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The Harmful, Nontherapeutic Use of Animals in Research Is Morally Wrong[†]

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ABSTRACT

It is argued that using animals in research is morally wrong when the research is nontherapeutic and harmful to the animals. This article discusses methods of moral reasoning and discusses how arguments on this and other bioethical issues might be defended and critiqued. A basic method of moral argument analysis is presented and used to show that common objections to the view that “animal research is morally wrong” fail: ie, common arguments for the view that “animal research is morally permissible” are demonstrably unsound or in need of defense. It is argued that the best explanations why harmful, nontherapeutic research on human beings is wrong, ie, what it is about humans that makes such experimentation wrong, apply to many animals as well. Thus, harmful and nontherapeutic animal experimentation is wrong for reasons similar to the reasons that harmful and nontherapeutic human experimentation is wrong.

KEYWORDS

animal research, medical research, animal rights, ethics, public policy

I will present and defend some reasons to believe that a certain kind of medical and scientific research involving animals is morally wrong. The research that I argue is morally impermissible is that which is (a) harmful to animals, ie, it makes them worse off than they were, physically and/or psychologically, and is (b) nontherapeutic, ie, it is not intended to, or reasonably expected to, benefit the individual animals who are experimented on. Thus, I do not argue that (a) nonharmful research (eg, perhaps observational studies in the wild) is morally wrong or that (b) therapeutic research (ie, research reasonably expected to benefit an individual when there is no existing sufficiently effective treatment for some noninduced disease or injury) is wrong, even if the treatment turns out, unexpectedly and against the odds, to harm the animal. As analogous research concerning human beings is permissible, these forms of animal research are permissible as well.

A principle I appeal to in defending my thesis is this:

To better understand more controversial moral issues, we should try to use insights gained from thinking about less controversial moral issues that can be applied back to the more controversial issues.

To employ this principle, I begin by very briefly describing 4 less controversial cases concerning human experimentation. Two are historical cases that most readers will be familiar with; and 2 are generic, hypothetical cases:

Case 1. The Tuskegee Syphilis Study (This case is discussed in, among many other sources, Refs. 1 and 2.) (1932–1972).

Brief summary: Poor African American men in Alabama with syphilis were falsely diagnosed (as having “bad blood”), given false treatment and then were not given effective treatment for syphilis when it was found (1957).

Case 2. The Willowbrook Children Case (This case is discussed in, among many other sources, Refs. 3 and 4) (1963–1966).

Brief summary: Severely mentally challenged, institutionalized children were given hepatitis, without their parents’ consent.

Case 3. Human Cadaver Research

Brief summary: A cardiologist gets permission to study her patients’ hearts after they die of natural causes, and she does so.

Case 4. Skin Tissue Research

Brief summary: A scientist acquires skin cells from consenting donors to study, and she does so.

For each of these cases, we can make, or have made, judgments about whether what was done was, or would be, morally permissible or morally wrong. In addition, we can explain why this is so, ie, we can give reasons for our moral judgments and we can defend our reasons from objections.

In light of readers’ judgments about and justifications for them concerning these cases, the main reasoning I will present and defend in favor of my thesis concerning animals is the following:

Premise 1. Harmful, nontherapeutic experimentation on (conscious, sentient) human beings—imposing disease, injury, addiction, pain, suffering, fear, distress, confinement and early death and so on—is morally wrong.

Premise 2. This fact can be explained or justified: we can identify what it is about these human beings that makes such experimentation wrong.

Premise 3. The best explanations for why these human experiments are morally wrong support belief that similarly harmful nontherapeutic experimentation on (conscious, sentient) animals is morally wrong also because these humans and animals share morally relevant properties.

Conclusion. Therefore, harmful, nontherapeutic animal experimentation is morally wrong.

Premises 1 and 2 are uncontroversial. Some of the human research cases above, eg, 1 and 2, provide opportunities to confirm premise 1 and explain, by appealing to a variety of moral considerations, why certain kinds of research involving human beings are morally wrong. Other cases of morally permissible research above, eg, 3 and 4, allow for contrasts that can help illuminate those cases in which we judge that the research was morally wrong.

Premise 3 is thus where controversy lies. To support this premise, I appeal again to the principle of appealing to less controversial issues to address controversial ones and to reflective answers to these questions:

Why would it be wrong to experiment on you (the reader), or any other conscious, sentient human being, in ways animals are experimented on? What is it about you, or any such humans, that makes such experimentation morally wrong? What do better answers to these questions imply for (any) animals?

Thus, I argue that if we identify what it is about human beings that would make (and has made) “vivisection” them wrong, ie, what properties or features such human beings have that best explain why such harmful experimentation is wrong, we see that many nonhuman beings have these same properties. As, I argue, there are no morally relevant differences between the human and animal vivisection cases, it follows that comparably harmful experiments on animals are morally wrong as well.

