

# Moral Circle Explosion<sup>1</sup>

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## Abstract

This chapter argues that we should extend moral consideration to a much wider range of beings than we currently do. There are at least two reasons why. The first reason is epistemic: We should be open to the possibility that a very wide range of beings have moral standing, and we should extend at least some moral consideration to these beings accordingly. The second reason is practical: We now have the power to impact a very wide range of beings, both within and across species, nations, and generations. The upshot is that we should extend at least some moral consideration to quintillions of beings – including invertebrates and some artificial intelligences – with revisionary implications for many moral theories.

*Keywords: Moral status, animal ethics, environmental ethics, AI ethics, population ethics.*

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# 1. Introduction

Questions about moral standing are questions about the scope of our moral community. To whom do we have moral duties, and why? Some answers to this question focus on our capacities. For example, we might think that we have duties to all rational beings, or all sentient beings, or all living beings.<sup>2</sup> Other answers focus on our relationships. For example, we might think that we have special duties to members of our family, species, nation, or generation.<sup>3</sup> Other answers are possible too. For example, we might think that we should accept all of these theories at once: In this case, we might have one set of duties to rational beings, another to sentient beings, and another to living beings. We might also have one set of duties to individuals with whom we have particular kinds of relationships, and another to everyone else.<sup>4</sup>

At least in Western philosophy, the history of thinking about moral standing has been a history of moral circle expansion. As a general trend, we start with a narrow conception of moral standing, both because we overestimate what it takes to morally matter and because we underestimate who has what it takes to morally matter. We then gradually widen our conception of moral standing over time, as a result of gradually correcting both of these errors at the same time. For instance, previously many philosophers believed that only rational agents have moral standing, but now many philosophers believe that sentience is sufficient. Similarly, previously many philosophers believed that only vertebrates can be sentient, but now many philosophers believe that many invertebrates can be sentient too.<sup>5</sup>

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<sup>2</sup> For a classic expression of a rationalist view, see Kant 2012/1785. For a classic expression of a sentientist view, see Bentham 2007/1780. For a classic expression of a biocentric view, see Schweitzer 1929.

<sup>3</sup> For a relational view that emphasizes our duties to fellow humans, see Brody 2012. For relational views that emphasize our duties to other animals, see Gruen 2015 and Palmer 2010.

<sup>4</sup> For discussion of pluralist views, see Nozick 1974 and Anderson 2004.

<sup>5</sup> For discussion of the idea of moral circle expansion, see Singer 1975.

Meanwhile, we are currently expanding our moral circle in another, more practical way as well. In particular, we are currently creating new beings who either do or, at least, might have moral standing in the future. For instance, humans are creating new nonhuman animals through selective breeding and genetic engineering, and we are also creating artificial intelligences (AIs) who might one day be rational, sentient, or alive.<sup>6</sup> We are also impacting increasingly many beings in the world, through activities like factory farming, deforestation, and the wildlife trade, as well as through effects of these activities like pandemics and climate change.<sup>7</sup> The upshot is that we will soon be impacting many more possibly sentient beings than we are now, and we will have to develop new moral frameworks to cope with this predicament.

In this chapter I survey these trends and motivate the idea that the moral circle is not *expanding* so much as *exploding*. I begin in §2 by surveying current debates about which beings matter and whether some beings matter more than others. Then, in §3, I consider epistemic changes that might contribute to (recognition of) an expanding moral circle. If sentience is sufficient for moral standing, if many beings might be sentient, and if we should err on the side of caution when in doubt, then we should treat many beings as having (at least some) moral standing. Finally, in §4, I consider practical changes that might contribute to an expanding moral circle. The more we expand the number and variety of possibly sentient beings in the world and our impacts on those beings, the more our moral duties will expand accordingly.

## 2. Background

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<sup>6</sup> For discussion of chimeras, see Hyun 2016. For discussion of artificial intelligences, see Gunkel 2018.

<sup>7</sup> For discussion of the Anthropocene, see Moore 2016 and Sebo 2022.

Debates about moral standing concern many issues. Some are conceptual. What is moral standing, and how is moral standing similar to, and different from, other kinds of value or worth? Other issues are moral. Which features are necessary or sufficient for moral standing? Does everyone who has moral standing have equal moral status, or do some beings have higher moral status than others? Other questions are empirical. Which beings have features that are necessary or sufficient for moral standing, according to each view of moral standing? For example, do only humans have moral standing, or do other animals have moral standing too? If the latter, do we all have equal moral status, or do some animals have higher moral status than others? Before we consider the future of this topic, it will help to consider the past and present.

First, what do we mean when we ask whether a particular being has moral standing? Typically, we mean to be asking whether this being matters morally for their own sake. For example, consider the difference between you and a painting. I might have a moral duty not to damage or destroy either of you unnecessarily. But the difference is that, in your case, I have a moral duty not to damage or destroy you unnecessarily both for your sake and for the sake of people who care about you. Whereas in the case of the painting, I have a moral duty not to damage or destroy it unnecessarily not for its own sake but rather only for the sake of people who care about it. When we say that humans have moral standing but objects do not, this is what we mean: That we can have moral duties to humans, but not objects, for their own sakes.

