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CRITICAL DISCUSSION NOTES

Animal Disenhancement and the Non-Identity Problem: A Response to Thompson

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Abstract In his paper "The Opposite of Human Enhancement: Nanotechnology and the Blind Chicken problem" (*Nanoethics* 2:305–316, 2008) Paul Thompson argues that the possibility of "disenhancing" animals in order to improve animal welfare poses a philosophical conundrum. Although many people intuitively think such disenhancement would be morally impermissible, it's difficult to find good arguments to support such intuitions. In this brief response to Thompson, I accept that there's a conundrum here. But I argue that if we seriously consider whether creating beings *can* harm or benefit them, and introduce the non-identity problem to discussions of animal disehancement, the conundrum is even deeper than Thompson suggests.

Keywords Paul Thompson · Ethics · Animals · Livestock · Animal rights · Nanotechnology · Biotechnology · Non-identity problem

Introduction

In his paper "The Opposite of Human Enhancement: Nanotechnology and the Blind Chicken problem" (*Nanoethics* [17] 2: 305–316) Paul Thompson argues that the possibility of "disenhancing" animals in order to improve animal welfare poses a philosophical conundrum. While (for instance) it might be the case that blind chickens have better welfare than sighted chickens in an intensive agricultural system, breeding blind chickens for this purpose is widely—and intuitively—rejected as unethical. However, as Thompson points out, there's a dearth of good arguments to support such intuitive objections to animal disenhancement. In this brief response to Thompson's paper, I accept that there's a conundrum here of the kind he identifies. However, I'll argue that the conundrum is even more problematic than Thompson suggests, because he does not introduce the further complexities raised by the human role in *creating* animals, in particular, complexities generated by what's known as the *non-identity problem*.

Thompson's Argument

Nanotechnology, it's widely agreed, may allow for forms of human enhancement. But together with various biotechnologies, nanotechnology also creates the possibility of animal *disenhancement*. Specifically, animals' capacities may be disenhanced in order to "relieve distress that animals experience in certain food commodity environments by means of technological alteration of animals' ability to experience distress" ([17]: 306). That is, these technologies have

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the potential to alter animals' capacities to better fit their environment, rather than altering the environment to better fit the animals. Thompson notes two possible, distinct, disenhancement strategies: "Dumb Down" and "Build Up". In Dumb Down, "researchers identify the genetic or neurological basis for certain characteristics or abilities (such as sight) and produce animals that lack them by removing or otherwise disabling them either genetically or through a nanomechanical intervention in cellular or neurological processes". In Build Up, in vitro cells are used to create a quasi-living system that turns out animal products, but that lacks a nervous system or brain. Thompson points out that on most leading theories of animal ethics—such as hedonistic utilitarian or animal rights views—such practices of disenhancement should at least be morally permissible. On a hedonistic utilitarian account of animal ethics, for instance, producing animals with a reduced capacity to suffer in comparison with "normal" animals, or producing animals that do not suffer at all, is ethically desirable. An animal rights view, such as Tom Regan's, maintains that we should not treat "subjects of a life" solely instrumentally. This would certainly militate against industrially farming sentient animals, but (as Thompson points out) this stricture would not apply to animals so disenhanced that they do not count as "subjects of a life" because they have no conscious capability at all. Indeed, animals that lack consciousness have no moral status on either a rights or a utilitarian view, so producing them would appear to cause no direct moral problems. Thompson also discusses a third approach to animal disenhancement suggested by Bernard Rollin. Rollin endorses what he calls the "Principle of Welfare Conservation": that the disenhancement of animals would not be intrinsically wrong if the change did "not create animals that were more likely to experience pain, suffering, or other deprivations of welfare as a result" ([17]: 310). Rollin's particular concern is with animals bred to develop diseases as medical models, diseases that would cause the individuals concerned much more suffering than is normal for members of the species. Disenhancements that could reduce this abnormal suffering would act as compensation to those individuals, and would, on this basis, be morally permissible.

