

BETWEEN THE SPECIES

A Zoopolean look at animal research ethics

ABSTRACT

I will discuss how animal laboratory research can be ethically analyzed using Donaldson and Kymlicka's political theory of animal rights. To accomplish this, I will not presuppose their strong animal rights framework. Donaldson and Kymlicka's approach revolves around some basic human-animal relationships, reflecting the relational turn in applied ethics writ large. However, they do not discuss laboratory animal research in any detail, and so an extension to that domain of animal use is in order. Donaldson and Kymlicka's emphasis on human-animal relationships is useful for reminding ourselves that in laboratories various staff or personnel can develop bonds with captive animals that make it difficult to follow certain protocols as well as create a deep and lasting negative impression. Though, when suitably modified, Donaldson and Kymlicka's political theory can apply to animal research ethics, it can only do so if we ask more from all members of our society.

ANDREW FENTON
Dalhousie University

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Introduction

The use of nonhuman animals (hereafter, animals) in harmful research or testing is an ongoing flashpoint in animal ethics (Knight 2011; Rollin 2012). Their use in invasive studies, particularly those that cause, or are expected to cause, extreme pain or distress (CCAC 1991) give rise to profound moral difficulties (Rollin 2009). Beyond these issues of direct harm, the housing conditions (e.g., whether they are alone or in social housing), origins (e.g., captive breeding versus animal shelters or wild caught), and taxon identity (e.g., rodents versus domestic cats, domestic dogs, or macaques) of research animals are each associated with significant moral issues (Orlans 2002; Schuppli, Fraser, and McDonald 2004). Though it is not uncommon to have animal research ethics pay little attention to the moral significance of the species used (particularly if they are not apes) and pay even less attention to how odd this looks given the moral preeminence of one above all others ostensibly because of specific, morally significant, species-typical though not unique capacities, a cursory understanding of the psychological capacities of nonhuman primates like macaques (Thierry 2011) or the depth of the bond that domestic cats can share with human care-givers (Bernstein 2007) suggest a compromised moral compass.

I will examine how Sue Donaldson and Will Kymlicka's Zoopolitan framework, most completely set out in *Zoopolis: A Political Theory of Animal Rights* (Donaldson and Kymlicka 2011), provides another opportunity to reset our compasses. Their approach revolves around some basic human-animal relationships (particularly, those in our homes or communities), the importance of such relationships in the lives of many people who work hard to care for companion animals and advocate on behalf of various animals in captivity, and the potency of these relationships to give rise to positive duties. As Donaldson and Kymlicka note, animal rights

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theories have typically emphasized negative duties but provided little guidance for those of us who take on care responsibilities for the animals in our lives. Their framework sets out to correct this lacuna (Donaldson and Kymlicka 2011).

For reasons that will become clear in what follows, I will not be engaging Donaldson and Kymlicka's unmodified framework. The next section will set out the parameters of my discussion, including how I will engage their Zoopolean vision. I will focus on animal research ethics, particularly the intersection of positive reinforcement training and a dissent approach I have been developing in other work (though it will be compatible with the approaches taken in DeGrazia (2007) and Sapontzis (1987) and perhaps also Kantin and Wendler (2015)). I do so for several reasons. I suspect that some of the considerations that shape Donaldson and Kymlicka's discussions of our positive duties to other animals can help us re-envision how research animals are regarded or treated. Donaldson and Kymlicka intentionally do not discuss laboratory animal research in any detail (e.g., see pp.43-44 of Donaldson and Kymlicka (2011)), and so an extension to that domain of animal use is in order. Donaldson and Kymlicka's emphasis on human-animal relationships is useful for reminding ourselves that in biomedical laboratories various staff or personnel can develop bonds with the animals for whom they care, and that this can make it difficult for them to follow certain protocols as well as deeply and negatively affect them (Coleman 2010; Iliff 2002). Cooperative animals are happier animals, and this can make a difference in the daily lives of laboratory staff and personnel. In the end I hope to show how a Zoopolean framework can apply to animal research ethics, though only if we ask more from all members of our society.

Framing considerations

Donaldson and Kymlicka's framework is based on a strong animal rights foundation and so requires a significant sea-change in commonly held moral views of other animals, if it is to be applied as they envision. However, they have suggested that their framework can be useful to those who reject such a rights position (see p.21 of Donaldson and Kymlicka (2011)) and I aim to explore that claim here. I adopt three other framing considerations, all taken from *Zoopolis*. First, revolutionary thought about human-animal relations, which foreground considerations of moral equality and inviolable rights, has had some impact on our various animal use practices but failed to garner widespread support. Presumably, appealing to attitudes and values that are already widely, though perhaps not yet universally, held is preferable. Second, as already mentioned, there are positive as well as negative duties to other animals of moral concern. Third, our various relationships with these animals determine our negative and positive duties (Donaldson and Kymlicka 2011).