The structure of my article is as follows:

1. I explain my Methods, which will involve presenting some basic logic and moral argument analysis skills. Philosophers are often not explicit about their methods: this is unfortunate because it can result in needless misunderstanding, especially for why certain common objections to arguments in defense of animals are weak, and generally less fruitful engagement with the issues.
2. I briefly mention some issues that many people want to discuss when ethical questions of animal use arise, but I am not going to discuss in detail. This is because these issues are irrelevant to questions concerning the morality of animal use. Using the argument analysis skills presented earlier, we see that these concerns are logically irrelevant and/or needlessly complicate the issues and so can be avoided without loss.
3. I respond to some common arguments for the denial of my conclusion, ie, arguments in favor of the common response, “No, animal experimentation is morally permissible because ...” Using the moral argument analysis skills developed earlier, I respond to some common objections to arguments similar to mine. My “respond to objections first” strategy is intended to defuse potentially defensive reactions and allow for a better reception of my positive case for my conclusion.
4. Finally, I return to my argument and offer support for premise (This case is discussed in, among many other sources, Refs. 3 and 4) that the best explanations for why these human experiments are wrong support belief that experimentation on many animals is wrong also. I explain why many animals are similar to many human beings in morally relevant ways, why various differences are morally irrelevant and thus protections due to many human beings are also due to many animals.

For better or worse, I will not discuss the arguments of specific animal research advocates. I have done this in many other (readily accessible) articles and reviews, and I invite readers to apply my general discussion to any particular arguments given in moral defense of animal research and to investigate for themselves whether my observations about how people tend to argue about these issues are accurate.

Also, it seems that more is written in moral opposition to animal experimentation than in its support. Many animal experimentation advocates realize this. For examples, Smith^{5,6} observes in his 2010 book subtitled *The Human Cost of the Animal Rights Movement* that:

“Hundreds of books have been published on the issue of animal rights. Most of these ... are decidedly on the pro side, with very few books written in explicit opposition.”

Morrison⁷ in his 2010 book subtitled *A Veterinarian's Reflections on the Animal Rights & Welfare Debate* reports that:

“[o]nly a few [scientists, in their speaking and writing] have directly confronted the ‘philosophical underpinnings’ of perspectives critical of animal experimentation.”

A 2001 collection of essays, *Why Animal Experimentation Matters: The Use of Animals in Medical Research*, describes itself as a “much needed corrective to [a] cause that has up until now been too rarely challenged” (book flap).^{8,9} My hope is that this article, with its methodological focus, will contribute to an increase of the quantity and quality of discussion of these issues.

METHODS

First, I will present and explain some standard methods of analytic moral philosophers. They involve analyzing moral arguments using a set of logical tools. Most simply, such analysis involves asking “What do you mean?” and “Why think that?” of moral claims people make. Using these methods involves understanding a number of concepts.

First, there is the concept of an argument, which is a set of premises given in support of a conclusion. There are different conclusions about animal research (“it is morally permissible” and “it is morally wrong”) and different premises can be, and are, given in support of various conclusions. Following the “Why think that?” question, the conclusion of an argument is the “that” and the premise(s) are the “why” one might accept that conclusion.

Conclusions and premises must be precise and clear. This relates to the “What do you mean?” question. Conclusions and premises are imprecise when the quantity or number of “things” in the claim is not stated, and so, we cannot tell exactly what is being said. Precision is important for animal ethics as many claims made in discussion of the topic are imprecise, eg, “Human beings are self-aware,” “Animals are sentient,” “Animal research saves lives,” “Animal experimentation does not lead to cures,” and so forth. These claims are all imprecise: eg, concerning the first claim, we do not know whether it is being said that all human beings are “self-aware” or just some of them (and, if so, which ones?). The others are also imprecise, more so when they contain more than 1 noun phrase or subject, eg, all or some “animal research” leads to all or some “cures”? Precision enables us to know what exact claim is being made, so we might try to determine whether it is true or false.

Premises and conclusions must also be made clear as the meanings of many words used in discussions of moral issues are not clear or are ambiguous: again, “What do you mean?” So, we often need to ask what people mean when they use a particular word, and new, distinct premises are derived from each possible meaning. The clarification of meanings is especially valuable in discussions of animals and ethics issues as the meanings of many terms used are not clear, eg, “rights,” “persons,” “equal,” “important,” “animals,” “humans,” “human beings,” “human,” and more.

A second important concept is that of an argument in logically valid form in which the premises lead, as a matter of logic, to the conclusion. This often involves adding premises essential to the form of the reasoning, so. To illustrate, consider this common example:

Premise. Socrates is a man.
Conclusion. Therefore, Socrates is mortal.