Although most positions in animal ethics seem to permit or even require certain sorts of animal disenhancements, Thompson notes that strong opposition remains. One group of opponents focuses on compromised "species integrity" or "dignity of the creature" ([17]: 310; [2, 4, 16]) to argue that such disenhancement is intrinsically wrong. Although "individual animals are better off than they otherwise might be", this group still argues that integrity-compromising interventions are morally impermissible. Other opponents focus on the intuitive "yuck factor" provoked by such modification [10, 11]. A third group of critics argues that disenhancements are, in fact, "forms of harm to individual animals" that in some way "disrespects the animal itself" [1, 9]. Thompson rightly points out that all of these arguments are highly problematic. After all, given the difficulties of changing existing mass production systems, disenhancing animals would appear, at least, to "actually relieve harm when compared to the alternative that would be most likely to prevail" ([17]: 313). Thompson concludes by tentatively suggesting that perhaps objections to animal disenhancement are really ones about human virtue: that it exhibits disrespect, "the entire project exhibits the vices of pride, or arrogance, of coldness, and of calculating venality" ([17]: 314). However, as I'll suggest, Thompson is right to be ambivalent about this kind of refocusing of the problem.

Creating Disenhanced Animals

My concern here relates to disenhancement in the following situations:

(a) Disenhancement carried out prior to the existence of any particular genetic individual, resulting in the existence of a *different individual* than would have existed without the disenhancement. This, then, excludes cases of surgical or other interventions that alter an already existing individual. I'm assuming, therefore, that some nanotechnologies could form part of the creation of particular individuals.

(b) The animals thus created have some kind of experiential welfare; they are not completely insentient. It's at least as difficult to maintain that insentient beings have moral status as to maintain that individual plants have moral status (and for similar reasons). I'm concerned with animals

> for whom things can go better or worse experientially. This means that I'm really talking about cases of Thompson's Dumb Down, rather than Build Up.

My claim here is that bringing "disenhanced" beings into existence raises special ethical questions that our treatment of already existing beings does not. Of course, this is to some extent already reflected in Thompson's paper. But creating animals raises complexities beyond those Thompson discusses, and these complexities deepen the conundrum he identifies. Particular puzzles are generated for deontological approaches to animal ethics, especially rights-oriented approaches.

Let's start with the animal rights view to which Thompson refers. As he notes, on Tom Regan's view, to have rights one must be "subject of a life"—that is, have a rather sophisticated kind of psychological nature, one that Regan thinks is possessed by all adult mammals ([13]: 77). Thompson rightly maintains that if animals are produced so disenhanced that they are no longer subjects of a life, they fall outside the set of beings that have moral status at all. And on any animal rights view, even one such as Gary Francione's [6] that's less demanding in terms of the necessary conditions for being a rights holder, the possibility remains that sufficiently disenhanced animals would not have rights.

However, there's a further difficulty here, not mentioned by Thompson. While, if we look across whole species, an animal produced to lack certain species-normal features does appear disenhanced *relative to other members of the species*, this shouldn't be confused with the idea that something has been taken away from *this particular animal*. *It* has not been disenhanced relative to some already existing, "enhanced" state of itself, since *it*, as an individual, did not exist prior to being created with exactly the capacities it actually has. *It* has not been deprived of anything. At the point of the human activity, there was no subject of a life to wrong. In fact, the term "disenhancement" itself seems awkward here, since no particular individual animal has been disenhanced; *it* is all it ever could have been—even though it has fewer capacities than is normal for members of its species. And this, I think, makes objections to disenhancement more difficult for animal rights theorists even in the case of animals that *subsequently become* subjects of a life. If "disenhancement" is actually part of the *production* of an individual—before the particular individual that eventuates actually exists—it's hard to say how any rights could have been infringed, or even that a being has been wrongly instrumentalized.

This argument equally applies to another "right" that may seem to be relevant here: what's sometimes called the "right to an open future". This right is discussed by Feinberg [5] in the context of what human parents owe to their (already existing) children, and by Buchanan et al. [3] in the context of parents choosing to genetically enhance their (prospective) children. The basic argument here is that parents should not—by for instance, imposing their own conceptions of the good on their children—close off a reasonable range of future opportunities for them. Genetic intervention, Buchanan et al. [3] suggest, could likewise limit the opportunities available to children born as a consequence of such interventions, thus infringing on these children's right to an open future. We can imagine an animal version of this argument, too: that genetically disenhancing animals infringes on *their* right to an open future (creating a chicken to be blind restricts life opportunities in comparison to a seeing chicken). But again, while the idea of a right to an open future might make sense once an animal is already in existence (assuming it is, in any case, a right that's transferrable in some form from humans to animals), at the point of the genetic intervention itself, there *is* no being in existence whose rights are infringed. The genetic intervention is part of what *makes* the being that subsequently comes into existence and bears rights.