As I will not assume a strong animal rights position in what follows, I will not assume that animals have such inviolable rights as a right to life, liberty, and a life free of torture. This is what allows me to explore the implications of a (diluted) Zoopolean framework for some areas of animal use rejected by Donaldson and Kymlicka, including harmful research. As we will see, we must ask more of each other to usefully bring to bear such a framework. Nevertheless, I will indicate how these changes cohere with widely held attitudes or values.

For Donaldson and Kymlicka, most zoo conditions/settings and captive, including (presumably all) invasive, studies are morally impermissible (Donaldson and Kymlicka 2011). My position, which focuses on laboratory animal use, will be more permissive.

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Though this claim can be easily overstated, there is public support for animal research, even where it harms the animals used (Ipsos MORI 2016; Joffe et al. 2016). Though a sound ethical framework is not decided by popular vote (we will return to that thought later), popular support is required for sustained, widespread changes in our relationships with other animals.

That said, for the sake of this discussion I accept that animal research should be constrained by various ethical considerations. This is in step with current discussions of animal research ethics commonly articulated through a commitment to the 3Rs of Replacement, Reduction, and Refinement and can be justified by a rather conservative commitment to avoiding unnecessary harm (Fenwick, Griffin, and Gauthier 2009). For our purposes here, Replacement prescribes replacing sentient animals with non-sentient models when such alternative models can be as effectively used, Reduction prescribes using the minimal numbers of animals needed in a given study to achieve statistically significant results, and Refinement prescribes reducing or eliminating scientifically unnecessary or avoidable stress or distress (Prescott 2017). Typically, what will qualify as scientifically necessary harm is determined by what is required to advance knowledge, practice, or safety (though the use of animals in pedagogical contexts in which they are, or have been, harmed is a contested area). I also accept that the 3Rs do not exhaust our ethical obligations to animals used, or the issues arising from their use, in research, teaching, or testing—a view championed by the likes of Orlans as well as Schuppli, Fraser, and McDonald (Orlans 2002; Schuppli, Fraser, and McDonald 2004). Issues not directly impacted by a 3R framework include transparency in disclosing negative as well as positive results arising from the use of particular animal models (for a dissenting view, see de Boo et al 2005), sourcing animals used in science, the typical permissibility of research associated

with extreme distress or suffering, and the use of certain species (e.g., macaques or domestic dogs) in research that harms them. As some of these considerations (e.g., greater transparency, stronger restrictions on sourcing research animals, at least curtailing research causing extreme distress and suffering) can be justified by a relevantly similar conservative commitment to avoiding unnecessary harm (Orlans 2002), I will consider these considerations to be as justified as the 3Rs. The issues surrounding the use of certain species will intersect with some of my later arguments.

Transitional animal research ethics

A number of animal bioethicists are pushing nonhuman primate research ethics in the direction of greater integration with human research ethics. Examples include efforts to defend a re-seeing of nonhuman primates as vulnerable subjects (Johnson and Barnard (2014) focus primarily on chimpanzees), restricting primate research using appeals to minimal or slightly greater than minimal risk (Ferdowsian and Fuentes 2014), or foregrounding the dissent or consent capacities of the relevant nonhuman primates (Fenton 2012; 2014; Wendler 2014). Importantly for this discussion, these efforts need not depend on revolutionary ethical commitments. For example, a narrow moral gaze directed at the use of nonhuman primates in harmful research can be motivated by their phylogenetic proximity to humans. On sliding-scale views of moral status, that appear to underwrite much of the animal research ethics used by proponents of animal research (Fenton 2012), there is a recognition that the more human-like other animals are, the more negative and positive duties accrue to those who use them in harmful ways (and, of course, vice versa) (DeGrazia 2002). A biological turn in understanding human psychological capacities, including those that are ethically relevant (e.g., sentience, self-awareness, intentional social engagement), can strengthen the relevant imperatives. Though there is much that is wrong-headed

in the typical sliding-scale approach (particularly, in light of the ethical irrelevancy of mere species identity (Andrews et al 2019), a point we will return to shortly), it reminds us that one can problematize the use of some animals in harmful research without implications for all of the animals so used. Such a restricted inclusive ethics can permit a move forward in the use of animals in science (in the form of greater restrictions or curtailment) even within communities resistant to general nonhuman moral equality.

