

The Replaceability Argument

- An evaluation of a utilitarian argument for the permissibility of purchasing meat

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1. Introduction

Utilitarian arguments for the permissibility of purchasing meat have a long history. In 1914, the British writer and animal rights campaigner Henry Salt lamented what he called the “logic of the larder” – the way meat purchases are justified by the alleged fact that they allow the slaughtered animals to live in the first place.¹ Recent proponents of this view include Torbjörn Tännsjö who thinks that as long as animals reared for slaughter live valuable lives, the practice of eating meat isn’t problematic.² This type of argument is also described as one of the possible utilitarian arguments for meat consumption by Bob Fisher in his contribution to *The Oxford Handbook of Food Ethics*.³ The thinkers who argue for versions of the logic of the larder model stand in sharp contrast to the large number of contemporary utilitarian philosophers who claim that the impermissibility of buying meat follows from the utilitarian theory.⁴ The aim of this thesis is to examine and evaluate the utilitarian argument for the permissibility of buying meat that I call “the replaceability argument”.

The thesis is structured as follows. It begins with a presentation of the replaceability argument for the permissibility of buying meat. The structure of that argument will then be mirrored in the structure of the remaining thesis. Three of the four premises of the argument will be examined in turn. Having done that, and having recognized the valid form of the argument, a conclusion about its soundness can be reached.

2. The Replaceability Argument

I have formulated the replaceability argument as follows:

P1. Meat purchases cause animals to be brought into existence

P2. The animals brought into existence by meat purchases live lives of positive final value

¹ Salt, H. 1914.

² Engzell-Larsson, L. 2008.

³ Fischer, B. 2018, p. 7.

⁴ Singer, P. 1980, p. 325; Norcross, A. 2004, p. 244.

P3. If meat purchases cause animals to be brought into existence, and the animals brought into existence live lives of positive final value, then meat purchases cause at least as good consequences as any alternative act

P4. If meat purchases cause at least as good consequences as any alternative act, then meat purchases are permissible.

C1. Meat purchases are permissible

The above argument, which I will refer to as the replaceability argument, is a valid argument. Accordingly, if the premises can be shown to be true, the conclusion must also be true. The valid form of the argument becomes even clearer when it is written in the form of propositional logic:

P

Q

$(P \wedge Q) \supset R$

$R \supset S$

—————

$\therefore S$

The meat purchases referred to in the replaceability argument should be understood as typical meat purchases rather than every such purchase. Under certain extreme contingencies, meat purchases will never, or always, cause animals to be brought into existence. Those possible but highly unusual cases are not what the argument concerns. Instead, it is an argument about typical meat purchasing acts and their consequences.

As stated above, the purpose of this thesis is to evaluate the replaceability argument for the permissibility of buying meat. Consequently, act utilitarianism itself will not be evaluated. Rather, for the purposes of this thesis, the truth of the act utilitarian normative theory will be assumed. The act utilitarian theory is represented in the fourth premise of the argument, and in contrast to the other three premises, the premise expressing act utilitarianism will simply be assumed to be true. The reason

for this choice of approach is simply that the discussion needed to make a judgement on this issue would be too large for a thesis of this size.

Another assumption made in this thesis is about the truth of counterfactual determinism. That is, when discussing counterfactual cases, I will assume that an action only has one possible effect.

An interesting note about the first premise of the replaceability argument is that it contradicts a premise in another similar utilitarian argument for the permissibility of meat purchases. That argument claims that since meat purchases are causally impotent, and meat consumption is beneficial for the consumer, meat purchases have at least as good consequences as alternative acts. This means that falsifying the first premise strengthens that alternative argument, while confirming it falsifies the alternative argument. That alternative argument will however not be discussed further in this thesis.

3. Premise One: The Causal Impotence Problem

The claim expressed in the first premise of the replaceability argument is one that has been thoroughly debated over the last decades. The proposition that there is a causal connection between the act of purchasing meat and animals being brought into existence was first put into question by philosophers responding to Peter Singer's 1975 work *Animal Liberation*. Among them were Michael Martin and Philip Devine who both expressed doubts about whether the act of maintaining a vegan diet could cause even a single animal to avoid being raised and slaughtered.⁵ Since then the issue of whether meat purchases cause animals to be brought into existence has been a contended issue. It is important to remember that because the replaceability argument is an act utilitarian argument, its first premise should be understood in terms of individual meat purchases, not multiple purchases considered collectively.