Moral standing, on this interpretation, is different from other kinds of value or worth. For example, moral standing is different from aesthetic, cultural, economic, or ecological value. Whether or not a river has moral standing, we might still have strong duties to protect it, because of how much value it has for humans and other animals.<sup>8</sup> Moral standing is also different from

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<sup>8</sup> For discussion of the many and varied kinds of value a being can have, see Jamieson 2008.

legal or political standing. Whether or not a river has moral standing, we might still decide to classify it as having particular legal or political rights, provided that this classification allows us to protect it for the sake of humans and other animals. With that said, these kinds of value can be related too. For example, many people believe, plausibly, that having moral standing is sufficient for having particular kinds of basic legal or political standing as well.<sup>9</sup>

People have developed many theories about which features are sufficient for moral standing. We can very briefly consider eight. First, according to *speciesism*, species membership is the basis of moral standing. You have moral standing if, only if, and because you are a member of the species *Homo sapiens*. Of course, in a world where many humans are seen as “lesser than,” the idea that *all* humans have moral standing might seem progressive. But in a world where many nonhumans are seen as “lesser than” too, the idea that *only* humans have moral standing is still regressive. This view is also arbitrary, since species are simply abstract categories, often partially defined by genetic commonality. There is no reason to think that you can matter morally for your own sake only if you have a particular set of genes.<sup>10</sup>

Second, according to *rationalism*, rationality is the basis of moral standing. In order to matter morally for your own sake, you also need to be a moral agent, with moral duties. And in order to be a moral agent, you need to have the capacity for advanced language and reason, since these capacities are what allow you to ask what you morally ought to do. On this view, we might think that only humans have moral standing *not* because only humans have a particular set of genes, but rather because *only* humans have the capacity for advanced language and reason.<sup>11</sup> But this view is regressive as well. It risks excluding not only many nonhuman animals, but also

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<sup>9</sup> For discussion of moral rights as a basis for legal and political rights, see Donaldson and Kymlicka 2011.

<sup>10</sup> For critical discussion of speciesism, see Kristin Andrews et al 2018, Chapter 2.

<sup>11</sup> For a modern defense of a kind of rationalism, see Carruthers 1992.

many humans who lack the capacity for advanced language and reason. But the idea that these individuals lack moral standing is inconsistent with modern views about human rights.<sup>12</sup>

Third, according to *sentientism*, sentience – the ability to consciously experience positive or negative states like pleasure or pain – is the basis of moral standing. On this view, while you might need the capacity for advanced language and reason to have duties (as well as some rights, such as the right to provide informed consent in some contexts), you do not need this capacity to have any moral rights at all. Instead, all you need to have any moral rights at all is interests, and all you need to have interests is the capacity for positive or negative experiences, whether or not you can rationally think or talk about these experiences. On standard interpretations (which we will question below), this view implies that many human and nonhuman animals have moral standing, but that plants, species, ecosystems, and other such beings do not.<sup>13</sup>

Fourth, according to *biocentrism*, life is the basis of moral standing. On this view, while you might need the capacity for positive or negative experience to have some rights, such as the right not to suffer unnecessarily, you do not need them to have any rights at all. Instead, once again, all you need to have any moral rights at all is interests, and, on this view, all you need to have interests is biological needs, whether or not your biological needs correspond to conscious experiences. After all, we might think, consciousness is only one of many tools that species evolved to meet our biological needs, and why should the tool that we happen to have matter more than the tools that other animals or plants happen to have? This view implies that all humans, nonhuman animals, and even plants matter morally for their own sakes.<sup>14</sup>

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<sup>12</sup> For critical discussion of this kind of rationalism, see Andrews et al 2018, Chapter 3.

<sup>13</sup> For a modern defense of sentientism, broadly construed, see Singer 1975 and Regan 1983.

<sup>14</sup> For a modern defense of biocentrism, see Goodpaster 1978.

Fifth, according to *ecocentrism*, all the above views share a common mistake, which is the assumption that *individuals* are the kinds of beings who have moral standing. On this view, *collectives* are the kinds of beings who have moral standing. For example, instead of saying that an individual animal has moral standing, we should say that the species or ecosystem of which the animal is part has moral standing. Granted, animals can still morally matter. But on this view, they morally matter in the same kind of way that, say, cells morally matter. That is, they matter only insofar as they contribute to the whole of which they are part. Insofar as my cells contribute to my flourishing, they matter for my sake. Similarly, insofar as I contribute to the flourishing of my species or ecosystem, I matter for the sake of that species or ecosystem.<sup>15</sup>

Sixth, according to *contextualism*, all of the above views share a different common mistake, which is the assumption that moral standing depends on our *intrinsic* features. Instead, they think, moral standing depends on *extrinsic* or *relational* features. After all, morality is inherently relational. If you have moral duties, there has to be someone to whom you have those duties. If you have moral rights, there has to be someone against whom you have those rights. And in many cases, our relationships can partly determine what those duties and rights are. For instance, you have special duties to your children not only because your children have certain capacities, but also because you have a special relationship with them. On this view, beings have moral standing, if at all, in relation to particular agents in particular contexts.<sup>16</sup>

Seventh, according to *pluralism*, there are multiple kinds of moral standing, and there is a different basis for each one. For example, we might think that living beings have moral rights associated with biological flourishing, that sentient beings have moral rights associated with conscious experience, that rational beings have moral rights associated with rational agency, and

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<sup>15</sup> For a modern discussion of ecocentrism, see Leopold 1949.