Efforts to push animal research ethics closer to its human counterpart do not just promise a more positive outcome for the primates or other animals (Rollin 2012) so used. Those laboratory researchers, staff, and technicians deeply concerned about the well-being of the animals used in their laboratories will benefit from a framework that curtails the use of these subjects in ways that are distressing to witness, maintain, or execute. It is also well known that various laboratory stressors can affect the validity of the results gained from animal studies. A more humane space, in such circumstances, can yield better scientific results (Coleman 2010).

A fly in the ointment

All is not well (or good enough) in such approaches without modifying the background analyses of moral status. As an example case, consider the use of positive reinforcement training (PRT) in laboratory settings. At first glance, PRT represents a significant leap forward in the humane treatment of animals in research. What it seeks to secure is an animal's cooperation and to avoid or reduce the use of negative reinforcement (NR), punishment, or restraints (Laule, Bloomsmith, and Schapiro 2003; Wolfensohn and Lloyd 2013).

PRT, as the name implies, makes use of rewards (positive reinforcers (PR)) to train animals to behave in desirable ways. This

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contrasts with both NR and punishment. NR uses the introduction and timed removal ('response-sensitive' removal) of aversive stimuli or diminishment of aversive states (e.g., hunger or thirst) to train animals to behave in desirable ways. Punishment will also use aversive stimuli to train animals, but the punishment is directed at animals who do not respond in desirable ways (Rennie and Buchanan-Smith 2006).

Both reinforcement training approaches are superior to punishment for the primary reason that it is not an effective way to train another animal. Any cost-benefit analysis that uses the conservative commitment to avoiding unnecessary harm mentioned above, will, on this consideration alone, favor either PRT or negative reinforcement training (NRT). There are good reasons to favor the positive form, however. Imagine that PRT and NRT are equally effective (though for the record, PRT tends to be more effective (Wolfensohn and Lloyd 2013)). NRT, by its very nature, uses stressors to shape animal behavior. As stressors are in some sense harmful (Laule, Bloomsmith, and Schapiro 2003), PRT is to be favored on the conservative grounds mentioned above. What's more, many laboratory animals can recognize individuals, so it is also reasonable to expect that individuals who are more readily associated with negative reinforcers will elicit stress responses. As being non-threatening to laboratory animals is an effective way to avoid unnecessary harm and can facilitate handling for such laboratory procedures as injections, PRT should be preferred (Schuppli et al 2004). Since the nature of the relationships (e.g., whether they are caring or respectful) between laboratory researchers, staff, and technicians and the animals they use are integral to a Zoopocean framework (Donaldson and Kymlicka 2011), favoring procedures with positive valence for the animals concerned should be preferred.

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Donaldson and Kymlicka do not hold PRT in high regard and not merely because of their disapproval of harmful animal research. They see this type of training as essentially coercive (Donaldson and Kymlicka 2011). Several reasonable considerations can be offered in defense of their view. A more positive reward is likely to be more effective (e.g., keeping the animal's attention, creating a more reliable motivation to behave in desirable ways) than a less positive reward. In other words, a more positive reward is a greater attractor. Particularly where there is no learning required for a stimulus to be rewarding (that is, the stimulus is innately attractive), purposefully using such a stimulus in reinforcement training takes on a manipulative appearance. Restraint, be it physical or chemical, and the use of negative reinforcers are options, for many personnel in laboratory settings, when animals fail to respond to positive reinforcers (Wolfensohn and Lloyd 2013). It is not clear whether the animals themselves must be aware that restraint or negative reinforcers come next for this context of use to take on a coercive 'flavor.' It may be enough that the animals recognize the stressors upon their presentation but before their use. The clincher is that the animals do not get to opt out of a procedure or study. They will be used, with or without their cooperation.

Removing the fly

In previous work, I have been developing an argument for permitting research animals to opt out of laboratory procedures or participation in laboratory studies. Borrowing a concept from progressive pediatric research ethics, I have defended the claim that intensely social cognitive animals like chimpanzees can dissent from research (Fenton 2014; see also Kantin and Wendler 2015). This claim is easily misunderstood. Unlike informed consent or even assent, an individual who dissents in the relevant way need not be able to think abstractly, understand the nature of research