So, while a rights view might object to the instrumentalization of blind chickens once they have become subjects of a life (and even, to be on the safe side, for some time before we might think they have become subjects of a life) it's hard to see how, on such a view, genetic or nanotechnological manipulation that produces the very fabric that makes an animal what it is, could be morally condemned. In practice, of course, the disenhancement of animals would presumably be to facilitate their later instrumentalization, and without that in prospect no-one would bother practicing disenhancement in the first place. But it's nonetheless worth noting that the point of moral objection in these cases would not be the disenhancement itself, but rather the later instrumentalization of such disenhanced animals.

This point about rights theory and animal disenhancement takes us directly to the broader questions raised by the non-identity problem.

The Non-identity Problem and Animal Creation

Here's a summary of a standard non-identity problem in the human case:

> The non-identity problem arises because some actions appear to be wrong, and they appear to be wrong in virtue of harming certain people, but those people would not have existed if the actions had not been performed, and those people have lives that are worth living. Such actions are puzzling because they do not make these people worse off than they otherwise would have been; but plausibly, one harms someone only if one makes her worse off ([8]: 137).

Standard non-identity problems arise in situations where intuitively it seems as though some wrong has been committed, but where no *particular* person appears to have been harmed. It's helpful to have a typical case in mind; here's a version of one that's often discussed. Suppose a woman wants a child. She knows that if she conceives now, owing to a short-lived disease she currently has, there's a high risk that the child will be born with significant disabilities, though the child will still have a life worth living. However, if she waits 3 months to try to conceive, this risk will pass and she could expect to have a healthy child. But this woman nonetheless decides to conceive now. She has a child, as expected, with significant disabilities, though the child has a life worth living. *This* child has not been harmed, because had the woman waited 3 months, she would have had a *different* healthy child (a different egg would have fused with a different sperm). Since the child she gives birth to has a life worth living, and it's not possible for "this particular individual to exist and not suffer an impairment" ([14]: 203) then no-one has been harmed. Yet most people intuitively think that the woman should have waited, and that it was wrong of her not to do so.

Non-identity cases, then, normally concern actions that are necessary to an individual's existence and yet appear to be harmful, because different actions would have produced an individual "better off" than the individual who actually was produced. But since *that* person would be a different individual, we can't say that the individual actually born has been harmed. *That* individual could not have been better off than they actually are. These cases are puzzling in form: no-one has been harmed, yet the action intuitively still seems wrong.

Given this framework, let's now move to the animal disenhancement cases Thompson discusses. There are, obviously, two striking differences here from standard non-identity cases. First, animals, not human beings, are at stake; and second, the point of the kind of disenhancement Thompson is discussing is (from the perspective of those promoting it, at least) to benefit, not to harm, the animals concerned.

Although the non-identity problem has been almost exclusively discussed in the human context (though see, for example, [15]) there's no good reason to think it doesn't apply to sentient animals. The relevant necessary conditions for a non-identity problem to arise seem to be (a) that an organism is the kind of thing that can be harmed or benefited and (b) that it has moral status. It's reasonable to maintain both of these in the context of sentient animals. And it's not difficult to imagine animal cases that look a bit like the Hasty Mother case above. Imagine, for instance, that you could breed a healthy mutt from your pet bulldog, but you chose instead to breed a pedigree bulldog, that predictably has significant health problems (though it still has a life worth living). The pedigree bulldog hasn't itself been made worse-off: there was no possibility of a healthier life for *him* as an individual, and he still has a life worth living, even if you could have bred a different, healthier dog with one of the same parents.