⁵ Martin, M. 1976, p. 27; Devine, P. 1978, pp. 483-484.

3.1 Causal Impotence

Alastair Norcross expressed the argument from causal impotence in his 2004 article *Puppies, Pigs, and People: Eating Meat and Marginal Cases*:

[I]f I did not buy and consume factory-raised meat, no animals would be spared lives of misery. Agribusiness is much too large to respond to the behavior of one consumer. Therefore I cannot prevent the suffering of any animals. I may well regret the suffering inflicted on animals for the sake of human enjoyment. I may even agree that the human enjoyment doesn't justify the suffering. However, since the animals will suffer no matter what I do, I may as well enjoy the taste of their flesh.⁶

This argument challenges the claim that purchasing meat causes a prolonging, or an expansion, of the raising of animals in the meat industry. If it doesn't, the purchase doesn't increase the suffering produced in the rearing of those animals, and as a consequence, the action doesn't have any negative moral value, at least as far as the factory farm animals are concerned. The argument from causal impotence holds that the meat industry is too large to respond to the actions of individual consumers, and therefore the acts of the individual consumer have no influence over production.

The insensitivity of the meat industry is explained by Bob Fisher like this: in the same way that store clerks don't replace a single package taken off the shelf, instead they order from the warehouse by the box, the warehouse workers don't replace a single box delivered to the store, instead they order from the supplier by the pallet, and the suppliers don't replace every pallet delivered to the warehouse, instead they order from the factory by the truckload. Every link in the supply chain from the factory to the store overorder and count on marginal wastage.⁷ A single unit unsold will therefore more likely count as one more unit wasted, rather than resulting in one less unit ordered from the factory.

⁶ Norcross, A. 2004, p. 233.

⁷ Fischer, B. 2018, p. 5.

In his article *On the Threshold Argument against Consumer Meat Purchases*, Gary Chartier describes how a near consensus has been reached around the claim that an individual consumer's purchases have little to no impact on meat production.⁸ Because of that, utilitarian philosophers who were unwilling to abandon their ethical abstention from meat purchasing looked for arguments showing that meat purchasing does in fact cause animals to be raised and slaughtered.

3.2 Counterarguments

A counterargument to the causal impotence argument was given by Peter Singer as early as 1980. As an example he assumes that there exists a threshold that means that for every 10 000 new vegetarians, a chicken raising unit of 20 000 chickens will be phased out. Since this threshold is unknown to consumers, the consumers have no way of knowing whether or not they have caused a threshold to be crossed, and a great number of chickens not to be raised, when they abstain from buying meat. However, to Singer this doesn't make any difference. According to him a calculation of expected utility ascribes the same moral value to an action which with complete certainty will prevent 10 chickens from being raised as an action that has a 0.1% chance of preventing 10 000 chickens from being raised.⁹ This same argument has subsequently been put forward by Norcross among others. He adds that when a customer abstains from purchasing meat, the crossing of the unknown threshold is moved backward in time. Since that means that meat production will be scaled back at a sooner date than would otherwise be the case, a number of animals can potentially be prevented from being raised as a result of the action.¹⁰

Singer's original counterargument is only relevant to the expected utility version of utilitarianism. In contrast, the version of utilitarianism expressed in the fourth premise of the replaceability argument concerns actual utility. Consequently, Singer's first counterargument can't be used to show that the first premise of the

⁸ Chartier, G. 2006, p. 235.

⁹ Singer, P. 1980, pp. 335-336.

¹⁰ Norcross, A. 2004, pp. 236-237.

replaceability argument is true without contradicting its fourth premise. Singer's argument is nonetheless important as it introduced the idea of thresholds.

Chartier adds another argument that highlights potential thresholds for *increasing* meat production. His argument makes a point of the fact that even if most meat purchases don't cause more animals to be brought into existence, in rare cases they trigger substantial increases in production, resulting in large numbers of additional animals being raised.¹¹

Another important point, raised by Ben Almassi, is that in a purchase situation, the acts of purchasing a meat product or purchasing a non-meat product could both trigger the crossing of a threshold. In the case of purchasing a meat product, a threshold for increasing meat production can be crossed, and in the case of a non-meat product being purchased, a threshold for decreasing meat production can be crossed.¹² This observation tells us that there are both negative and positive thresholds, and the act of abstaining from meat purchases doesn't only entail avoiding the risk of crossing a threshold for an increase in production, it also has the potential to cross a negative threshold for decreasing meat production. The reverse also holds for the act of purchasing a meat product. Therefore both acts can be considered to have at least the potential for a double effect, simultaneously increasing the likelihood of one of the thresholds being crossed while lowering the likelihood of the other being crossed.