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or that it is not therapy, the risks involved, or that they have the freedom to withdraw at any time. The exemplar of a dissenting individual is a very young, neurotypical human child who is inconsolable when faced with, or struggles to escape from, a research procedure such as a blood draw. Their sustained dissent – dissent that persists in spite of assurance or comfort – stops the laboratory procedure or precludes them from further participation in the relevant study, unless the procedure or study offers possible significant benefits to the subject that are only available through participation (Diekema 2006; Wendler 2006). I have suggested that the relevant dissent capacity of such a child consists in the capacities to feel distress, pain, or stress, to anticipate its future occurrence, and ‘ask’ that it stop “or express that the relevant distress, pain, or stress is unwanted” (Fenton 2014, p.134). According to our best current knowledge of intensely social cognitive animals like chimpanzees, macaques, and domestic dogs, they possess these capacities and so qualify as candidate dissenters (see Fenton 2014; Hau and Schapiro 2007; Stafford 2007). A recent case has been made for including all vertebrates, though it seems strongest for mammals and birds (Fenton and Shriver 2018). With a suitably adjusted background moral framework, such animals as chimpanzees, macaques, and dogs can enjoy this protection extended to young human children if they express sustained dissent when faced with, or persist in struggling to escape from, a research procedure.

If dissent as I have described it is in play in contexts where an animal research subject has been trained to cooperate in research, then, should they persist in refusing to cooperate when facing a research procedure, it is not appropriate for laboratory staff or personnel to resort to either negative reinforcers or restraints. Given the considerations I canvassed above in favor of Donaldson’s and Kymlicka’s view that PRT is coercive, respecting the sustained

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dissent of an intensely social cognitive research animal promises to morally rehabilitate the practice.

Of course, respecting the sustained dissent of animal research subjects does not follow from the conservative commitment to avoid unnecessary harm I mentioned earlier. To see this we need only recognize that neither the 3Rs nor such considerations as transparency of results or the curtailment of studies that cause extreme distress or suffering (e.g., medical testing), justified on this conservative commitment, undermine the priority of advancing scientific knowledge when pitted against interests of research animals to live free from distress, pain or stress. Even if my approach to dissent is understood to complement 3R approaches, the significance of a scientific study can override respecting dissent should doing so threaten the possibility of it starting or succeeding. To adequately consider questions about the overall justification of advancing scientific knowledge when using other animals, we need to be willing to depart from conservative animal research ethics. Appeals to cruelty and kindness, which might offer hope of remaining ethically conservative in this area of animal use, are not up for the job. As Rollin has pointed out time and again, it is a mistake to describe scientific research, even very invasive and painful research, as cruel (e.g., Rollin 2009). Cruelty minimally requires an indifference to suffering and the relevant scientific research does not require indifference. Kindness can be reasonably understood to intersect with acting humanely and this brings us back to such ethical frameworks as the 3Rs.

The fundamental problem here is anthropocentric speciesism, as it supports the use of animals even when violating interests relevantly similar to our own. A common contention in animal ethics is that anthropocentric speciesism is unjustified or, to put it less diplomatically, immoral. Defending the contention is relatively

straightforward. First, we have good human-related reasons to reject it. Various reasonable commitments to women's reproductive rights, including late term abortions (with or without the sanction of law), seem to run afoul of anthropocentric speciesism (Fenton 2012). Second, reasonably strong views of the nature of ethics, seem to clinch it. DeGrazia's thought experiments using now extinct earlier humans, such as *Homo erectus* or *Homo floresiensis*, remind us of the arbitrariness of favoring members of our own species (DeGrazia 2007). Thought experiments defending our duty to sapient extraterrestrials or artificial intelligence remind us that stopping at the 'boundaries' of our genus is not acceptable (Carbone 2004). Though fraught with difficulties (Sapontzis 1987), well crafted 'burning hospital' thought experiments should defend the judgment that, all other things being equal, it would be wrong to save an endangered frozen embryo over the hospital cat (be she sapient or not) from the inferno. The importance of a move away from anthropocentric speciesism does not stand or fall on sympathies with other animals around us. Arbitrariness is antithetical to views of ethics as objective. Anthropocentric speciesism arbitrarily favors members of our species. If ethics is objective, we must reject this speciesism.

There are cracks in the veneer of what one might be tempted to think is a widespread sympathy with anthropocentric speciesism outside the academy. Quite apart from support for reproductive rights, only benighted or misanthropic guardians of such companion animals as cats and dogs adopt these animals in ignorance of, or indifference to, how their otherwise disposable income could be used to benefit other humans in need. Continued care for their nonhuman companions, particularly when, as is often the case with veterinary care, it is pricey, testifies to the moral weight of particular relationships over more abstract appeals to human solidarity (Gruen 2011). Rather than this being a failure of

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moral agency, it can be understood to reflect the substantive commitment of these guardians to the animals they adopt. Arguably, no one should adopt such animals without this commitment as, if they did, it is difficult to see how these animals would receive adequate care. Such a failure would violate even a conservative commitment to avoid unnecessary harm. Importantly for my purposes here, it is difficult to see how a decision to so care for an animal can cohere with the commitments of a reflective anthropocentric speciesist.