<sup>16</sup> For examples of contextual and relational theories, see Gruen 2015 and Palmer 2010.

so on. Moreover, we might think that some moral rights can be held individually and that others can be held collectively, and that some moral rights can be held relative to all agents in all contexts and that others can be held only relative to particular agents in particular contexts. If so, then we might express this view by saying that no particular theory of moral standing captures the full truth. Instead, multiple theories each captures part of the truth.<sup>17</sup>

Eighth, and finally for now, according to *eliminativism*, there is no such thing as moral standing at all. We say that having moral standing means mattering morally for your own sake. But this idea is shorthand for more specific claims about how we should treat particular beings in particular cases. So, in order to clarify the idea of moral status, we need to ask more: What kinds of values, duties, rights, and so on are we talking about? And once we clarify that, what use do we have for talk of moral standing anymore? On this view, then, talk of moral standing is neither necessary for moral discourse and practice (since we can talk in more specific terms instead) nor sufficient (since we need to talk in more specific terms to clarify what we mean). So we can eliminate talk of moral standing entirely, without sacrificing anything important.<sup>18</sup>

Philosophers ask many other, related questions about moral standing as well. For example, does everyone with moral standing have equal moral status, or do some beings have a higher moral status than others? Many views are possible here. For instance, Peter Singer argues that all interests merit equal consideration, no matter whose interests they are. On this view, if I have to decide between saving an elephant and a mouse, then I might have reason to save the elephant, all else equal, on the grounds that the elephant can suffer more than the mouse. But I should reject the idea that elephant suffering matters more than mouse suffering *as such*. Instead,

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<sup>17</sup> For discussion of hybrid or pluralist theories, see Anderson 2004 and Nozick 1974.

<sup>18</sup> For discussion of eliminativism, see Sachs 2011.

I should hold that elephant and mouse suffering matter equally, and that what breaks the tie is simply the fact that saving the elephant would prevent more suffering overall.<sup>19</sup>

In contrast, Shelly Kagan argues that some interests merit more consideration than others, depending on whose interests they are and how much sentience or agency this being has. After all, Kagan reasons, if sentience or agency is the basis of moral standing, and if sentience or agency can come in degrees, then moral status standing can too. On this view, if I have to decide between saving an elephant and a mouse, I not only have reason to save the elephant on the grounds that the elephant can suffer more than the mouse. I also have reason to save the elephant on the grounds that elephant suffering matters more than mouse suffering as such. On this view, then, we should engage in a kind of double counting. What breaks the tie between the elephant and the mouse is *both* how much they can suffer *and* how much their suffering matters.<sup>20</sup>

These debates can be difficult to resolve for a couple of reasons. The first is that it can be hard to trust our intuitions about moral standing, since our intuitions might be tracking many different factors at once. For example, even if rationality might not be necessary for moral standing, it might still be necessary for particular moral rights. Similarly, even if life might not be sufficient for moral standing, it might still be sufficient for other kinds of value, such as particular kinds of instrumental or extrinsic cultural, ecological, or economic value. As a result, we might agree that many properties and relations morally matter, both in theory and in practice. But we might still disagree about which properties or relations have intrinsic or final moral value, and which merely have extrinsic or instrumental moral value.<sup>21</sup>

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<sup>19</sup> Singer 1975, Chapter 1.

<sup>20</sup> Kagan 2019.

<sup>21</sup> For discussion of the ideas of intrinsic, extrinsic, final, and instrumental value, see Korsgaard 1983.

Second, it can also be hard to trust our intuitions about moral standing since our intuitions are shaped by bias and ignorance. Since we are asking questions about moral standing from a human perspective, there is a risk that our intuitions will overvalue properties or relations that humans have and undervalue properties or relations that humans lack. The history of moral progress provides evidence for this bias and ignorance, since we are constantly at risk of drawing arbitrary lines based on race, sex, age, ability, species, and so on. This evidence supports the value of caution and humility in this context. For example, if we have the intuition that sentience is necessary for moral standing, is this intuition tracking the moral truth, or is it simply (once again) drawing arbitrary lines based on a property that humans happen to possess?<sup>22</sup>

Fortunately, as debates about moral standing have developed, our views about our moral community have tended to expand. This is partly for ethical reasons and partly for empirical reasons. With respect to ethical issues, Western philosophers are generally more inclusive now than they were in the past.<sup>23</sup> For much of the history of Western philosophy, many philosophers accepted speciesist or rationalist views of moral status. But today, a higher proportion of philosophers accept that speciesism is arbitrary and rationalism is too restrictive to be plausible (at least as the basis for *any kind of moral standing at all*). As a result, philosophers increasingly accept that sentience is, if not necessary, then at least sufficient for moral standing, and, as a result, that many humans and nonhumans alike matter morally for our own sakes.