3.3 Responses to the Counterarguments

Chartier has two interesting responses to Singer's counterargument. His first response is that most of the animal raising units that are created as a result of a threshold being crossed would be created even without that threshold-crossing purchase, albeit at a later time, as the threshold would be crossed eventually. Because of that, the threshold-crossing purchase can only be said to have caused the raising of those animals who were raised in the period between the creation of the

¹¹ Chartier, G. 2006, p. 233.

¹² Almassi, B. 2011, p. 400.

animal raising unit and the time when the unit would have been created, had the threshold been crossed by a later purchase.¹³ This means that an individual purchase can't reasonably be thought to cause the bringing into existence of all of the animals who are raised at the unit that was created as a result of the threshold being crossed. If this reasoning is correct, the threshold-crossing purchase only has a minimal probability to cause any animals to be brought into existence at all. This is because the numbers of purchases are likely measured infrequently enough that other purchases occur between the time of the threshold-crossing purchase and the point in time where the number of purchases are measured. Consequently, at the time that the number of purchases are measured, the threshold would most likely be crossed regardless of whether the one purchase was made or not. The cases where a threshold is crossed by a single purchase by the time it's measured can reasonably be assumed to be extremely rare.

Chartier's second point is that the production levels in meat industry are affected by several other factors than consumer purchases. That means that the consumer's purchase is less influential than the threshold argument makes it out to be.¹⁴ For the individual purchase to affect production levels, it not only has to cause a threshold to be crossed, but it has to cross it at a time when all other economic factors influencing production levels balance each other, so that the sales threshold becomes the deciding factor.

Another significant critique of Singer's argument is offered by John Harris and Richard Galvin. They point out that the probability of a purchase crossing a threshold isn't 0.1% in cases where it takes 1000 purchases to cross that threshold. The probability is actually almost never 0.1% in those cases. This is because the 1000 purchase threshold only produces a 0.1% chance of it being crossed by a given purchase under very specific circumstances. First, it has to be the case that 1000 such purchases will occur within the geographical area and timeframe that the threshold applies for. Second, there can be no more than 1000 purchases within that

¹³ Chartier, G. 2006, p. 240.

¹⁴ Chartier, G. 2006, p. 242.

same spatiotemporal frame, or the chance of making one of the 1000 purchases that cause the threshold to be crossed decreases.¹⁵

3.4 Discussion

The proposition of causal impotence, that is the proposition that individual consumer meat purchases don't cause animals to be brought into existence in the meat industry, has been attacked by philosophers such as Singer, Norcross and Chartier. Their main counterargument revolves around assumed thresholds that may be triggered by some purchases. Those few threshold-crossing purchases would then cause large numbers of animals to come into existence. In terms of the expected results of the action of purchasing meat, Singer and Norcross seem to consider this low probability of a large effect as equal to a high probability of a small effect. In other words, it appears that to them it makes no moral difference whether every thousandth customer causes 1000 animals to be brought into existence, or every customer causes one animal to be brought into existence. This attitude presupposes the view that what counts morally is the expected outcome, rather than the actual outcome. This is not at all the only way to view the issue. One might just as well say that an action should be judged by its actual consequences.

For the purposes of this thesis, we are trying to settle the empirical question of whether the action of purchasing meat causes animals to be brought into existence. That is not a question of morality. Rather, it's about whether or not we can consider a kind of action as causing something when we know that it is only a small fraction of the actions of that kind that have the relevant causal effect. That is, can a person who has made a purchase, and therefore has a chance of having caused an increase of production, reasonably be seen as having to some extent caused that increase in production? I here assume that the increase in production has actually happened, and that it is unknown whether or not the particular purchase caused the threshold to be crossed or not. If causal responsibility can be spread out in a manner similar to how Singer suggests that moral responsibility can be spread out, then the problem of causal impotence disappears. That would, however be a controversial claim to

¹⁵ Harris, J.R. & Galvin, R. 2012, pp. 375-376.

make. Another, perhaps less controversial, way of ascribing causality to purchases that don't cross the threshold might be to claim that since all of the purchases made before the purchase that crosses a threshold were necessary conditions for the threshold being crossed at the time it was, they can be said to partially cause the crossing and the following effects. This solution to the causal impotence problem does, however, require an acceptance of the view that actions that are necessary, but not sufficient conditions for an occurring consequence, are in a morally relevant way partially causing that consequence.