To get from the premise to the conclusion, we must add an additional premise:

Premise. All men are mortal, or
If someone is a man, then that someone is mortal.

In adding such a premise, the argument is put in logically valid form. Although this seems simple and obvious with this example, such premises are often not added to real world moral arguments, and so, the reasoning is not explicit. This is unfortunate because often such unstated premises are false, as we shall see concerning various arguments about animal research.

Some common patterns of logically valid arguments include these:

“Universal Generalization,” the form of the Socrates argument above:

- “All A’s are B’s; X is an A; therefore X is a B,” or
- “If X is an A, then X is a B. X is an A, so X is a B.”

Modus Tollens:

- “If claim A is true, then claim B is true; but claim B is not true; therefore claim A is not true.”

Modus Ponens:

- “If claim A is true, then claim B is true; claim A is true; therefore claim B is true.”

In all cases, the mathematical structure of the entire pattern of reasoning must be displayed.

Third, there is the concept of a sound argument, which is an argument in (a) logically valid form with (b) true [or justified, reasonable] premises. Such premises might be moral claims, often moral principles that state that if an action has some features, then it has some deontic status (ie, morally permissible, obligatory or wrong), eg, “If an action is like this, then it is permissible” and “All actions with these features are wrong” or they might be empirical claims, evaluated by science or observation.

A fourth concept is that of a counterexample. Many common moral arguments, when put in logically valid form, have moral principles that can be shown false by counterexample, ie, an exception to the proposed principle. To give a nonmoral example, a counterexample to “All men are good dancers” is a man who is not a good dancer. A counterexample to “If someone does not have blue eyes, then that someone lacks a right to life,” would, of course, be someone with blue eyes who has such a right. To develop a counterexamples to a moral principle, we identify a principles’ logical implications or consequences, ie, what would follow from it, as a matter of logic. If the principle implies something false, then the principle is false: if we reasonably believe it implies something false, then we have reason to believe the principle is false.

A fifth concept is that of “begging the question,” which is to assume—ie, to accept without giving reasons in defense of—one’s conclusion in a premise. This sometimes occurs by stating the conclusion in different words as a premise or by offering a premise that would not be accepted by someone unless she

already accepted the argument's conclusion. Insofar as arguments are supposed to give reason to accept a conclusion, question-begging arguments fail to do this.

In addition to skills in using these concepts to identify and evaluate moral arguments, these intellectual and moral virtues are desirable: patience (as complex moral issues take time to understand and think through); understanding (especially the details of positions different from our own); openness to the possibility of error and the need for change (as we have been mistaken in our moral and scientific views before, so this might be the case here concerning animals) and self-awareness of potential conflicts of interest (as self-interest, real or perceived, can preclude unbiased moral inquiry and, at least, many people enjoy eating animals and their employment depends on animal use: these factors might influence the quality of one's thinking about these topics).

These argument analysis skills and virtues are best practiced and their value confirmed, in the context of other moral issues. Because of some unique aspects of ethical issues concerning animals, they are typically better addressed after careful discussions of other moral issues that are, in some important ways, arguably less controversial in certain ways.

Thus, discussion is usually more fruitful when we have already discussed the treatment of disabled newborns, abortion, euthanasia, absolute poverty and even sexual ethics, to name a few issues. Such discussion provides insight into concepts and distinctions that often arise in animal ethics, eg, personhood, being human or a "human being," possible moral differences between "doing" and "allowing," quality of life issues, the relevance of appeals to what "natural" and evolution and many other common moral concepts and distinctions. In addition, ethical theories—ie, general hypotheses about what makes actions morally permissible, obligatory or wrong—are often introduced and evaluated in discussions of practical moral issues. Readers are encouraged to, if they have not done so, review these topics to have stronger background understanding and practice in using argument analysis skills that they can apply to ethics and animals issues.^{10–12}

SOME DISTRACTING ISSUES NOT DISCUSSED

When the topic of the ethics of animal use arises, many people often want to talk about some other issues that have no logical connection to the topic and/or needlessly complicate the issues. As these issues distract from the core topic, I will explain why I will not discuss them.

Activists' Behavior

First, some people want to complain about animal advocates, arguing that they engage in offensive, uncivil, illegal and/or counter productive activities: they wish to paint these activists as an unsavory lot.^{13–15} They then seem to think that this shows that animal experimentation is morally permissible.

Although these observations might apply to some activists at most (and it also likely applies to some animal research activists), it is logically irrelevant to the ethics of animal use. This is because no activists' activity is ever relevant to the morality of any action. To see this clearly, consider a less controversial case: imagine someone reasoning either of these ways:

- "Some abortion critics behave badly; therefore, abortion is morally permissible."
- "Some 'pro-choice' advocates are really nice people; therefore, abortion is morally permissible."