A non-anthropocentric speciesist framework is not as radical as it may sound. Various members of human communities can enjoy priority over other (though not all other) animals without being speciesist. Human exceptionalism is an unsuccessful attempt to defend this view. Proponents favor ethical analyses that foreground psychological capacities thought to be uniquely human as necessary for the moral status many humans currently enjoy (Livingstone Smith 2013). It encounters problems for two reasons: the humans it seeks to protect, and our best knowledge of the capacities of some other animals. As long as human exceptionalism seeks to prioritize the interests of all humans from birth to death, as many proponents are inclined to do, it seems to fall victim to arbitrariness. This is not to say that this kind of anthropocentrism has been a wholly bad thing. Anthropocentrism has helped ableists see the ethically significant capacities possessed by neuroatypical individuals. Once so attuned, we see the palpable results: the preferences of neuroatypical individuals have been enjoying increasing significance in how our shared spaces are designed or maintained. That said, such anthropocentrism ignores morally significant capacities possessed by other animals and so violates formal justice (where like should be regarded alike). That other animals should matter under an inclusive moral framework (that is, a framework that moves beyond restricting moral consid-

erability to those possessing complex cognitive capacities (e.g., an ability to reason abstractly, master a natural language)) should not be surprising. If all living humans are morally considerable, then it is likely that the relevant capacities will range over a wide variety of cognitive capacities relevant to the emergence of various conscious states or levels of awareness (from, say, an awareness of, and readiness to engage, the surrounding world through to self-awareness). It should take little convincing to point out relevantly similar, or equally significant, capacities among animals like chimpanzees or macaques (see some of the references already cited). This reflects not only the work of such primatologists as Jane Goodall (e.g., Goodall 1988) and Frans de Waal (e.g., de Waal 1990), but the success of disseminating their findings through popular media. Much the same can be said for many other mammals, birds, and perhaps fish (Andrews 2015; Fenton and Shriver 2018). Once these similar, or equally significant, psychological capacities are recognized, the arbitrariness of prioritizing only humans is apparent (Taylor 2011). Note, however, that a rejection of human exceptionalism does not “open the flood gates.” Though such animals as chimpanzees or macaques can enjoy new prominence in a non-anthropocentric moral framework, it is unclear how many other animals will or should. Much will depend on what capacities are taken to matter ethically.

For the sake of my overall argument, it is not necessary to settle that issue. A rejection of anthropocentric speciesism and human exceptionalism can add significant weight to the sustained dissent of animals like chimpanzees or macaques. Without further, non-arbitrary considerations to preclude this re-weighting, and I know of none that do not fall afoul of the proper regard due diverse members of our own communities, we can re-enter the main discussion where I concluded that PRT need not be coercive.

More on transitions

My focus on laboratory animals precludes using, at least unmodified, the citizenship-related categories of Donaldson and Kymlicka's Zoopolis framework (Donaldson and Kymlicka 2011). There are three: co-citizenship, denizenship, and status as a sovereign nation. Co-citizenship is directed at animals who we have brought into our societies, gradually changed to better fit their circumstances and our needs, and made dependent on our care and humane treatment. Denizenship is directed at animals who 'choose' to live, or remain, in proximity to human homes, towns, and cities. They are not, or are no longer, domesticated and either not dependent or differently dependent on us (e.g., they may depend on our waste rather than direct feeding or provision of shelter). The status of a sovereign nation is directed at populations of free-living animals who tend to avoid human presence and occupy discrete territories. Though each category assumes a shared set of negative duties that seek to protect the lives and general welfare of sentient animals, they also have distinct positive duties fixed by the nature of the relationship between animals and humans. Co-citizenship, for example, brings with it positive duties of care, to properly socialize, and accommodate the relevant animals' interests in how we run or design our societies. Denizenship brings with it duties to ensure co-existence, including the design of spaces geared toward the accommodation of particular basic needs of survival. Recognizing populations of free-living animals as sovereign carries duties of respect directed at territorial boundaries or resources within said territories as well as efforts to protect the independent functioning of the relevant nonhuman communities (Donaldson and Kymlicka 2011).

Clearly, neither the status of sovereign-nation nor denizen apply to populations of laboratory animals. Such populations are neither free to live independent of human presence nor do they seek out

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human habitation. Co-citizens, at least as they are understood post the forty year Tuskegee syphilis study (Jones 2008), the Jewish Chronic Disease Hospital scandal in New York (Arras 2008), or the mid-century nutrition studies at Canadian residential schools (Mosby 2013), should not be intentionally endangered or seriously harmed, nor should the expression of their agency be unnecessarily curtailed. As it currently stands, research animals are not treated as co-citizens and, without a radical re-framing of our moral frameworks in ways that reflect a strong non-anthropocentric stance, that is unlikely to change any time soon.