Unfortunately there isn't an agreed upon and unproblematic account of how causation works. According to Jonathan Schaffer, current theories of causation such as the counterfactual theory, the nomological subsumption theory, the contiguous change theory and the process theory can be grouped into two categories, probability theories and process theories. Probability theories explain causality as a relation where an event increases the probability of another event occurring, while process theories explain causality by physical connections between the cause and effect.¹⁶ Schaffer places the counterfactual and nomological theories in the probability category, and the change and process theories in the process category. While I won't delve any deeper into the large topic of causation, a prima facie assessment of the implications of those two basic theories in the case of meat purchases seems to indicate that we cannot immediately rule out that non-threshold crossing purchases can be considered as causing production increases. Those purchases would likely both increase the probability of the threshold being crossed, and could be seen as a part of the process leading to the crossing of the threshold and the subsequent increase of production. I haven't seen any other discussion of this type of solution to the causal impotence problem, and for it to be effective it would require further development including a deeper discussion of causality.

¹⁶ Schaffer, J. 2016.

3.5 Conclusions

The claim that the meat industry isn't sensitive enough to respond to every single meat purchase is uncontroversial. It is also generally accepted that large numbers of meat purchases have an effect on production levels. The two main questions remaining are how likely a single meat purchase is to cross the threshold that triggers that effect, and whether or not all purchases, or just the threshold-crossing ones, should be considered as causing the effect.

The arguments put forward by Chartier, Harris and Galvin suggest that the probability of a purchase crossing a threshold, and thereby causing an increase in production, is much smaller than the proportion between the purchase and the number of purchases needed to cross the threshold. This makes causally potent purchases extremely rare. That indicates that the first premise of the replaceability argument is false because it states that acts of purchasing meat causes animals to be brought into existence. That doesn't seem to be the case for typical purchases. The remaining hope for the first premise then lies in the disputable metaphysical theory that causality can be ascribed to actions that are not a sufficient cause of the effect. Since none of the two main groups of theories of causality, at least on the surface, seem to be incompatible with such a view, there might be hope of finding a tenable solution there.

4. Premise Two: Living a Valuable Life

The claim made in the second premise of the replaceability argument is that animals brought into existence as a consequence of meat purchases live lives of positive final value. That means that the positive final value of their lives outweigh the negative value, resulting in a net positive final value. In other words, a utility calculation would result in the conclusion that they live lives better than nonexistence. In this discussion I will assume that welfare is the only form of utility. Utilitarian theories can consider many other things as having utility, but since all of those possible variations can't be covered here, I will focus on the common welfare based version of utilitarianism. In order to be able to make a judgement on whether animals raised

in the meat industry live lives of positive welfare, we first need to consider which theory of welfare we are going to judge their circumstances by.

In this section I am going to consider two widely held theories of welfare. Then the conditions of animals in the meat industry will be briefly described. Lastly, the two welfare theories will be applied to the conditions of the animals and a conclusion about whether or not their welfare reaches a sufficient level will be drawn.

4.1 Two Theories of Welfare

The two kinds of theories of welfare that I will be considering are hedonism and preferentialism. These are the two most influential theories of welfare in utilitarian ethics. The theories will be evaluated based on their general plausibility and to what degree they strengthen the argument.

Hedonism, as a theory of intrinsic value, holds that what counts morally is pleasure and pain. Those are the only two things with intrinsic value, with pleasure carrying intrinsic positive moral value and pain carrying intrinsic negative moral value. In conjunction with utilitarianism it says that an action is permissible if it causes at least as much pleasure as any alternative act. Krister Bykvist formulates the hedonistic criterion of welfare in terms of prudential moral value:

- X is good for you if and only if x contains more of your pleasure than displeasure.
- X is bad for you if and only if x contains more of your displeasure than pleasure.¹⁷

For the hedonistic utilitarianism that I will be considering, it is the sum of all the prudential moral value experienced by moral patients that determines the moral value of an outcome, all things considered.