Additionally, empirically, we now believe that many more beings are or, at least, might be sentient than we did in the past. For much of the history of Western philosophy and science, many people believed that only humans are sentient because they believed that only humans

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<sup>22</sup> For discussion of how human biases can shape our moral intuitions, see Jamieson 2014, Chapter 5.

<sup>23</sup> My focus in this chapter is on trends in Western philosophy, but I should note that trends in Eastern philosophy might be different and, to the degree that they are, a different response might be warranted.

have souls, and that a soul is necessary for consciousness. Many other people believed that only humans are sentient because they believed that only humans have advanced language and reason, and that advanced language and reason are necessary for consciousness. But scientists and philosophers increasingly accept that neither a soul nor advanced language and reason is necessary for consciousness. As a result, they now accept that many animals, including vertebrates and invertebrates, either are or, at least, might be sentient.<sup>24</sup>

I will not try to settle exactly which view of moral standing to accept here, nor will I try to settle exactly which beings have moral status on any particular view. Instead, I will assume for the sake of discussion that sentience is at least sufficient for moral standing, in the sense that if you have the capacity for positive and negative conscious experience, then I have a moral duty to consider your interests for your own sake when making decisions that affect you. And I will suggest that, on this view, we will need to expand the scope of our moral community substantially in the Anthropocene. Some of the details in what follows will be specific to sentientism. But the general idea that we should expand the scope of our moral community substantially will likely be true for many views of moral standing.

### 3. Epistemic changes

First, we should expand the scope of our moral community in the future for epistemic reasons. As I noted a moment ago, we tend to overestimate what it takes to morally matter, or, in other words, we tend to overestimate which features are necessary for moral standing. We also tend to

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<sup>24</sup> For an illustration of this emerging consensus, see Low et al. 2012.

underestimate who has what it takes to morally matter, or, in other words, we tend to underestimate which beings have the relevant features. We should be open to the idea that we are still making these moral and empirical mistakes. So, even if we feel confident that, say, sentience is necessary for moral standing and that only animals can be sentient, we should be open to the possibility that these views are mistaken. In this section, I will examine why and how we might need to expand our moral community in light of these possibilities.<sup>25</sup>

Our current situation involves two kinds of uncertainty: moral uncertainty and empirical uncertainty. Morally, we should be at least somewhat uncertain about what it takes to have moral standing. For example, many philosophers now believe that sentience is both necessary and sufficient for moral standing, on the grounds that whether things can be good or bad for you depends on whether you have a subjective perspective according to which things can be good or bad. But we should accept that this view might be wrong. Thus far, every generation has made serious moral mistakes, and the mistake of being too exclusionary has been more common than the mistake of being too inclusionary. We have very little reason to think that our generation is the first to finally include everyone who merits inclusion.

Plausibly, we should factor our moral uncertainty into our moral decision-making. In particular, we might think that in cases of moral uncertainty, we should assign at least some weight to each view that we think might be correct. For example, suppose that I feel 90% confident that moral theory A is correct and 10% confident that moral theory B is correct. Now suppose that moral theory A implies that killing someone is permissible and that moral theory B implies that killing them is impermissible. Intuitively, it seems wrong to simply proceed on the assumption that killing this individual is permissible. If I think that moral theory B has a chance

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<sup>25</sup> For discussion of moral circle expansion, see Singer 2011.

of being correct, and, so, that killing this individual has a chance of being impermissible, then I should factor that possibility into my decision somehow.

On this view, even if I think that only sentient beings have moral standing (as I do), I should still extend at least some moral consideration to, say, non-sentient living beings if I think that there is a chance that they have moral standing as well (as I do). Granted, it is not easy to say what that means in practice. For example, should I attempt to integrate these views together and then ask what this integrated view requires? Should I keep these views separate and ask what might represent a reasonable compromise between them? There are other options too, and we are only starting to identify and evaluate them.<sup>26</sup> But for our purposes, it will be enough to accept that if, say, all living beings might have moral standing, then we should at least consider our impacts on them and aspire to harm them less, all else equal.

The second kind of uncertainty that our current situation involves is empirical uncertainty. In addition to being at least somewhat uncertain about what it takes to have moral standing, we might also be at least somewhat uncertain about who has what it takes. For example, many scientists now find it plausible that many vertebrates and some invertebrates are sentient, and that everyone and everything else in the world is non-sentient. But as with our moral views, we should accept that this view might be wrong. Fifty years ago, many experts believed that only humans are sentient. Then we realized that other mammals likely are too. Then other vertebrates. Now many invertebrates. As we learn more about the nature of conscious experience, we might find that this line will continue to move.<sup>27</sup>

Plausibly, we should factor our empirical uncertainty into our moral decision-making as well. In particular, we might think that in cases of empirical uncertainty, we should once again

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<sup>26</sup> For discussion of moral uncertainty, see MacAskill, Bykvist, and Ord 2020.