Both arguments are unsound because, irrespective of the truth or falsity of the stated premise, when made logically valid, they rely on the following general principles that can be shown false by counterexamples:

- If some activists regarding action X behave badly, then doing action X is morally permissible.
- If some activists regarding action X behave well, then doing action X is morally wrong.

Although many people often want to discuss and evaluate some animal activists' activities, if these judgments are intended to show something about the ethics of animal use, they simply do not: they are an irrelevant distraction to that issue. These judgments might also reveal a question-begging view that animal experimentation must be morally permissible, so activists must be mistaken, but the reasons for and against that view about animal research are what should be focused on, not the behavior of any activists.

“Rights”

Second, people often want to frame ethics and animals issues in terms of “animal rights.” They assert that animals do not have “rights,” and so animal experimentation is not wrong. This argument, however, is unsound for a number of reasons, in part, because rights claims can be distracting and are needless.

First, about rights claims, we can rightly ask, “What do you mean?” There are legal rights, which are “man-made” and vary from time and place. Usually this is not the issue, as most animals who are used in research have very few legal rights: few experiments on them are illegal, at least in the United States. However, whether a being has legal rights does not determine whether it has rights in any other sense, such as moral rights, which are typically considered universal and “natural,” ie, not “man made.” In addition, there are a variety of possible moral rights: eg, the right to life, the right to be treated with respect and not used as a mere means toward others ends, the right to not be harmed for others' benefits, the right to not be caused to suffer and so on.

A common difficulty with moral rights talk is that, often, the exact right in question—what exactly the right is to or from—is not specified, which creates confusion and misunderstanding. So, it is common for people to argue that animals do not have some specific moral right and then conclude that animals do not have any moral rights, which does not follow. In addition, the basis of the right—what is it about someone that would make them, such that they have that right—is not argued, which can give rights claims and denials a question-begging quality. Any claim or denial that someone has rights must specify the exact right in question and the reason(s) why someone has or lacks that right: often this is not done.

Another common misunderstanding that arises in using the term “rights” is due to accepting this false principle:

- If animals have no moral rights, then animal experimentation is morally permissible.

Although some people seem to think that the question of the ethics of animal use depends on whether animals have moral rights, this is not so. The nature and existence of moral rights for anyone, including human beings, is controversial: many moral theories deny them outright. These theories, however, do support thinking that certain kinds of human experimentation are morally wrong, but they just do not explain this using concepts of rights. Similarly, some people argue that animal experimentation is morally wrong, even if animals do not have moral rights: its wrong for other reasons than rights-based reasons.

Given all this, the question of whether animals have rights, in any sense, can be seen as the distraction that it sometimes is.

“Equality,” “Importance,” “Status” and “Standing”

Similar distractions arise in use of the terms “equal” and “important.” It is often argued that “animals are not ‘equal’ to humans” or “animals are not ‘as important’ as humans” and then concluded that animal research is morally permissible. Sometimes it is also said that animals’ “moral status” or “standing” is less than humans’, or at a lower level, and so research is permissible.

However, what it means for beings (even human beings!) to be “equal” is not easy to explain, and what makes beings “important” (to who? for what?) is also unclear. Notions of “moral status” and “standing” are also unclear. Thus, we often do not know what people mean when they make these claims, and so, we cannot assess whether they are true or false (“why think that?”): again, these claims can have a question-begging quality to them, as assertions without explanation of meaning or defense.

However, as with rights claims, probably the most common misunderstanding that arises in using these terms is due to accepting these false principles:

- If animals are not “equal” to (any) humans, then animal experimentation is morally permissible.
- If animals are not “as important” to (any) humans, then animal experimentation is morally permissible.

Although these concepts of “importance” and “equality” need to be clarified (“what do you mean?”), and judgments involving them justified (“why think that?”), they seem to be false or, at least, in need of defense. Concerning the second, to say that A is not as important as B, does not imply that A is not important at all or that A is of so little importance that it can be harmed for B. Concerning the first, as quality is often explained in terms of equal consideration of interests, not equal consideration of interests does not imply no consideration of interests whatsoever.

Thus, some have argued that even if no animals’ interests are deserving of equal consideration to any humans’ interests, or no animals are as important or valuable as any humans, animals’ interests are deserving of some level of consideration, such that experimentation on them is wrong or that animals are important or valuable enough that experimentation on them is wrong.^{16,17} These more subtle positions need to be engaged more deeply.