Sanctuaried ('retired') or rehomed research animals are interesting exceptions. Though the chimpanzees retired (or to be retired) from research in the US are benefiting from several factors (e.g., advances in alternative models, failures of chimpanzee models, reclassification as an endangered species (NIH 2013; Collins 2015)), this was not a victory for animal rights so much as a consistent application of 3R-based policy. It was, after all, the lack of the necessity of chimpanzee models to advance the biomedical sciences, rather than any special status accorded these nonhuman great apes, that played the central role in their retirement (Kahn 2014). Importantly for this discussion, it looks as though, once retired, these chimpanzees will not, at any future time, re-enter research. Rehomed research animals who are no longer useful to research but are not euthanized, such as some domestic cats and dogs, find retirement as companion animals (Yeager 2018). Again, these animals are unlikely to re-enter research. Together, these animals have moved from a status unclassified within an undiluted Zoopolemic framework (or at least a status like captive or prisoner) to something resembling co-citizenship status. In each case, the preferences of the individuals take on much greater significance and can inform the shape of their new physical and social environ-

ments (including the terms or conditions of their interactions with humans).

Of the positive categories used by Donaldson and Kymlicka, co-citizenship is the least dissimilar to the actual conditions of existence experienced by research animals. Indeed, some elements of Donaldson's and Kymlicka's co-citizenship status can apply to some research animals in contexts where their interests are no longer assessed through an anthropocentric lens. Intensely social cognitive animals possessing the capacities that mark them as candidate dissenters should enjoy certain protections. If we are committed to meaningfully respecting the dissent capacity of these research animals, care must be taken not to destroy it, preclude its re-acquisition when lost, or fail to protect its emergence among the young (Fenton 2018). This places even greater importance on enrichment efforts that are increasingly standard in North American laboratories. This can be re-seen as a re-shaping of research environments to reflect the needs and preferences of research animals. PRT also takes on greater significance, as a protective measure that helps research animals deal with laboratory stressors. Such a protective measure complements enrichment efforts to offset the otherwise damaging effects of this kind of captivity. What's more, PRT can be re-seen as a form of socialization that helps these research animals better fit their captivity. Respecting the dissent of animals trained with PR deepens the ways in which their preferences positively affect their laboratory environments. So understood, there will be an increasing resemblance of this context of use to Donaldson and Kymlicka's co-citizenship category.

Conclusions

Where has this journey taken us? I have explored a diluted Zoopolean framework with a particular focus on research animals. This was in part to see whether such a framework can avoid

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adopting a strong animal rights position, as Donaldson and Kymlicka contend, and also to see how such a framework intersects with a controversial but largely socially acceptable use of animals that does not fit Donaldson and Kymlicka's undiluted approach. I have suggested that certain laboratory practices, in particular PRT when coupled with my dissent approach, holds out hope of changing laboratory settings in ways that resemble Donaldson and Kymlicka's category of co-citizenship, though only when the moral frameworks governing our use of research animals are purged of anthropocentric biases. Perhaps this shows in a small way how a diluted Zoopolean framework can serve as an intermediary between the status quo and an undiluted Zoopolis, where sentient animals enjoy lives free of unwanted human presence and anthropogenic suffering.

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References

- Andrews, Kristin. 2015. *The Animal Mind: An Introduction to the Philosophy of Animal Cognition*. New York: Routledge.
- Andrews, Kristin, Gary Comstock, G.K.D. Crozier, Sue Donaldson, Andrew Fenton, Tyler M. John, L. Syd M Johnson, Robert C. Jones, Will Kymlicka, Letitia Meynell, Nathan Nobis, David Peña-Guzmán, and Jeff Sebo. 2019. *Chimpanzee Rights: The Philosophers' Brief*. New York: Routledge.