<sup>27</sup> For discussion of our evolving views on animal consciousness, see Andrews 2015.

assign at least some weight to each view that we think might be correct. For example, suppose that I accept that sentience is true, and I feel 90% confident that theory of mind A is correct and 10% confident that theory of mind B is correct. Now suppose that theory of mind A implies that plants are non-sentient whereas theory of mind B implies that plants are sentient. As before, it seems wrong to simply proceed on the assumption that plants are non-sentient. If I think that theory of mind B has a chance of being correct and, so, that plants have a chance of being sentient, then I should factor that possibility into my decision somehow.

The result is the same as before. Even if I think that plants are non-sentient (as I do), I should still extend at least some moral consideration to plants if I think that there is at least a chance that they are sentient (as I do). Granted, it is not easy to say what that means in practice either. For example, should I accept a precautionary principle and treat every being as fully sentient in cases of uncertainty? Should I accept an expected value principle and multiply the probability that particular beings are sentient by the amount of experience that they would have if they were? And so on.<sup>28</sup> But for our purposes, it will be enough to accept that if, say, all living beings might be sentient, then we should at least consider our impacts on them and aspire to harm them less, all else equal, *whether or not* life is necessary for moral standing.

In short, we have at least some reason to expect that our moral circle expansion is far from over. Our views are more inclusive than they were in the past, for reasons that are partly moral (our predecessors overestimated what it takes to have moral standing) and partly empirical (our predecessors underestimated who has what it takes). And we should accept that our views in the future might be more inclusive than they are now, for similar reasons. Thus, we should consider making our current views at least *somewhat* more inclusive, in the spirit of caution. And

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<sup>28</sup> For discussion of how to treat beings in cases of uncertainty about sentience, see Sebo 2018.

while the details are still unclear, a general implication seems to be that we should extend at least *some* moral consideration to everyone who at least *might* have moral standing, according to any theory of moral standing that at least *might* be correct, all else equal.

It is worth emphasizing how many beings we might have reason to morally consider on such a view. (I will focus here on the question which beings might be sentient, but we should keep in mind our moral uncertainty too.) First, consider vertebrates, that is, animals with a spinal column, including amphibians, birds, fishes, mammals, and reptiles. The idea that all vertebrates are likely to be sentient is now widely accepted in science and philosophy. But we still treat the vast majority of vertebrates as though they lack moral standing, including (but not limited to) 100+ billion factory farmed cows, pigs, chickens, and fishes per year.<sup>29</sup> Thus, once we accept that all vertebrates are sentient and extend moral consideration to them accordingly, that will already constitute a major expansion of our moral community.

Second, consider complex invertebrates, that is, animals without a spinal column, but with complex sensory and cognitive systems. For example, octopuses are discontinuous with humans in many ways, but they are also continuous with us in many ways. On one hand, they lack a spinal column, and they also lack a centralized sensory and cognitive system; in fact, instead of having a single brain, they have one “main” brain and another for each arm. On the other hand, octopuses are highly sensitive and intelligent; they have the capacity for learning, memory, planning, problem solving, and more.<sup>30</sup> I think that octopuses are likely to be sentient on balance. Yet our treatment of octopuses is following the path of our treatment of many vertebrates, with octopus farming currently on the rise.<sup>31</sup>

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<sup>29</sup> Sanders 2020.

<sup>30</sup> For more on octopus minds, see Godfrey-Smith 2016.

<sup>31</sup> For discussion of octopus farming, see Jacquet, Franks, and Godfrey-Smith 2019.

Third, consider simpler invertebrates, such as insects. Evidence about insect sentience is limited and mixed. On one hand, insects have much simpler sensory and cognitive systems than octopuses, and many insects perform at least some behaviors that suggest non-sentience; for instance, some mantids continue to mate while being eaten alive.<sup>32</sup> On the other hand, insects still have complex sensory and cognitive systems, with hundreds of thousands of neurons each.<sup>33</sup> And many insects perform behaviors that suggest sentience as well; for instance, flies seem to benefit from human antidepressants.<sup>34</sup> On balance, I feel very unsure about whether insects are sentient. Yet the stakes are very high in this case, since, for example, we kill trillions of insects per year in insect farms and quadrillions per year with insecticides.<sup>35</sup>

Fourth, consider microscopic invertebrates, such as nematodes. On one hand, nematodes have very simple nervous systems, with only a few hundred neurons each, and it seems plausible that more is needed for conscious experience. On the other hand, it seems at least *possible* that a simple nervous system with a few hundred neurons is sufficient for conscious experience. Additionally, nematodes still pursue positive stimuli and avoid negative stimuli, and they still share an evolutionary history with other animals who might be sentient.<sup>36</sup> In my view, this adds up to a low but non-zero probability that nematodes are sentient given current evidence. And the stakes are once again very high, since, according to at least one estimate, nematodes have more neurons in the aggregate than any other kind of animal.<sup>37</sup>

Fifth, consider plants (along with animals that lack neurons, such as sponges). The current prevailing view among scientists and philosophers is that plants are non-sentient. This

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<sup>32</sup> Eisemann et al 1984.