In this section, I have discussed a number of issues and concepts that can distract from core ethics and animal experimentation issues. These are whether some specific, or kinds of, animal experiments are morally permissible, morally impermissible (ie, wrong) or morally obligatory (ie, impermissible or wrong to not do) and, most importantly, the reasons and arguments that can be given in favor of these conclusions.

SOME OBJECTIONS: “ANIMAL EXPERIMENTATION IS MORALLY PERMISSIBLE BECAUSE...”

I now turn to some common objections to my conclusion, ie, some arguments that is false because animal research is morally permissible, and so, any arguments that it is wrong are unsound. I discuss these first to try to defuse potential defensiveness to my positive case and to show readers that it is harder to morally justify animal research than they might have suspected. These arguments are evaluated as sound or unsound using the argument analysis concepts presented earlier: meaning-

clarification, precision-clarification, adding unstated premises to make arguments logically valid and counterexamples to general moral principles.

These 3 common sets of arguments are the following.

“Scientific” Arguments

“Humans benefit from animal research; there are no alternatives; it is necessary. Therefore, animal research is morally permissible.”

“Necessary Condition” Arguments

“Animals are not rational, not moral agents, not contributors to culture, without a sense of the future, are not self-aware, and so forth. Therefore, animal research is morally permissible.”

“Group-Based” Arguments

“Animals are not members of a species, kind or group that is rational, has moral agency, contributes to culture, is self-aware, and so forth. Therefore, animal research is morally permissible.”

The first set of arguments all involve appeals to (imprecise) scientific claims which may or may not be true or evidence based. Some people seem to think that science settles moral question of animal research, but it does not. This is because science never, in itself, answers any moral questions: formulating arguments in logically valid form helps make this clear.

It is worthwhile, however, to observe that there is a growing body of scientific literature that assesses the scientific evidence for common claims, typically asserted without any kind of evidence that would be required to try to support them, such as that there are significant human benefits from animal research, animal research is necessary for medical progress and so forth. Some of these recent articles include:

“Where is the evidence that animal research benefits humans?” British Medical Journal. Pound P, Ebrahim S, Sandercock P, Bracken M, Roberts I. 2004;328:514–517.

Reviewed six systematic reviews examining the extent to which animal experiments had informed human clinical research, and found that, although animal studies are intended to be conducted prior to human clinical trials to test for potential toxicity in two cases clinical trials were conducted concurrently with the animal studies, in three cases clinical trials were conducted despite evidence of harm from prior animal studies, in the remaining case the outcome of the animal study contradicted the findings of previous investigators, who appeared to have cited only studies that supported their prior views.

“Comparison of treatment effects between animal experiments and clinical trials: systematic review.” British Medical Journal. Perel P, Roberts I, Sena E, Wheble P, Briscoe C, Sandercock P, Macleod M, Mignini LE, Jayaram P, Khan KS. 2007;334:197.

Compared treatment effects from systematic reviews of clinical trials with those of our own systematic review of the corresponding animal experiments. Discordance between animal and

human studies may be due to bias or to the failure of animal models to mimic clinical disease adequately.

“Medical progress depends on animal models—doesn’t it?” *Journal of the Royal Society of Medicine*. Matthews RA. 2008:101:95–98.

Critical assessment of the oft-repeated claim that ‘Virtually every medical achievement of the last century has depended directly or indirectly on research with animals.’ Includes a quantitative analysis of the predictivity for human outcomes of animal models.

Additional research is summarized in Ray Greek and Niall Shank’s *FAQS About the Use of Animals in science* (University Press of America, 2009), their *Animal Models in Light of Evolution* (BrownWalker Press, 2009) and in Ray and Jean Greek’s *Sacred Cows and Golden Geese: The Human Cost of Experiments on Animals* (Continuum, 2000) and *Species Science: Why Experiments on Animals Harm Humans* (Continuum, 2003).

Thus, there is evidence that common scientific assumptions about the human utility of animal experimentations are not evidence based and that they are likely false. If these scientific assumptions are false, then many of the empirical premises of the arguments below are false, and so these arguments are unsound.

“Benefits” Arguments

The argument above is actually a number of distinct arguments. Here is one:

1. Humans benefit from animal experimentation.
- C. Therefore, animal experimentation is morally permissible.

To state this argument in logically valid form, however, ie, to display the complete reasoning, we must add this premise as well:

2. If humans benefit from action X, then action X is morally permissible.

There are many reasons to think that this argument should not be judged to be sound. First, premise 1 is imprecise: is the claim that all humans benefit from animal experimentation? Some humans? If so, which humans? Is the claim that all animal research is beneficial to (some?) humans? Some research benefits some humans? To evaluate this premise, this needs to be clarified: rarely is it.

