answer that question by what we decide to do in the next 50-100 years. We cannot *solve* the problem of climate change: we cannot erase its effects or shield all future people from its harms. We cannot *solve* the problem of biodiversity loss: we cannot prevent all vulnerable species from going extinct. But we can make

[4] For an overview of research on implicit bias in philosophy, see Brownstein (2015).
[5] Its complete solution may require neural modification or require such a significant degree of racial mixing that discrimination on the basis of race becomes impractical. As of now, it is unclear whether the proper technology or cultural circumstances will manifest to make the complete elimination of racism a viable possibility.

these problems a lot more manageable for ourselves and our descendants. We can still improve the welfare of present and future people tremendously by working to minimize the harm that occurs. The problems are not solvable, but their harms can be mitigated. Thus, it is wrong to believe that acting to avert these harms is pointless.

Of course, under present circumstances, serious political action aimed at slowing population growth is unlikely to be forthcoming (Shragg 2015, ch. 12). Population activists like Dave Foreman (2014, ch. 13) sometimes provide lengthy lists of what individuals can do to promote awareness of overpopulation and what organizations are taking action to reduce the rate of population growth. Sometimes additional political actions are suggested, like calling one's local political representatives or advocating for local caps on population growth in your city or region. These measures will likely play a crucial role in developing the broad consensus among the public that is needed to make politicians take the population problem seriously, but a genuine response to overpopulation requires political action on an international scale that simply will not materialize any time soon.[6] Nonetheless, that fact does not make this project any less valuable or significant.

In time, the population problem will force itself upon us. The harms associated with population growth will eventually become so pronounced and so dire that we will face a choice: mobilize to reduce the impacts of the problem and work toward a long-term solution or face catastrophic losses to perhaps billions of people. Under those circumstances, I am optimistic that

[6] The desire for a growing population is in part connected to a broader desire for continued economic growth. Endless growth is not possible in a world of finite resources, and the evidence shows that we need to start setting limits on our aspirations toward economic growth. But until this ideal becomes more widespread and we make the necessary changes to the neo-liberal economic project that we have undertaken during the last century, it is unlikely that we will reach a broad consensus on setting limits to population size.

we *will* respond, and when that time comes, we will be glad that some philosophers and environmentalists have given thought to what we should do in response to the problem.

For now, we must confront the grim reality that most people do not yet take population seriously, and remarkably, even some who know the facts about population still retreat from discussing it. Consider Alan Weisman's interview with *haredi* environmental educator Rachel Ladani. When asked what will happen when Israel's population doubles by 2050 and when the world population teeters near 10 billion, she replies, "I don't have to think about it. God made the problem, and He will solve it" (Weisman 2013, p. 12). A divine solution to the problem would certainly be convenient, but if God intends to intervene, he is certainly biding his time. We will probably have to cope with the problem on our own.

Not everyone takes refuge from population worries in religion. Others, as discussed in chapter 5, place their hopes in currently nonexistent technologies. Others embrace denial. These reactions are understandable. Many of us are reluctant to think deeply about our population problem – to seriously confront the challenges it poses and the efforts that are needed to address those challenges. Population discussions make us uncomfortable. Procreative decisions are personal in a way that few other choices are. But we have to stop hiding from the problem. There are more of us on the planet each day, and the sooner we take the moral significance of that fact seriously, the more favorable our options for stabilizing and reducing our population will be. If we wait too long to take the problem seriously, then more draconian measures really might become necessary for our response to be adequate, and it will be that much harder to explain to our children why the world they inherit is so much bleaker than the one we inherited.

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