<sup>33</sup> Raji and Potter 2021.

<sup>34</sup> Ries et al 2017.

<sup>35</sup> Byrne 2021, Howe 2019. For examples of people who extend moral consideration to invertebrates such as arthropods, see Horta 2010, Ng 1995, and Tomasik 2015.

<sup>36</sup> Hobert 2010.

<sup>37</sup> Ray 2017.

view makes sense, since plants are much less active than animals, and they have no brains or neurons. At the same time, plants are more active than many humans realize; for instance, they have the capacity for perception, learning, memory, communication, and behavior. And they do have nervous systems of a sort, even if their nervous systems are very different from ours.<sup>38</sup> In my view, this once again adds up to a low but non-zero probability that plants are sentient given current evidence. And the stakes are once again very high, since plants make up an estimated 80% of all biomass on the planet, and we kill them in very high quantities as well.<sup>39</sup>

Finally (for now), consider parts and wholes. We tend to think of *organisms* as sentient, but is it possible that sentience can arise within and across organisms as well? For instance, is it possible that each octopus brain is a separate moral subject, in addition to the octopus as a whole being a moral subject? Similarly, is it possible that an insect colony is a separate moral subject, in addition to each insect being a moral subject? We are only at the start of asking these questions, much less answering them. But if we are open to the idea that sentience can take different forms, including relatively centralized and distributed forms, then we should be open to the idea that parts, wholes, *and* groups can be sentient and have moral standing at the same time. I have no idea what might follow for morality, but the question is worth keeping in mind.<sup>40</sup>

Of course, I am not saying that these examples are all alike. Some of these beings are *much* more likely to be sentient than others. And some of these beings, if sentient, likely have a *much* higher capacity for welfare than others. So a lot will depend on how we assess risk in general. If we think that we should consider all risks, no matter how small, then we might think that we should extend moral consideration to anyone who might be sentient. In contrast, if we

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<sup>38</sup> Wohlleben 2016.

<sup>39</sup> Bar-On et al 2018.

<sup>40</sup> For discussion of the possibility that parts and wholes can be sentient at the same time, see Block 1975.

think that we should consider all “non-negligible” risks but that we can permissibly ignore “negligible” risks, then we might think that we should extend moral consideration to anyone with a “non-negligible” chance of being sentient and that we can permissibly ignore anyone with only a “negligible” chance of being sentient, to the degree that we accept sentientism.

I am also not saying that there are no risks involved with morally considering these beings. In general, the more exclusionary we are, the more we risk treating subjects as objects. But the more inclusive we are, the more we risk doing the reverse. And while the former risk is worse than the latter, since treating someone as an object is worse than treating something as a subject, the latter risk is still bad, since it can lead us to prioritize objects over subjects unnecessarily. In my view, we can account for both risks at once by (a) considering all beings who have at least a *non-negligible* chance of mattering, while (b) prioritizing beings who are more *likely* to matter, all else equal. But even if we do that, we will plausibly still need to prioritize *many* beings *much* more than we currently do, all things considered.

#### 4. Practical changes

We should expand the scope of our moral community in the future for practical reasons too. In particular, human activity is changing the world in two related ways that will increase the number and variety of beings to whom we can have moral duties. First, humans are creating new beings, including biological beings such as chimeras and artificial beings such as complex AIs.<sup>41</sup> Insofar as these beings might be sentient, we should treat them as having moral status. And

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<sup>41</sup> For discussion of chimeras, see Hyun 2016. For discussion of artificial intelligences, see Gunkel 2018.

insofar as they have a wider range of interests and needs than animals do now, we should treat them as having a wider range of rights than we treat animals as having now. There are already more selectively bred nonhumans than humans on the planet. In the future, both the number and variety of such beings will likely increase substantially.

Second, humans are impacting a wider range of beings on the planet, individually as well as collectively. As our economic systems globalize and our technological systems advance, we are increasingly impacting countless individuals across nations, generations, and species through our everyday behavior.<sup>42</sup> Thus, not only will there be more beings with moral standing in the future, but there will also be more beings with moral standing whose interests and needs we have a responsibility to consider. In the past, our primary responsibilities might have been to humans and nonhumans in our local community. But in the future, our primary responsibilities will increasingly be to humans and nonhumans in our global community, which might change many of the requirements of morality in fundamental ways.

Consider each of these practical changes in turn. First, humans are creating new beings. We already create new beings all the time through selective breeding. We breed farmed animals to grow as big as possible as quickly as possible. We breed lab animals to have diseases that are relevant to our research interests. We breed companion animals to have features that humans regard as cute, such as large eyes and compressed noses. This practice raises questions about the ethics of selective breeding. Can this practice ever be acceptable, and, if so, when? It also raises questions about the moral standing of selectively bred animals. Insofar as we intentionally created these animals, do we have special duties to them? And, insofar as they have different interests and needs, do we have different duties to them accordingly?<sup>43</sup>

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<sup>42</sup> For discussion of the Anthropocene, see Moore 2016 and Sebo 2022.