Also, we also do not know what the conclusion is here: all animal research is permissible? Some of it? Which? These are all very different claims, and they often are not specified to evaluate the argument we need to know what is being said, as some understandings of premise 1 are false (“all humans benefit from all animal research”) and some might be true (“some humans benefit from some animal research”).

The deeper problems with this argument concern premise 2. First, it ignores harms to animals. If these are irrelevant, it is does explained why. If it is assumed that some benefits to some humans “outweigh” some harms to animals, no explanation is given for how this accounting is done or why we should think that the accounting favors humans (“why think that?”). Second, and most importantly, it is not said why it is permissible to harm animals to benefit humans. It is often wrong to harm humans to benefit other humans (especially when the harms are great, the harmed humans do not, or would not consent, and

they themselves do not benefit from being harmed). If harms to animals should be treated differently, reasons why need to be given: often they are not. Third, premise 2 also ignores any harms to humans that result from animal research, direct harms or indirect harms, in terms of opportunity costs that result from it, if net benefits for humans from alternative courses of action not involving animal research would be greater.

Thus, to develop and defend a “benefits” argument, much more needs to be said: usually, however, few, if any, of these details are not provided. Some of what is often said in defense of the argument will be discussed later in this article though and shown inadequate.

“Necessity” Arguments

A second variant on this kind of argument, stated in logically valid form, is this:

1. Animal experimentation is “necessary.”
2. If action X is “necessary,” then action X is morally permissible.
3. Therefore, animal experimentation is morally permissible.

There are many reasons to think that this argument should not be judged to be sound also.

First, premise 1 is unclear: “What do you mean, necessary?” Claims that something is “necessary” are always incomplete as nothing is just plain “necessary”: something is necessary only relative to achieving a specific end or goal. Thus, to evaluate premise 1 that end, or those ends, must be specified. For various ends, it may be true or false that any, or even some, animal experimentation is indeed (causally, scientifically) “necessary” to achieve those ends: eg, if the goal is “medical progress,” broadly understood, then it is surely false that animal experimentation is necessary for that, if the implication is that no other means of research or practice promotes medical progress (eg, clinical research, technology-based research, public health, distributing existing medical knowledge and access, education, prevention, etc.). Other claims of “necessity” are false as well, eg, that it is “necessary” to dissect or vivisection animals for medical training: this is demonstrably false insofar as there are highly competent physicians and medical personnel who did not train using animals.

If, however, the claim is that some specified animal research is (causally, scientifically) “necessary” to achieve some more specific, constrained end, then that claim might be true: there may be no other way to achieve that specific goal. Many people seem to think that this truth would show that animal experimentation is morally permissible, but it does not. This is because this revised premise, needed for a logically valid argument, is either false or question begging:

- If action X is “necessary” to achieve a goal, then action X is morally permissible.

That an action is “necessary” to achieve a goal, even a very worthy goal, does not in itself imply that it is morally permissible. There are moral constraints on achieving goals. We recognize this in the case of human research, eg, that it would be wrong to intentionally seriously harm some innocent, unconsenting human being (say, by vital organ theft) even if that were “necessary” to benefit some other human being, ie, if there truthfully was no other way to save that human. Insofar as this premise denies this for animals, it seems question begging insofar as it does not explain why it would be permissible to harm animals in cases of alleged “necessity” but not human beings.

Again, more explanation and defense of this argument is necessary to try to make a thorough attempt to show that it is sound.

“No Alternatives” Arguments

Third, there is this argument, stated in logically valid form:

1. There are “no alternatives” to animal experimentation.
2. If there are no alternatives to doing action X, then doing action X is morally permissible.
3. Therefore, animal experimentation is morally permissible.

Much of the discussion of this argument repeats what has already been said. First, premise 1 is unclear: there are “no alternatives” to animal research to try to achieve what end(s)? For some stated ends, this premise will be false, as there are other ways to achieve that end (or possibly better ends) and for others that will be true: eg, if one wants to experiment on animals for some reason, there is no alternative but to experiment on animals.

The second premise, however, is more troubling. Even if there is “no alternative” to doing some action that does not imply that the action is morally permissible. To think otherwise about animals seems to beg the question, ie, to merely assume that harming animals for research is permissible. The typical advocate of this argument thinks that it would be wrong to seriously harm human beings in medical research even if there were “no alternatives” to doing so (ie, cases strongly analogous to animal research). However, if she thinks that the lack of “alternatives” makes animal research permissible, an explanation why this is so is needed. Some explanations for what justifies this difference will be evaluated soon.

Finally, it is worthwhile to observe that premise 1 is simply false: one “alternative” to doing animal research is just to not do it: people who engage in animal research are not compelled to do it. They surely could apply their talents elsewhere, if they chose to do so. Perhaps more human beings would benefit from that too.