¹⁷ Bykvist, K. 2010, p. 36.

Hedonism is a subjective theory of welfare in the sense that welfare is thought to consist in certain subjective experiences of conscious beings. This subjective character leads to certain problematic implications of the theory. For one, the theory suggests that someone who experiences pleasure as a result of a false belief is as well-off as someone who experiences pleasure as a result of a true belief. Another problematic implication is that hedonism sometimes fails to recognize the value of things like being loved and appreciated, being successful in realizing one's ambitions etcetera; things that to many would intuitively seem to carry value. This failure can occur when someone who experiences these things has grown used to them and doesn't draw any particular pleasure from them, instead taking them for granted.¹⁸ These problems are relevant to the question of the plausibility of hedonism as a theory, but they are not as prominent when applying the theory to nonhuman animals. A possible advantage of the hedonistic theory of welfare, when applying it on nonhuman animals, is that it seems easier to judge pleasure and pain than preference satisfaction. This is, however, an epistemological advantage, rather than an indication of the truth of the theory.

The primary competitor to the hedonistic theory of welfare is preferentialism. This theory claims that it is satisfaction and frustration of preferences that determines someone's level of welfare. This theory manages to avoid the above mentioned problems associated with hedonism because preference satisfaction isn't determined by the individual's beliefs about the state of affairs, but instead by the actual state of affairs. Thus the individual isn't thought to experience an increase in welfare when that individual falsely believes a preference to be satisfied. What matters is that the preference is satisfied, not that it is believed to be satisfied. Similarly, it often avoids the problem of failure to recognize seemingly important values, as those things would likely be preferences of the individual in question. Preferentialism is, however, as we shall see, not without its own problems. Bykvist formulates the preferentialist criterion of welfare as follows:

- X is good for you if and only if you favor x more than you disfavor it.

¹⁸ Bykvist, K. 2010, pp. 36-38.

- X is bad for you if and only if you disfavor x more than you favor it.¹⁹

Problems with the preferentialist theory of welfare include the problem of misinformed desires and the problem of unexperienced satisfaction. The problem of misinformed desires is that preferentialism implies that performing an act that I have a desire for performing, since I falsely believe it to cause me to experience more pleasure than an alternative act, actually gives me a higher level of welfare than performing the alternative, actually more pleasurable act. There are more than one proposed way of fixing this problem. One way is to introduce a rationality constraint, another to only count preferences for things of intrinsic moral value and disregard preferences for things of extrinsic moral value.

The problem of unexperienced satisfaction is that preferentialism in its basic form would ascribe increased welfare to someone who unknowingly to them has a preference satisfied. There are also possible constraints to the welfare criterion of preferentialism that can prevent this implication. For instance, it can be stipulated that only preferences, the satisfaction of which would directly affect the one holding the preference, should be counted.²⁰ The problem of misinformed desires seems to be a possible issue for nonhuman animals. On the other hand, the problem of unexperienced satisfaction does not, as the preferences that can be satisfied without the individual's knowledge are likely too abstract to be formed by members of species less cognitively advanced than humans.

Both of these theories of welfare are associated with problems, yet they are the most popular among utilitarian philosophers. Instead of choosing between them, I will be applying both of them to the lives of the animals raised in the meat industry, and then I will present my conclusions about their implications in this case.

¹⁹ Bykvist, K. 2010, p. 41.

²⁰ Bykvist, K. 2010, pp. 42-45.

4.2 The Lives of Animals in the Meat Industry

The three main areas of concern when it comes to the living conditions of meat industry animals is according to zoologist and animal welfare researcher David Fraser affective states, basic health and functioning, and natural living.²¹ By affective states Fraser means the pleasures and displeasures experienced by the animals. This factor should be highly relevant to the hedonistic observer, but only indirectly to the preferentialist. The animals in the meat industry must, however, be assumed to have preferences for experiencing forms of pleasure and avoiding forms of pain. Basic health and functioning also refers to states that must be assumed to be preferred by the animals in question. But being healthy or functioning normally aren't considered things with intrinsic value in the hedonistic theory, rather it is the affective states resulting from those things that count. The third area of concern, natural living, is probably also something preferred by animals. The definition of natural living should be something like "living in a manner similar to that of animals unrestrained by human activities". And since those unrestrained animals would to a large extent live according to their preferences, natural living should be something that farm animals prefer. Similarly to the case of basic health and functioning, natural living is not something of immediate interest to the hedonist assessor.

