

SECTION 4: ETHICAL CONSIDERATIONS IN THE USE OF LABORATORY
ANIMALS FOR RESEARCH AND TEACHING AT THE
UNIVERSITY OF VIRGINIA

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INTRODUCTION

The use of animals for biomedical research has been a long standing subject for debate and continues to be so today. Since biomedical research comprises only 1% of the total number of animals used annually for human purposes in the United States, one may ask why focus on this aspect of the discussion. This area must be addressed because it is where legislation is being mandated, it is the focus of debates among opposing public interest groups and it is where there are no rigorous “engineering” standards for objective evaluation. There is a legislative mandate to evaluate and justify animal use in the context of biomedical research and teaching. The central question that drives these philosophical debates asks whether or not it is morally legitimate to conduct research on animals. If the conduct of research on laboratory animals is morally legitimate, what moral responsibilities, if any, should be undertaken by those engaged in the research? As we advance further and at an accelerating pace in our scientific inquiries, new issues (e.g. genetic manipulation of animals) concerning the care and use of laboratory animals keep arising. It is important for scientists and the public to continually reexamine the philosophical debates as well as the policies, procedures, and guidelines that exist for animal care and use so that we may continue to restructure and replace these rules and regulations based upon our most current knowledge and understanding.

There are three sections within this manuscript. The first section will examine various philosophical positions on animal use. The second section will investigate ethical

justifications for the use of animals in research, and will address proportionality, alternatives, and critical anthropomorphism as ways to evaluate and reduce the ethical costs of using animals for experimentation. The last section will discuss some of the issues concerning animal suffering, animal husbandry, and the development of a moral hierarchy. It is best to define the term moral, in the context of this manuscript as the concept that there are for humans underlying principles of what is right or wrong. In contrast, ethics are defined as more subtle considerations of what is fair or good. Metaphorically speaking moral judgements are black and white while ethical considerations are various (or varying) shades of gray.

PHILOSOPHICAL POSITIONS ON ANIMAL STATUS AND USE

There are a number of philosophical theories that attempt to explain the moral status of animals. The four major ethical theories that will be discussed here are Utilitarianism, Deontology, Kinship and Organic Unity . Before explaining the various philosophical reflections on animals one may ask why, in the first place is it important to look to philosophical views on the moral status of animals? David DeGrazia sums it up most clearly when he said “Untutored ‘common sense’ is insufficient in areas such as this, where there is much fundamental disagreement and where traditional or common assumptions are questioned for their adequacy. Philosophy offers critical reflection that can help to distinguish good insights from the products of prejudice, as well as (could be accomplished using) certain kinds of analytical tools. Examining the moral status of animals in a careful, disciplined manner requires some measure of theorizing, taking us to the area of philosophy known as ethical theory”.¹

UTILITARIANISM

Utilitarian theories are concerned with choosing the action that will bring about the greatest good for the greatest number of individuals. When making these calculations to determine whether or not an action is morally right, we are summing up the total amount of good that will be the result of a particular action and comparing this to the total amount of harm that will be caused. Classical utilitarianism has often been used as a popular justification for using animals in biomedical research, by making the argument that the benefits gained (e.g. development of vaccines for deadly diseases) from using animals outweighs the pain and suffering that animals must endure. The scientific community has relied most heavily on this philosophical premise as moral justification for the use of animals in research and teaching. There are a few inherent flaws that surface when relying on the utilitarian philosophy. First, if we view animals as sentient beings capable of perceiving pain and pleasure we must include these factors when determining whether an action is morally permissible. Second, utilitarian calculations require us to have prior knowledge of the expected benefit of research which is hard to calculate when the outcome of most research is not yet known or when the research targets the acquisition of basic knowledge for which it is uncertain what if any benefits will result. As a result of this lack of ability to predict the research outcome, utilitarian philosophy might preclude much research that might provide substantial benefits in the long run. We should also take into account that even if a particular research project will provide substantial benefits there may be other ways of accomplishing the same outcome which could have been performed with less harm done. Classical utilitarianism has been criticized because it fails to take in to account the inherent rights and respect owed to

individuals (humans and other living species) when determining whether an action is morally right.

Two contemporary versions of utilitarianism, rule and pluralistic, offer a modified view of this philosophy. Rule utilitarianism sets rules which must be followed in order to maximize the good. According to the Hastings Center Report² rule utilitarianism reasons that “an action may be wrong, even though it produces more benefit than harm, if it violates a rule that would, in general, yield better overall consequences”. Pluralistic utilitarianism recognizes that there is often more than just pleasure to be maximized. In considering the proposed action and the accounting of benefits and harm, the pluralistic philosophy includes the measurements of autonomy, and the satisfaction of preferences and interests. Therefore unless one is prepared to argue that animals simply lack the capacity for morally relevant interests and desires, any consistent form of utilitarianism that includes pleasures, suffering, or interests in its account of ‘good’ must accord sentient animals a significant moral status.² This form of utilitarianism while recognizing that animals have some sort of a status believes that humans should be valued more. Thus, pluralistic utilitarianism does justice to the conviction that animals have some moral status -that benefits or harms to animals must figure directly into our judgment that an action is right or wrong -but also provides justification for asserting that the life of a human being may have more value than the life of animal(s).²

DEONTOLOGY

Deontology or the rights based view rejects in some ways the utilitarian approach to summing up benefits versus harms when determining which action is most moral. Instead, deontology asserts that when making these decisions we must always take the

rights of individuals (humans and other living species) to be the highest good. In strict deontology one cannot justify an action that would otherwise be wrong simply on the ground that it produces more good consequences than harmful ones.² The public interest groups proposing that animals have rights have relied most heavily on the moral basis of deontological philosophy.