“Necessary Condition” Arguments

I have argued that the arguments above appear question begging insofar as they apply one moral standard to human beings but a different standard to animals: they grant protections from harm for humans but permit harm to animals by do not explain why this difference in treatment is justified. Many respond by arguing that this difference in treatment and consideration can be justified by morally relevant differences between animals and human beings. Thus, we have arguments similar to these:

1. Animals are not “rational,” do not understand moral concepts, are not “moral agents,” are not “self-aware,” do not “contribute to culture,” are “not responsible for their actions,” are not “obligated to help others,” do not create artworks, lack a religious sense and/or so on.
- C. Therefore, animal research is morally permissible.

Premise 1 is intended to summarize many premises that attempt to identify differences between humans and animals: this premise could be broken up into separate premises and arguments. For some of these premises, we can rightly ask what they mean, eg, what it means to be “rational.” However, some of these premises are true; others might be false.

What's important, however, is that the argument be put in logically valid form. To do this, we must add general premises such as these:

- Y If a being is not "rational," then it is morally permissible to experiment on that being.
- If a being is not "self-aware," then it is morally permissible to experiment on that being.
- If a being does not contribute to culture, then it is morally permissible to experiment on that being.

And so on. Premises such as these, however, can easily be shown false by counterexamples: there are many human beings (eg, the very young, very old, the mentally and emotionally challenged) who do not meet this arguments' necessary *condition(s)* for being wrong to experiment on. Insofar as these human beings are wrong to experiment on, even though they are not rational, self-aware, artistically gifted, etc. this shows that the italicized premises such as these above are false. Arguments such as these are unsound, and almost all advocates of animal research reject them.

Group-Based Arguments

In response to the refutation of the arguments above by way of glaring and obvious counterexamples to their major premises, some advocate this strategy: we should not focus on individual human beings—as some do not meet the proposed necessary conditions suggested above—but rather we should focus on the group(s), "kinds" or species that individual human beings are members of.^{18,19} This kind of reasoning might involve premises such as the following:

- "Human beings, *as a group*, have done magnificent things, like create beautiful artworks, skyscrapers, and so forth. Animals have not."
- "Human beings, normally, in adult form, have sophisticated minds. Animals do not."
- "Human beings are the 'kind' of beings who are moral agents and are morally responsible. Animals are not."

These arguments concede that not all human beings have sophisticated minds. However, they hold that moral protections somehow result from sophisticated mental capacities: after all, this is why, according to these arguments, animal research is permissible, due to animals' lacking mental sophistication.

The problem is explaining how these properties of the group "transfer" to each individual, some of whom lack these properties, in a plausible, non ad hoc manner. Even if human beings "as a group" have done magnificent things (and perhaps that makes no sense), that does not seem to imply anything for human beings who did not participate in this. Also, perhaps we have also done some horrendously evil things as well "as a group": why the "good credit" would "transfer" to all human beings and not the bad credit, and perhaps deserved punishment, is hard to understand. Also although "normal" humans have various characteristics, "nonnormal" humans often lack some of them, and this can make a difference to how they should be treated: eg, if a very mentally challenged individual was treated similar to a "normal" adult in all ways, this would be very morally wrong. (Some might argue that a fetus or embryo will normally have sophisticated mental capacities or is the kind of being that does: would advocates of animal research who accept this argument must also think abortion is wrong?) Finally, each individual is many different "kinds" of beings: humans and animals are of some of the same "kinds," some different "kinds" and differing humans are of different "kinds" as well. The challenge is to explain which kinds are relevant in a plausible, explanatory manner.

In sum, it is not at all clear why we should believe that each individual human has all the moral characteristics that normal, mentally sophisticated human beings have. To put this another way, it is not at all clear what premises one would have to add to the (true!) premises above to construct an argument in logically valid form, and it is not clear why they would be true: insofar as individuals should be treated on their own merits, not on the merits of different groups they belong in, this argumentative strategy is unsuccessful. Thus, there are no good reasons to think premises such as these (essential for making these arguments logically valid) are true, and counterexamples can be developed to show them false:

- If human beings, as a group, have done magnificent things, then each individual human being is entitled to some “credit” for these accomplishments, even in cases they had nothing to do with them.
- If human beings, normally, in adult form, have sophisticated minds, and some other characteristics P depend on having sophisticated minds, then each individual human being has characteristics P, even when they lack sophisticated minds (or minds at all).
- If human beings are the “kind” of beings who are moral agents and are morally responsible, then all human beings have the moral properties of moral agents, even when they are not moral agents.

These are just a few common arguments given for the moral permissibility of animal research. I have argued that they are unsound or should not be evaluated as sound. Other arguments, and there are many, can be addressed using argument these same analysis concepts and skills.