I will now briefly describe the typical living conditions of the animals most commonly raised for meat in regard to the three areas of concern. After that I will reach a conclusion about the value of their lives, according to the two different theories of welfare.

Just in the U.S., roughly 10 billion land animals were killed for food in 2007. This is an indication of the scale of the meat industry. The vast majority of animals raised for food are either cattle, pigs or chicken, with chicken making up the majority of individual animals slaughtered.²² The lives of the animals are drastically shortened with chicken being slaughtered at around 6 weeks of age when they have a natural

²¹ Fraser, D. 2008.

²² Frohlich, T. 2015.

lifespan of about seven years.²³ Pigs, with a natural life expectancy of about 10-15 years, are usually slaughtered at around 24 weeks.²⁴ While cattle can live for 20 years, they are most often slaughtered at around 2-4 years of age in the meat industry.²⁵ The drastically shortened life spans of animals raised for food can safely be assumed to go against the preferences of the animals. One indication of this is the continual measures they take to keep living, and their avoidance of things they perceive as threats to their continued life. The short lives of the animals isn't as big a problem for the hedonist, however. If replaceability is assumed, it makes no difference to the utilitarian hedonist whether one cow lives for 20 years or if 10 cows live for two years each.

The extremely confined spaces that chicken, pigs and cattle live in result in physical and mental suffering, poor health and frustration of the animals' natural behaviors. Physical suffering comes from things like injuries and disorders that result from being confined without the ability to move properly, walking on surfaces such as steel mesh and concrete floors, and even the measures such as tail docking and beak cutting that farmers carry out to prevent even greater suffering. Mental suffering can be expected from things like separation from family members, the stress and boredom of confinement and the fear felt during slaughter. The constant experience of these forms of suffering should be powerful reasons to question the value of the animals' lives for the hedonist. The preferentialist should also be concerned as we can assume that animals hold preferences for non-suffering, or at least the ending of their current suffering.

The question of health is perhaps more complicated. While many animals raised for food suffer negative health effects as a result of their confinement, they also enjoy protection from many threats such as predation and disease. So the status of this area of concern is more unclear, and assessing hedonic value and preference satisfaction in that area is difficult. When it comes to natural living, that is an area

²³ United States Department of Agriculture (a); Browne, A. 2002.

²⁴ United States Department of Agriculture (b).

²⁵ United States Department of Agriculture (c).

where the animals are also severely limited. Their inability to exercise their instinctive behaviours is an obvious violation of preferences, and the frustration resulting from that inability must also entail some degree of suffering.

4.3 Conclusions

For the second premise to be undermined it doesn't have to be shown that the premise is false. It is enough to show that there isn't reason to believe that it is true. Having briefly considered the basic conditions of the animals most commonly raised for food, it looks like there is strong reason to doubt that those animals live lives of positive final value – from the hedonistic, and maybe even more so from the preferentialist perspective. The hedonist has reason to be very concerned about the continuous physical and mental suffering of the animals, as well as possible suffering caused by poor health and unnatural living. The preferentialist on the other hand should consider violated preferences about survival, absence of suffering, and performing instinctual behaviours as strong evidence that the lives of animals raised for food carry considerable negative final value.

Although the scope of this discussion doesn't allow for a precise description and analysis of the living conditions of animals raised for food, the issues raised should be enough to highly doubt the plausibility of the second premise of the replaceability argument. On the contrary, and especially for the preferentialist, the evidence seems to point towards the conclusion that the lives of the animals are of negative final value.

5. Premise Three: Alternative Acts

In my evaluation of the first and second premises of the replaceability argument I have already found cause to doubt the soundness of the argument. The third premise states that *if* premises one of two are true, *then* meat purchases cause at least as good consequences as any alternative act. As a conditional statement, even if one or both of the former premises are found to be false, the third premise can still

be true. Of course, for the argument as a whole to be sound, all of the premises have to be true.