Interestingly, Immanuel Kant who conceived of classical deontology believed that animals do not have any rights and thus any kind of research that we use them for can be justified. In contrast, Tom Regan a contemporary deontologist opposes the use of animals for biomedical research on the grounds that animals have rights and thus deserve to be treated in a certain way.³ According to Regan animals have rights because they possess inherent value. Regan states that “we are each of us the experiencing subject of a life, a conscious creature having an individual welfare that has importance to us whatever our usefulness to others. We want and prefer things, believe and feel things, recall and expect things. And all these dimensions of our life, including our pleasure and pain, our enjoyment and suffering, our satisfaction and frustration, our continued existence or our untimely death all make a difference to the quality of our life as lived, as experienced by us as individuals”. Regan claims that these preferences, goals and desires carry into the animal realm as well. He states, “As the same is true of those animals that concern us they too must be viewed as the experiencing subjects of a life, with inherent value of their own”. Reason “not sentiment, not emotion” he claims is what enables us to realize that animals have equal inherent value and therefore deserve to be treated with respect. As Regan states “Lab animals are not our tasters; we are not their kings. Because these animals are treated routinely, systematically as if their value were reducible to their

usefulness to others, they are routinely, systematically treated with a lack of respect, and thus are their rights routinely, systematically violated".³

Deontology, like utilitarianism, focuses on the importance of moral autonomy (inherent to all living things) and the special attention that should be given to those who possess moral autonomy. Deontology's particular emphasis on inherent moral value in all living things suggests that moral autonomy should carry special weight.² Thus, deontology, like utilitarianism, leaves room for the argument about the special status of human beings, appealing to a hierarchy according to which it is better to use a more primitive animal rather than a more complex one.

KINSHIP AND ORGANIC UNITY

These two theories bring up interesting views on animals and should be considered along with the deontology and utilitarian theories. The kinship theory can be visualized as a series of concentric circles surrounding a human being. The closer a person (or species) approaches to our position at the center of the circle, the stronger is our obligation to those beings that occupy a position of proximity. For example, families and friends lie closer to the center and thus demand our strongest feeling of obligation and kinship when compared to strangers. But this does not mean that those beings including animals who lie further from the center do not deserve respect and that we don't have a moral duty to minimize their suffering. Consider the position of your pet in relationship to the position of a human stranger in this system of concentric moral obligation. Because animals fall into the human scope of concern we should have feelings of kinship towards them, although the feelings dwindle as the phylogenetic relationship to us becomes more distant.

The organic unity theory is based on the premise that organic life is unique and has its own value just insofar that it is a living organism that contributes to the earth and has its own purposive ends. Organic unity similarly presents a value that might be incorporated into either a utilitarian or a deontological theory: the goals exhibited by an organic unity might be taken as good consequences to be maximized, or as a state inherently worthy of a moral respect.² Organic unity theory also recognizes a kind of moral hierarchy in that the more complex neuro-anatomically the organism the more valuable it is and thus more deserving it is of respect and care.

ETHICAL JUSTIFICATIONS FOR THE USE OF ANIMALS IN RESEARCH

Peter Singer points out the inherent conflicts in analysis of the justification of animal use when he states: “We cannot both (a) argue that the close and important similarities of animals to humans provide the rationale for experimenting on the former and (b) remain oblivious to the fact that such similarities also compel us to raise and come to terms with tough ethical questions about using animals in this way”.⁴ This section of the treatise will address the justification of the use of laboratory animals and three methods that should be employed so that animals are used in the most justifiable way possible. The method called proportionality involves making sure that the goals of the research project are in proportion to the species used, the pain and distress that will be caused to the animals, and the number of animals used. It is as though a numerical score of harm could be given to research animal in which a low score is more easily justified. Lesser numerical value is given to phylogenetically primitive species, and this is arithmetically combined with the number of animal used and the degree of pain and distress created. Proportionality justifies the assumptions that whenever possible it is

always better to use those animals that are more primitive on the phylogenetic scale, to minimize the pain and discomfort that will be caused because of a research procedure and to use only as many animals as need to successfully complete the experiment.

Similar to proportionality is the philosophical method which incorporates into the research design the three R components espoused by Russell and Burch. These three R's are replacement using experimental subjects that are phylogenetically more primitive or using non-animals systems; reduction in the number of animals used; and refinement of experimental design and methods to reduce pain and distress of the research methods.