A POSITIVE, CUMULATIVE CASE IN DEFENSE OF ANIMALS

In conclusion, I briefly turn to my positive case against much animal research. As mentioned, I advocate appealing to less controversial cases to better understand controversial ones. So we should ask what are the best, most fundamental explanations why would it be morally wrong to experiment on you, the reader and vulnerable humans, in ways that animals are experimented on? That is, if injuries were inflicted, diseases induced, harmful conditions and states created, drug addictions induced, painful procedures done, all (typically) ending in the loss of some human being’s life, why would that be wrong? To go back to my initial cases, why was what was done at Tuskegee and Willowbrook wrong?

This is not because we, or the victims in these cases, are (or were) biologically human. First, we can reasonably ask why is it wrong to harm biologically humans, suggesting that this is not a very deep explanation. Second, we can observe that many things that are biologically human are clearly permissible to kill or destroy: eg, various cells and tissues, at least, such as those in Skin Cell and Human Cadaver Research cases above. Third, although somewhat controversially, we can observe that some entities that are biologically human are arguably permissible to kill or let die: eg, individuals whose quality of life has dropped significantly, perhaps so much, so that death is not longer harmful for them, perhaps due to the irreversible loss of consciousness. Thus, our biological humanity has little, in itself, to do with what we are owed, morally.

It is also not because we are “persons.” Again, we can ask why it is wrong to harm persons. If the answer is that persons are rational, self-conscious beings and so killing them harms them, then “harm-ability” seems to be the fundamental explanation, not personhood. In addition, this explanation has to say something about harm-able human beings who do not meet its criteria for personhood, such as the Willowbrook children. If the answer is that we are “harm-able” and biologically human organisms, we can rightly wonder what biological humanity morally explains, as it does not seem to do anything on its own

and the “harm-ability” can do the explanatory work on its own to explain why harming us for the sought benefit of others is wrong.

Thus, I argue that the fundamental moral explanation why certain kinds of human experiments are wrong appeal to harms to the victim: they are made worse off, physically and/or psychologically than they were. Conversely, research tends to be permissible when no one is harmed, as the Skin Cell and Cadaver cases help confirm. Thus, if any animals can be harmed, then there is a presumption of its wrongness. This presumption would be defeated if morally relevant differences between all humans being who are wrong to harm and all animals can be found; I critiqued some of these attempts above, found them wanting and set forth a set of methods that can be used to evaluate other attempts. My conjecture is that other arguments could be shown unsound using these methods.

So can any animals be harmed? Contemporary common sense and science supports thinking that many animals, at least mammals and birds, perhaps all vertebrates, can be harmed: they are conscious, have mental lives, are aware, can feel negative and positive feelings and sensations, can process information, have memory, can anticipate, have negative and positive emotions, have social lives, among other psychological capacities. Those attentive to scientific studies of animals regularly hear of new discoveries that their mental and emotional lives are richer than we ever expected: rarely do we hear of new studies providing evidence that any animals are less aware, less emotional, less cognizant than anyone expected.

For animals’ minds that are as rich as the minds of humans who would be morally wrong to “vivisect,” consistently requires thinking that these animals are also wrong to engage in harmful research on. The best explanations why it would be wrong to engage in harmful, nontherapeutic experiments on human beings have analogous implications for many animals, as they too are harmed without consent.

This kind of reasoning has been developed in a number of ways, by many moral philosophers. Regan^{20–22} argues that all beings who are “subjects of lives,” ie, have a certain level of a mental life, such that they can be harmed, have inherent value and a moral right to not be used as a “mere means” for others; Rowlands²³ appeals to a John Rawls-inspired “Veil of Ignorance” unbiased decision making procedure, similar to a Golden Rule, to evaluate animal research: if we consider the issue from a unbiased perspective where our own identity is concealed from us, ie, we do not know our sex, race, age, intelligence and species, it would be irrational to accept animal research, as it could turn out, once the Veil is lifted, that we are its victim; and Peter Singer^{24–26} appeals to the Principle of Equal Consideration of Interests and argues that it applies to all beings who have interests, human and nonhuman.

Many other philosophers, scientists and “popular” thinkers have developed complementary cases in defense of animals. Most have used the general strategy I have suggested: consider less controversial cases, understand them better and use that those insights address the more controversial issues of animal use. In reviewing these cases, DeGrazia²⁷ observes that, “The leading book length works in this field exhibit a *near consensus* that the status quo of animal usage is ethically indefensible and that at least significant reductions in animal research are justified.” If this consensus is mistaken, my hope is that this article, with its methodological focus, will help others more clearly and carefully explain what has gone wrong with all these moral arguments against animal research. My stronger hope is that this article, with its methodological focus, will help more people better understand why these arguments are likely sound.

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