In this section, the value of meat purchases will be compared to the value generated by alternative acts, namely purchases of plant based products. According to the third premise, if premises one and two are correct, then the value that those consequences produce is greater than the value produced by purchasing comparable plant based products. The primary areas where positive and negative value is produced, apart from the lives of the animals raised for meat, are in the environmental impact of agriculture and in the welfare of the consumer. I will discuss the effects of the different acts in these two areas, and then reach a conclusion about how they compare.

The hypothetical positive value of the lives of the animals raised in the meat industry must however be accounted for. An epistemological problem associated with this is that the value in question is unknown. My evaluation of the second premise resulted in the conclusion that the moral value of the lives of meat industry animals is likely negative. However, the third premise states that if that value is positive, then the total moral value of the action of purchasing meat is greater than any alternative act. That means that an unknown positive value has to be assumed, but as that value is unknown, there is no single answer to whether or not the premise is true. What can be answered is whether or not the third premise is true in possible worlds where premise one and two are true. The most relevant of these possible worlds is arguably the one most similar to our own. I will therefore compare the other sources of value associated with purchases of meat and plant based alternatives, and then make a judgement on the total value produced by the different acts in the most similar possible world where premises one and two are true.

5.1 Environmental Effects

Beginning with greenhouse gas emissions, they come from both the raising of the animals and from the animals themselves. Just counting the emissions caused by the

raising of the animals, animal agriculture is known to cause much more emissions than plant producing agriculture.²⁶ Considering that livestock production is ranked as one of the top two or three contributors to environmental problems globally, switching to alternative food sources that are just slightly less harmful would have a huge effect.²⁷

A striking indication of the inefficiency of animal agriculture is that the grain used to feed US livestock would be enough to feed 840 million people on a vegetarian diet.²⁸ The enormous amount of time, money and effort needed to turn plant based food sources into meat would be available to be spent on other valuable pursuits if that process was eliminated. Cutting out that process would also save the environment massive amounts of harmful emissions.

The other significant source of emissions in animal agriculture is the animals themselves, primarily in the form of gases produced by ruminating livestock. A third of anthropogenic methane, a gas with 23 times the global warming potential of CO₂, and two thirds of anthropogenic nitrous oxide, a gas with 296 times the global warming potential of CO₂, come from this source.²⁹

In summary, we know that animal agriculture produces much more greenhouse emissions than plant agriculture, and that humans could be fed by less than half of the food produced just to feed livestock. This tells us that an exclusively plant based food production would use less land and produce less emissions. The reason that climate change should be counted as a source of negative value is of course the harm brought to humans as well as nonhuman animals as a result of extreme weather events, destruction of habitats for nonhuman animals, destruction of human settlements, disruption of human activities, and so on.

²⁶ Pimentel, D & Pimentel, M. 2003, pp. 662-663.

²⁷ Steinfeld, H. et al. 2006, p. 20.

²⁸ Pimentel, D & Pimentel, M. 2003, p. 661.

²⁹ Steinfeld, H. et al. 2006, p. 21.

A separate environmental issue where food production is an important factor is biodiversity. The global livestock production now occupies 30% of earth's land surface, and as the leading cause of deforestation, and a prominent cause of land degradation, pollution, and introduction of invasive species, a United Nations report says it may well be the biggest cause of biodiversity loss.³⁰ Presumably, dramatic biodiversity losses also mean that fewer individual wild animals live on land claimed by farming. And as animal farming demands more land than plant agriculture, it probably causes less wild animals to live.

5.2 Human Health Effects

Initially, it should be noted that human health effects differ from environmental effects in that the latter are necessarily linked to meat purchases while the former are not. The meat products that are purchased are necessarily linked to environmental effects because the product purchased has to be produced, and the environmental effects are a result of production. If the first premise of the replaceability argument is true, and the causal impotence theory is false, there is an even stronger link where meat purchases cause production which in turn causes environmental effects. On the other hand, meat purchases have no necessary link to human consumption and the human health effects that follow. It is entirely possible for someone to purchase meat without consuming it. Accordingly, human health effects shouldn't be given the same weight when the moral value of the act is considered. Consumption is a common but merely contingent result of purchases.