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- Arras, John D. 2008. "The Jewish Chronic Disease Hospital Case." In *The Oxford Textbook of Clinical Research Ethics*, edited by Ezekiel J. Emanuel, Christine Grady, Robert A. Crouch, Reidar K. Lie, Franklin G. Miller, and David Wendler, 73-79. New York: Oxford University Press.
- Bernstein, Penny L. 2007. "The Human-Cat Relationship." In *The Welfare of Cats*, edited by Irene Rochlitz, 47-89. Dordrecht: Springer.
- de Boo, M.J., A.E. Rennie, H.M. Buchanan-Smith, and C.F.M. Hendriksen 2005. "The interplay between replacement, reduction and refinement: considerations where the Three Rs interact." *Animal Welfare* 14: 327-32.
- CCAC (Canadian Council on Animal Care in Science). 1991. "CCAC policy statement on: categories of invasiveness in animal experiments." Last modified February, 1991. http://www.ccac.ca/en/_standards/policies/policy-categories_of_invasiveness.
- Carbone, Larry. 2004. *What Animals Want: Expertise and advocacy in laboratory animal welfare policy*. New York: Oxford University Press.
- Coleman, Kristine. 2010. "Caring for Nonhuman Primates in Biomedical Research Facilities: Scientific, Moral and Emotional Considerations." *American Journal of Primatology* 71: 1-6.
- Collins, Francis S. 2015. "NIH Will No Longer Support Biomedical Research on Chimpanzees." <https://www.nih.gov/about-nih/who-we-are/nih-director/statements/nih-will-no-longer-support-biomedical-research-chimpanzees>.

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- de Waal, Frans B.M. .1990. *Peacemaking Among Primates*. Cambridge: Harvard University Press.
- DeGrazia, David. 2007. "Human-Animal Chimeras: Human Dignity, Moral Status, and Species Prejudice." *Metaphilosophy* 38, no. 2-3: 309-29.
- _____. 2002. *Animal Rights: A Very Short Introduction*. New York: Oxford University Press.
- Diekema, Douglas S. 2006. "Conducting Ethical Research in Pediatrics: A Brief Historical Overview and Review of Pediatric Regulations." *The Journal of Pediatrics* 149: S3-S11.
- Donaldson, Sue and Will Kymlicka. 2011. *Zoopolis: A Political Theory of Animal Rights*. New York: Oxford University Press.
- Fenton, A. 2018. Decisional Authority and Animal Research Subjects. In *The Routledge Handbook of Philosophy of Animal Minds*, edited by Kristin Andrews and Jacob Beck, 475-84. New York: Routledge.
- _____. 2014. "Can a Chimp Say 'No'? Reenvisioning Chimpanzee Dissent in Harmful Research." *Cambridge Quarterly of Healthcare Ethics* 23: 130-39.
- _____. 2012. "On the need to redress an inadequacy in animal welfare science: toward an internally coherent framework." *Biology and Philosophy* 27: 73-93.
- Fenton, A. and A. Shriver. 2018. "Animal Minds: The Neuroethics of Nonhuman Dissent." In *The Routledge Handbook of Neuroethics*, edited by L. Syd M Johnson and Karen S. Rommelfanger, 484-98. New York: Routledge.

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- Fenwick, Nicole, Gilly Griffin, and Clément Gauthier. 2009. "The welfare of animals used in science: How the 'Three Rs' ethic guides improvements." *The Canadian Veterinary Journal* 50, no. 5: 523-30.
- Ferdowsian, Hope and Agustín Fuentes. 2014. "Harms and deprivation of benefits for nonhuman primates in research." *Theoretical Medicine and Bioethics* 35: 143-56.
- Goodall, Jane. 1988. *In the Shadow of Man*. London: Phoenix (Orion Books Ltd).
- Gruen, Lori. 2011. *Ethics and Animals: An Introduction*. New York: Cambridge University Press.
- Hau, Jann and Steven J. Schapiro. 2007. "The Welfare of Non-human Primates" In *The Welfare of Laboratory Animals*, edited by Eila Kaliste, 291-314. Dordrecht: Springer.
- Iliff, Susan A. 2002. "An Additional 'R': Remembering the Animals." *ILAR Journal* 43, no. 1: 38-47.
- Ipsos MORI. Social Research Institute. 2016. *Public Attitudes to Animal Research Survey, 2016*. [data collection]. UK Data Service. SN: 8059. <http://doi.org/10.5255/UKDA-SN-8059-1>.
- Joffe, Ari R., Meredith Bara, Natalie Anton, and Nathan Nobis. 2016. "The ethics of animal research: a survey of the public and scientists in North America." *BMC Medical Ethics* 17, no. 17: 1-12.
- Johnson, Jane and Neal D. Barnard. 2014. "Chimpanzees as vulnerable subjects in research." *Theoretical Medicine and Bioethics* 35: 133-41.

ANDREW FENTON

Jones, James H. 2008. "The Tuskegee Syphilis Experiment." In *The Oxford Textbook of Clinical Research Ethics*, edited by Ezekiel J. Emanuel, Christine Grady, Robert A. Crouch, Reidar K. Lie, Franklin G. Miller, and David Wendler, 86-96. New York: Oxford University Press.