Finally, the method of critical anthropomorphism allows us to better assess and alleviate the pain and distress that animals may endure during a research procedure and while living in a research facility. Critical anthropomorphism enables us to reduce the ethical costs of an experiment. In contrast to classical anthropomorphism scientists critically evaluate what the real needs of animals are by balancing empathy with objective knowledge of the animals' biology, behavior and physiology. Scientists will then be better able to *refine* their procedures in order to minimize suffering and improve conditions of husbandry, thereby reducing the variables and unwanted side effects of experiments and so *reducing* the number of animals required to obtain a significant statistical result. As scientific understanding of the animals' biology, behavior and physiology accrue, research methods are modified utilizing the growing base of knowledge.

ANIMAL SUFFERING

Animal suffering in biomedical research and teaching exists directly because of an experimental procedure the animal has undergone or because of inadequate husbandry

that is provided or both. Suffering is divided into two categories based on the range of adverse effects that might be inflicted on animals both during a procedure and in animal husbandry. The first category is pain and discomfort. Pain as defined by the International Association for the Study of Pain is an “unpleasant sensory and emotional experience associated with actual or potential tissue damage.”² Discomfort is defined as “a minimal change in the animal’s adaptive level or homeostasis as a result of biological, physical, social, or psychological changes in its environment. Physiological and behavioral changes may be observed in the animal, but these changes are not sufficient to indicate that the animal is experiencing pain or distress.”² The second category is anxiety and fear. Anxiety is defined as “an emotional state involving increased arousal and alertness prompted by an unknown danger that may be present in the immediate environment; e.g., a generalized, unfocused response to the unknown.” Fear is defined “similarly, except that fear would refer to an experienced or known danger in the immediate environment; i.e., a focused response to a known object or previous experience.” There are interactions between the above 4 states mentioned. For example, an animal in pain is often distressed and may also be fearful (especially when the pain is associated with a certain stimulus, such as the arrival of particular scientist).² Fear in itself can seem to exacerbate pain. Taking a pet to the veterinarian (or oneself to the dentist) often produces such a mixed response. It is therefore important to take a holistic approach in evaluating and relieving suffering. Pain-relieving drugs will do little to relieve distress or fear and anxiolytic drugs will do little to remove pain. It is also important to note that nociception (the activation of pain nerve fibers below the threshold of conscious perception) or damage to the body may not result in pain or suffering; many internal body organs in humans can be damaged

without a person reporting any pain or suffering.² When deciding what drugs to administer to alleviate animal behavior manifesting pain or distress it makes more sense to use analgesics such as opiates or aspirins to relieve pain and discomfort, and anxiolytics such as benzodiazepines (valium) to alleviate fear and anxiety. To better identify what state an animal is in we can rely on the method of critical anthropomorphism along with our own ability to empathize.

MORAL HIERARCHY

The closer a species of animal is in similarity to humans the more sentient humans' feel they are going to be. The more sentient the species the more pain they will be able to perceive, and thus measures which would be taken to alleviate pain for humans should be taken for this species. The above argument alludes to the supposition that researchers should try and replace more sentient species with phylogenetically more primitive species. This is the basis for the development of a moral hierarchy. The subjective empathetic facet of humans that makes us relate to other living creatures (including other humans), and the pain or distress they experience is the basis of our moral obligation to animals. The objective rational scientific nature of humans requires us to be critically analytical in our relationship to animals. The blending of these two facets of human nature in development of ethical considerations in animal use is best served by the philosophy of critical anthropomorphism.

It can be debated as to where we should draw the phylogenetic line in terms of which animals are able to perceive pain more than others, we need to focus on becoming more knowledgeable about various animals' neurological, physiological, and behavioral make-up. We will be able to make more accurate decisions regarding what kinds of

animals should be used for particular experiments once we have attained this knowledge. In the meantime all things being equal a lower or less complex or less evolved organism should be used in preference to a higher one. Unfortunately, this is in direct conflict with the use of animals to benefit humans, as results of research in species phylogenetically more closely related to humans may be more pertinent to the human condition.

DELIBERATIONS OF THE INSTITUTIONAL ANIMAL CARE AND USE COMMITTEE (IACUC)

In considering the approval of an animal research protocol IACUC requires a justification for the use of laboratory animals in research and testing. Deliberations by the IACUC require that some consideration be given to the potential benefits to humans (and animals), which should be weighed against the harms inherent to the research. In our argument above, the degree of harm done is proportionately related to the species, pain and distress, and number of animals used in the animal research protocol. For the scientist writing an animal use protocol the IACUC should require that a proportionately stronger justification be written for the use of more sentient species (phylogenetically more closely related to human), for invasive protocols that induce more pain and distress, and for the use of greater numbers of animals are used.

Conclusion

A coherent ethical framework for the use of animals has yet to be established. It is important that scientists are aware of the various philosophical arguments that exist, and of their moral/ethical obligation to care for and use animals in the most responsible way possible. There exists special interest groups that continue to drive regulatory changes in the care and use of laboratory animals. Therefore, from the perspective of the moral perception of the public it is in the research communities' best interest to continue

to uphold the high standard of care for laboratory animals as well as continued active investigation into the development of alternative policies and procedures.

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