In the past, consumption of meat, and in particular red meat, has been thought to be associated with a number of health risks including cardiovascular disease and certain types of cancer.³¹ Recent research has put this into question, and the health risks associated with meat consumption now appear more unclear.³² In a recent article, philosopher Bob Fisher writes that evidence suggests that a predominantly, but not strictly, vegetarian diet is the optimal one in terms of health.³³ Since there

³⁰ Steinfeld, H. et al. 2006, p. 23.

³¹ McAfee, A. et al. 2010, p. 1.

³² McAfee, A. et al. 2010, p. 11.

³³ Fischer, B. 2018, p. 6.

currently doesn't seem to be a clear and agreed upon answer to the question of meat consumption and health, and since the health question is for the above mentioned reasons of lesser importance, I will not assign any positive or negative moral value to the human health aspect of meat purchasing.

5.3 Conclusions

In summary, we have seen that animal agriculture causes worse climate effects than plant agriculture. It also seems to be the case that animal agriculture causes fewer wild animals to live than plant agriculture does. The moral importance of these two factors is great. Considering the enormous scale of animal agriculture, the volume of greenhouse gases and the various negative effects they cause are vast. As one of the leading sources of greenhouse gas, and with significantly higher emissions than plant agriculture, purchasing meat instead of plant based alternatives is one of the most important causes of global warming. This is true of meat purchasing actions collectively, and also meat purchasing actions individually if the causal impotence theory is false.

Likewise, the probable fact that animal agriculture causes less individual animals to live than plant agriculture is very significant. This is once again because of the scale of the phenomenon. Even if the percental difference in number of animals supported by farmed versus unfarmed land is small, it would mean that a vast number of animals don't come into existence as a result of animal farming. Again, this goes for meat purchasing actions considered collectively, and individual meat purchasing actions considered individually if the causal impotence theory is false.

It is however uncertain whether a diet including meat is better than a purely plant based diet in respect to human health. From these three facts it can be concluded that animal agriculture produces much less moral value than plant agriculture, excluding the value of the lives of the farmed animals. But our main question is about the value produced by the purchasing acts, not the agriculture. And since the third premise is a conditional and counterfactual statement about what act would produce more value if premise one and two are true, we must imagine a possible

world without causal impotence and with farmed animals living lives of positive moral value. I will imagine the possible world most similar to our own where premise one and two are true. That means that in that possible world, the same environmental and human health effects exist, but unlike in our own, meat purchases are typically causally potent, and farmed animals live lives of positive moral value. In that possible world, I will make a judgement on whether meat purchases or purchases of plant based foods produce more value.

Since animal agriculture still produces much less moral value than plant agriculture, and since those values are in possible worlds without causal impotence largely caused by the purchasing acts, meat purchasing acts produce much less moral value in that area. The question is whether the positive moral value of the farmed animals can outweigh that. The answer to that question must be no. That is because we are imagining the possible world most similar to our own where farmed animals live lives of positive moral value. In that world, farmed animals only live lives of marginal positive moral value which can't feasibly compensate for the negative environmental effects. I therefore conclude that in the case of the possible world most similar to our own, where the antecedent of the conditional statement is true, the consequent of the conditional is false. That means that in the most relevant case, the third premise is false.

6. Conclusion

In my evaluation of the replaceability argument I have found either reason to doubt, or a lack of reasons to believe, all of the three premises I have evaluated.

The first premise states that meat purchases cause animals to be brought into existence. My evaluation suggests that purchases that are causally potent and do indeed cause animals to be brought into existence are extremely rare, at least with a common sense view of causation. Since the argument concerns typical instances of meat purchasing, the first premise seems to be false.

The claim made in the second premise is that the animals brought into existence by meat purchases live lives of positive moral value. My evaluation of that claim indicates that the animals claimed to be brought into existence by meat purchases in fact live lives of negative moral value. We can at least make the weaker claim that the second premise hasn't been shown to be true.

Lastly, the third premise states that if meat purchases cause animals to be brought into existence, and the animals brought into existence live lives of positive moral value, then meat purchases cause at least as good consequences as any alternative act. Since the antecedent of the conditional is not true in our world, I evaluated the consequent in the most similar possible world to our own where the antecedent is true, and found that it is false there. In other words, the third premise is false in the most relevant case.

For the replaceability argument to be sound, all of its four premises have to be true. I have found reason to doubt the first premise, have not found reason to believe the second premise to be true and concluded that the third premise is false in the most relevant case. Because of this, the replaceability argument should be rejected.

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