Kahn, Jeffrey. 2014. "Lessons learned: challenges in applying current constraints on research on chimpanzees to other animals." *Theoretical Medicine and Bioethics* 35: 97-104.

Kantin, Holly and David Wendler. 2015. "Is There a Role for Assent and Dissent in Animal Research?" *Cambridge Quarterly of Healthcare Ethics* 24, no. 4: 459-72.

Knight, Andrew. 2011. *The Costs and Benefits of Animal Experiments*. New York: Palgrave Macmillan.

Laule, Gail E., Mollie A. Bloomsmith, and Steven J. Schapiro. 2003. "The Use of Positive Reinforcement Training Techniques to Enhance the Care, Management, and Welfare of Primates in the Laboratory." *Journal of Applied Animal Welfare Science* 6, no. 3: 163-73.

Livingstone Smith, David. 2013. "Indexically yours: Why being human is more like being here than like being water." In *The Politics of Species: Reshaping our Relationships with Other Animals*, edited by Raymond Corbey and Annette Lanjouw, 40-52. New York: Cambridge University Press.

Mosby, Ian. 2013. "Administering Colonial Science: Nutrition Research and Human Biomedical Experimentation in Aboriginal Communities and Residential Schools, 1942-1952." *Historie sociale/Social History* 46, no.91: 145-72.

ANDREW FENTON

- Nelson, Randall J. and Timothy D. Mandrell. 2005. "Enrichment and Nonhuman Primates: 'First, Do No Harm'." *ILAR Journal* 46, no. 2: 171-77.
- NIH (National Institutes of Health). 2013. "NIH to reduce significantly the use of chimpanzees in research." <https://www.nih.gov/news-events/news-releases/nih-reduce-significantly-use-chimpanzees-research>.
- Orlans, F. Barbara. 2002. "Ethical Themes of National Regulations Governing Animal Experiments: An International Perspective." In *Applied Ethics in Animal Research: Philosophy, Regulation, and Laboratory Applications*, edited by John P. Gluck, Tony DiPasquale, and F. Barbara Orlans, 131-47. West Lafayette: Purdue University Press.
- Prescott, Mark J. 2017. "The Three Rs." In *The International Encyclopedia of Primatology*, edited by Agustín Fuentes, 1-5. New York: John Wiley and Sons, Inc.
- Rennie, A.E. and H.M. Buchanan-Smith. 2006. "Refinement of the use of non-human primates in scientific research. Part I: the influence of humans." *Animal Welfare* 15: 203-13.
- Rollin, Bernard E. 2012. "The Moral Status of Invasive Animal Research." *Animal Research Ethics: Evolving Views and Practices, Hastings Center Report Special Report*, 42, no. 6: S4-6.
- _____. 2009. "The Moral Status of Animals and Their Use As Experimental Subjects." In *A Companion to Bioethics*, edited by Helga Kuhse and Peter Singer, 495-509. 2nd ed. Malden: Blackwell Publishing Ltd.

ANDREW FENTON

- Sapontzis, Steve F. 1987. *Morals, Reason, and Animals*. Philadelphia: Temple University Press.
- Schuppli, Catherine A., David Fraser, and Michael McDonald. 2004. "Expanding the Three Rs to Meet New Challenges in Humane Animal Experimentation." *ATLA* 32, no. 5: 525-532.
- Stafford, Kevin. 2007. *The Welfare of Dogs*. Dordrecht: Springer.
- Taylor, Sunaura. 2011. "Beasts of Burden: Disability Studies and Animal Rights." *Qui Parle* 19, no. 2: 191-222.
- Thierry, Bernard. 2011. "The Macaques: A Double-Layered Social Organization." In *Primates in Perspective*, edited by Christina J. Campbell, Agustín Fuentes, Katherine C. MacKinnon, Simon K. Bearder, and Rebecca M. Stumpf, 229-41. Second Edition. New York: Oxford University Press.
- Wendler, David. 2014. "Should protections for research with humans who cannot consent apply to research with nonhuman primates?" *Theoretical Medicine and Bioethics* 35: 157-73.
- _____. 2006. "Assent in pediatric research: theoretical and practical considerations." *Journal of Medical Ethics* 32: 229-34.
- Wolfensohn, Sarah and Maggie Lloyd. 2013. *Handbook of Laboratory Animal Management and Welfare*. Fourth Edition. West Sussex: Wiley-Blackwell.
- Yeager, Ashley. 2018. "Animals Start New Lives After Time in the Lab." *The Scientist*. <https://www.the-scientist.com/news-analysis/animals-start-new-lives-after-time-in-the-lab-29945>.