<sup>43</sup> For more, see Ormandy et al 2011.

We are also, increasingly, creating new beings through genetic modification. This includes creating chimeras who have genes from multiple species, including humans. This practice raises the same questions as selective breeding, along with new questions. For example, if we create an animal who has some human genetic material and some chimpanzee genetic material, should they have the same moral status as humans? Should they have the same moral status as chimpanzees? Should they have a new, in-between kind of moral status? Of course, insofar as we see humans and chimpanzees as having the same kind of moral status, this question is unimportant. But insofar as we see humans and chimpanzees as having different kinds of moral status, as most researchers currently do, this question is very important.<sup>44</sup>

Humans are also creating artificial beings who might one day have moral standing. We already share the world with a wide range of relatively simple AIs. We have robots that can provide us with labor and companionship. We have computer programs that can beat us at board games. We have avatars that can talk or fight with us in video games. In many cases, we then treat these beings in ways that would be clearly unacceptable if they were sentient (and might even be unacceptable otherwise). How should we morally evaluate this behavior? Granted, we might be confident that these artificial beings are non-sentient right now. But can we be *certain* that they are? Even if so, should we remain certain, or even confident, that all of these beings will remain non-sentient as these technologies advance?<sup>45</sup>

Whether we are considering artificial beings with relatively centralized intelligence, such as robots, or with relatively distributed intelligence, such as networks, there will likely come a point where we should treat them as sentient. As with biological beings, this will raise many further questions. In the same way that we already create many more invertebrates than

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<sup>44</sup> Hyun 2016, Robert and Baylis 2003.

<sup>45</sup> For discussion of the prospect of advanced artificial intelligence, see Bostrom 2014.

vertebrates, we have the potential to create many more artificial than biological beings (given the possibilities available to us in digital space). And in the same kind of way that invertebrates already have more variety than vertebrates, we have the potential to create artificial beings with much more variety than biological beings (for the same reason). Thus, the act of creating these beings might increase both the size *and* diversity of our moral community substantially.

In addition to creating more beings who either will or, at least, might have moral standing, we will also be impacting many more beings as well. Many scientists believe that we now live in the Anthropocene, a new geological epoch in which humanity is a dominant force on the planet. Through deforestation, the wildlife trade, factory farming, industrial fishing, and other such activities, humans are radically reshaping the planet. In particular, we are reshaping the planet directly, by converting natural spaces into artificial spaces, and harming, killing, or otherwise impacting many human and nonhuman animals in the process. We are also reshaping the planet indirectly, by contributing to pandemics, climate change, and other global threats that have the potential to impact humans and nonhumans all around the world.<sup>46</sup>

These and other activities place us in what Steven Gardiner calls a perfect moral storm. First, they connect us across space and time. Much of what we do places us in social, political, and economic entanglements with people in other nations and generations. Many of these entanglements involve deep inequities. For example, high-income humans in industrialized nations are disproportionately responsible for global threats such as climate change, yet low-income humans in non-industrialized nations and future generations will be disproportionately impacted. These impacts raise important questions about global ethics and politics. Plausibly,

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<sup>46</sup> Sebo 2022.

insofar as we either intentionally or foreseeably harm people in other nations and generations, we have a moral duty to those individuals to attempt to reduce and repair those harms.<sup>47</sup>

Second, these and other impacts connect us across species. As we have seen, humans are already intentionally harming and killing more than 100 billion captive animals and more than 1 trillion wild animals each year for food. We are also already foreseeably harming and killing many more nonhuman animals each year through deforestation, development, and other such activities. Moving forward, human-caused global changes will have similarly pervasive impacts on wild animal populations; for instance, climate change will cause rising temperatures, rising sea levels, flooding coastal regions, an increase in the frequency and intensity of extreme weather events, and more. Thus, we must ask questions about global ethics and politics with all impacted stakeholders, not merely humans, in mind.<sup>48</sup>

Third, these impacts flow from our collective behavior more than from our individual behavior. In many cases, we are not individually harming individuals in other nations, generations, or species, but are rather participating in collective actions that harm these individuals. Additionally, in many cases the causal chains that start with our collective actions and end with these international, intergenerational, multi-species harms are long and difficult if not impossible to trace. This raises or, at least, amplifies, important questions about responsibility. How should we assess individual responsibility in such cases? When deciding how to treat others, should we focus primarily on individual and relatively measurable impacts, or should we focus on collective and relatively unmeasurable impacts as well?<sup>49</sup>

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<sup>47</sup> Gardiner 2013.

<sup>48</sup> For discussion of human complicity in biodiversity loss in the Anthropocene, see Kolbert 2021.

<sup>49</sup> For discussion of the need to move beyond individual ethics in the Anthropocene, see Jamieson 2014.

When we combine these epistemic and practical changes together, the result is likely to be a substantial expansion of our moral community. Human activity is already impacting trillions of possibly sentient beings each year. The more we expand the number and variety of possibly sentient beings in the world, and the more we expand our power to impact these beings across nations and generations, the more we will expand the scale of morally relevant human impacts in the world. Simply put, if we accept that sentience is sufficient for moral status and that we should treat beings as sentient in cases of uncertainty, then we will soon have to accept that we have a moral responsibility to consider the interests of *quintillions* of possibly sentient beings, including biological as well as artificial beings.