Many arguments about animal disenhancement—both promoting and rejecting it—turn on the claim that animals would be either be "benefited" or be "harmed" by it. Thompson notes that the claim that disenhancement harms animals by interfering with their integrity confuses species-level claims with individual-level claims. Yet Thompson's own arguments appear to do something similar. For, Thompson maintains, the outcome of blind chicken strategies is that "the individual animals are better off than they otherwise might be" ([17]: 311). I suppose there may be different ways of reading this claim and others like it in the paper, but the obvious reading is that (given the environment of the industrial farm) an individual chicken is *better off* bred blind than bred with vision. But this is surely confused. As a particular individual, *no* animal is better off—or indeed worse off—if bred disenhanced. Blind Chicken "A" does not have an alternative life as "Seeing Chicken A". The alternative is a different individual altogether, "Seeing Chicken B". As with the child in the Hasty Mother case, it's impossible for Chicken A both to exist and not to be blind. A chicken born with sight would be a different chicken. Assuming we take the idea of being better and worse off, benefiting and harming, in their standard comparative sense—someone is harmed if they are made worse off than they otherwise would have been—the whole idea that disenhancement *either* harms or benefits particular individuals becomes very difficult to maintain. Pre-conception disenhancements are not individual-affecting. This should not prevent us making judgments about whether an animal's life is *absolutely* worth living. We just can't talk of "benefits" and "harms" as if they had been available comparable states of the same individual.

Admittedly, this is a difficult position to accept for a number of reasons. One is that, intuitively, it makes a factor that many people find irrelevant morally relevant: the point at which the disenhancement occurs. While chickens *bred* blind have neither been benefited nor harmed, were some chemical to be fed to adult chickens that made their embryos blind, we *could* speak of the blind chickens that developed from those embryos as having been benefited (or harmed). Yet intuitively these appear to be what Derek Parfit calls "No Difference" cases: paired cases between which most people perceive no moral difference, but where on an individual-affecting view, one case appears morally untroubling and the other morally problematic (See [12]: 367). Routes around this problem have been suggested in the human case; for instance, using a placeholder such as "that class of persons [whoever they are] who will be influenced by the consequences of our present actions" ([18]:108) or adopting a non-comparative idea of harm and benefit [7]. Both these strategies, however, create difficulties.[1] The most obvious alternative strategy is to move away from the focus on genetic individuals and take an *impersonal* view. On this view there are "wrongs" that are not individual-affecting. Some states of the world are worse than others even if they are worse for no-one in particular; they are impersonally worse, or worse in non-particular individual-affecting ways. Obviously, such a response is much more accessible to consequentialists than to rights theorists; indeed, it's not clear that a rights theorist could adopt this view at all.

In Conclusion

The use of biotechnology or nanotechnology to create pre-conception disenhanced animals appears neither to harm nor to benefit the particular animals that result. At the very least, new arguments are needed to reject or to support pre-conception technological disenhancement on the basis of harm or benefit to the individuals concerned. However, it's possible that some disenhancement technologies could reduce the total amount of animal suffering in the world (though there may be as yet unforeseen ways in which such technologies might also have the opposite effect). If an overall reduction in suffering turned out to result, on some theoretical approaches, such disenhancement would be either ethically desirable or required. But a commitment to this position might also entail a commitment to other actions—for instance, intervention in the wild to reduce animal suffering, or the increase in the production of animals up to the point where the creation of one more animal detracted from overall happiness (that is, an animal version of what Parfit [12] calls the "repugnant conclusion") that also appear problematic.

Thompson himself wonders—somewhat tentatively—whether we could say that the creation of blind chickens—and other disenhancement projects—might be a problem in human virtue, a "problem with the kind of moral character that people who would do such a thing might have". But it's hard to get a grip on why we should think this. Unless selective breeding is to be thought to be similarly vicious, we need a reason as to why technological disenhancement particularly instantiates such negative human qualities as arrogance or disrespect. And if no particular individual animal is harmed or benefited by animal disenhancement, and the research were to be carried out with an ethical commitment to reduce suffering in the world, it's difficult to see why this should be regarded as proud or disrespectful anyway. Presumably disenhancement projects *could* be pursued with humility, respect and compassion.

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[1] See Palmer (unpublished) 2010 "What's Wrong with my Bulldog: Animal Ethics and the Non-Identity Problem" for further discussion of these strategies.

None of my arguments here should be taken to mean that disenhancement is a desirable strategy for animal husbandry. As Thompson (314) notes, there may be "more straightforward ways to address livestock production disease" by improving animals' environments, rather than by disenhancing them to allow for the continuance of industrial farming. However, since disenhancement for animal welfare reasons is likely to become an increasingly pressing issue, it merits substantial philosophical and ethical debate. And, as Thompson maintains, animal disenhancement for animal welfare reasons poses a philosophical conundrum. He's surely right. Indeed—as I've argued here—the conundrum is even deeper than Thompson suggests.

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