Another result of these changes is likely to be an increased focus on collective ethics, in two respects. First, we will need to focus more on collective responsibilities. Insofar as the most important harms in the world are harms that we cause together, we will need to accept responsibility for these harms together. Second, we will also need to focus more on collective, or at least distributed, rights. Insofar as the most important harms in the world accrue to members of other species, nations, and generations, we might need to attend to these harms primarily as populations, since it might be impossible to attend to them primarily as individuals. And insofar as many of these beings will be part of distributed cognitive networks, we might need to assign these networks not only instrumental but also intrinsic moral standing.

These changes in our moral predicament might also have important consequences for moral theories, including consequentialist and non-consequentialist theories. Consider consequentialist theories. According to consequentialist theories such as utilitarianism, our moral obligation is to do the most good possible by any means necessary. Thus, in theory, we should decide what to do by estimating the impacts of each possible action, and then selecting the action

that will do the most good in the aggregate, on expectation. At least in theory, then, utilitarianism is highly demanding, since it implies that we should do the most good possible. Moreover, at least in theory, utilitarianism is not at all restrictive, since it implies that if harming or killing others is necessary for the greater good, then we should do it.<sup>50</sup>

However, given the scope of suffering in the world and our epistemic and practical limits, we might not always be able to meet this standard in practice. After all, we might not always (or ever) be able to reliably estimate what will do the most good possible, and even if we could, we might not have the capacity that we need to act on this information.<sup>51</sup> If so, then we might need to engage in at least some non-consequentialist reasoning in practice. For instance, we might need to follow at least a somewhat less demanding moral framework in practice, so we can promote good impacts sustainably. We might also need to follow at least a somewhat more restrictive framework in practice, since a default norm of following rules, respecting rights, and cultivating virtuous characters is likely to do a lot of good in the long run.<sup>52</sup>

Similarly, consider non-consequentialist theories. According to non-consequentialist theories such as rights theory, virtue theory, and care theory, our moral obligation is not to do the most good possible. Instead, we are permitted to pursue our own goals in life, provided that we respect the rights of others, cultivate virtuous character traits, or caring relationships along the way. Granted, there can be exceptions. For instance, if we harm someone, then we might have a duty to help them as a way of reducing or repairing that harm. We might also have a duty to help others in emergency situations, as well as a right to harm others in self-defense, other-defense, or

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<sup>50</sup> For discussion of this kind of moral theory, see Driver 2007, Chapters 3-4.

<sup>51</sup> For discussion of this view, see Hare 1981 and Sidgwick 2011/1874.

<sup>52</sup> For more, see Sebo 2022, Chapter 2.

even, on some views, for the sufficiently greater good. But beyond that, non-consequentialism is relatively undemanding and restrictive.<sup>53</sup>

However, given the scope of suffering in the world and our increasing complicity in this suffering, we might still have a relatively strong and general duty to reduce suffering in practice, including, in some cases, through ordinarily unacceptable means. For instance, while we might not have a duty to reduce *natural* wild animal suffering according to this view, we might still have a duty to reduce *human-caused* wild animal suffering in some cases.<sup>54</sup> And in a world reshaped by deforestation, development, pandemics, climate change, and other such forces, an increasing amount of wild animal suffering will be at least partly, if not fully, human-caused. Thus, non-consequentialists might need to start thinking in consequentialist terms more, both to assess their complicity and to address their complicity.<sup>55</sup>

As a result, I think that consequentialist and non-consequentialist theories will at least partly converge on a shared moral framework in the future. According to this shared moral framework, we have a duty to reduce harm in the world where possible, either because we have a duty to prevent harm (on the consequentialist version) or because we have a duty to reduce and repair harms that we cause (on the non-consequentialist version). While these consequentialist and non-consequentialist views might be different in theory, they will be increasingly similar in practice, since the line between natural harms and human-caused harms will be increasingly hard to draw. So, no matter which view we accept, we will likely have a collective responsibility to ethically and effectively address an increasingly high amount of harm in the world.

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<sup>53</sup> For discussion of this kind of moral theory, see Driver 2007, Chapters 6-7.

<sup>54</sup> For discussion of this view, see Palmer 2021.

<sup>55</sup> For discussion of this view, see Sebo 2022, Chapter 2.

The upshot is that our moral future is likely to be very strange indeed, both because we should extend some moral consideration to a much higher number and wider range of beings, and because we should accept that human activity is complicit in what happens to a much higher number and wider range of beings. At a minimum, this includes all vertebrates and many invertebrates. It might also include plants, AIs, and many other beings whose lives are shaped by human activity. In short, our species will have placed ourselves in a situation where we are accountable to quintillions of beings who at least might have moral standing (either because sentience might not be necessary for moral standing or because they might be sentient, or both), and we will need to comport to that situation as best we can.

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