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ARTICLES

The Doctrine of Double Effect and Killing Animals for Food

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Abstract
Producing food on a large scale without killing any animals seems currently impossible. This poses a challenge for deontological positions that involve a prohibition against killing sentient creatures: it seems that according to these positions omnivorous, vegetarian and vegan diets all rely on food produced in impermissible ways. In order to meet this challenge, deontologists might introduce consequentialist considerations into their theories, for example some principles that effectively require to kill as few animals as possible. This is the kind of strategy Tom Regan has pursued. However, we argue that the challenge for deontological positions on the ethics of food production can also be met by invoking a prominent deontological principle. The doctrine of double effect (DDE), with its distinction between bringing about harm intentionally and bringing about harm as a merely foreseen consequence of one's action, enables us to see a morally significant difference between the various ways to produce food other than the number of animals killed. In this paper we will review some of these ways using Warren S. Quinn's version of the DDE and show that a more thoroughgoing deontological ethics of food production than Regan's classic theory is possible. We thereby present a novel way of evaluating modes of food production.

Keywords Animal ethics · Food production · Double effect · Vegetarianism · Meat

Introduction

There is no strictly necessary connection between killing animals and producing food.[1] This is both theoretically true and real-life examples for the matter exist. Apples can be picked without killing a single animal, as long as we ignore the deaths

[1] We shall understand the term 'producing food' (and similar terms) in a rather wide sense that includes acts as diverse as picking an apple, building a stable, growing plants, and transporting food to the consumer.

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of insects and even smaller animals, which we will do in this paper. However, when it comes to a kind of large scale food production that is supposed to feed the entire human population in the twenty-first century, matters look rather different. To feed the world, animals need to be killed.

This is most obvious if the global population is fed on an omnivorous diet. But the killing of animals is a widespread phenomenon in the production of plant-based foods, too. Combine harvesters kill, for example, deer and mice. Pesticides kill all kind of animals. The fact that growing plant-based foods, at least when done on an industrial scale, will result in the killing of animals is of special importance. This is because plant-based foods, unlike animal products, are an irreplaceable part of the global diet. The observation that producing plant-based foods, too, involves the killing of animals establishes the truth of the more general thesis that animals need to be killed in order to feed the human population.

This conclusion proves troubling for some, but not for all theories in the field of animal ethics. Consequentialist approaches, for example, are well-equipped to deal with this situation. Matters are different for deontological positions that include a more general prohibition on the killing of animals. The most famous example of such a theory is Tom Regan's theory of animal rights (Regan 1983). Regan argues that animals are subjects of a life and therefore possess inherent value (1983: 246). Beings with inherent value should be treated "in ways that respect their inherent value" (1983: 248). They have a right to be treated respectfully (1983: 276–278). Prima facie, harming animals is an instance of failing to treat them respectfully (1983: 262, 187). Killing animals clearly counts as an instance of harming them according to Regan.[2] We therefore have a prima facie duty not to kill animals and Regan argues for vegetarianism being obligatory (1983: 262, 331–353). Regan's theory does have resources to deal with cases in which killing no animals is not a viable option. The prima facie duty not to harm animals can be overridden. The principles Regan introduces to that end are more complex than a simple Minimize Killing Principle, but applied to the cases we want to discuss (death as the only kind of harm, animals of roughly equal mental capacities) they are likely to advocate just that: if you must kill animals in the process of food production, kill as few as possible.[3] For our purposes, we can therefore proceed as if Regan had subscribed to a Minimize Killing Principle.

We do not want to claim that because of the introduction of the Minimize Killing Principle, Regan's whole theory can be considered consequentialist rather than deontological.[4] How to classify his theory as a whole is of no interest to us. What is striking, however, is that it is the consequentialist parts of Regan's theory of animal rights that do all, or at least most, of the work when the theory is applied to cases of food production. While this might not be thought of as troublesome, it opens up the question whether there is a way to modify theoretical approaches like Regan's,

[2] See, for example, the lifeboat case Regan uses (1983: 285, 324, 351).

[3] The principles Regan actually introduces are the Minimize Overriding Principle ("Miniride") and the Worse-off Principle. See (1983: 305–312).

[4] Regan himself denies that his theory becomes consequentialist in character. See (1983: 310).

so that they offer a more thoroughly deontological perspective on the ethics of food production. We propose to use the doctrine of double effect (DDE), one of the most classic deontological principles, to that end. The DDE, crucially, does not involve a general prohibition against killing but offers a way to normatively discern different killings without resorting to a supporting consequentialist principle. It is therefore well-fitted to provide us with guidance in cases in which killing no beings whatsoever is not a viable option.[5]

At the core of the most classic versions of the DDE lies the distinction between bringing about harm intentionally as a means to an end and bringing it about as a merely foreseen side effect of one's action. The former is harder to justify than the latter according to the DDE. We will utilize a more modern version of the DDE, namely the one advocated by Quinn (1989).[6] It can be seen as a more nuanced variation of the same basic thought that underlies the classic DDE. It allows for a more differentiated analysis of various ways of producing food than the more classic versions of the DDE do.

The rest of the paper is divided into four sections. In "Preliminaries" section we will present and briefly discuss some important preliminaries. Outlining Quinn's DDE is the aim of "Quinn's DDE" section. "Application to Some Cases of Food Production" section represents the main part of the paper and contains the application of the DDE to various forms of food production. We will sum up our results in "Conclusion" section.

Preliminaries

In this section we will make some important guiding assumptions. They form the basis of our discussion. We will not provide a full justification for them, but we will present some considerations that speak in their favor.

The Human Population Must Be Fed

One way to avoid killing animals in food production is to stop producing food altogether. This would result in human extinction. A big step towards killing much fewer animals in food production would be to produce only very little food. Maybe this, too, could achieve the aim of killing no animals at all if one produces food very carefully and in isolated facilities (see the next sub-section). This would result in massive suffering and induce great casualties among the human population. Hence, we take it for granted that the human population must be fed sufficiently. Every alternative way of acting that does not result in humanity being fed is not a viable

[5] The Doctrine of Doing and Allowing is another prominent deontological proposal on how to evaluate such actions. But since the killings we will discuss are all actively brought about, the Doctrine of Doing and Allowing would not prove helpful. This further strengthens the case for applying the DDE.

[6] Unless otherwise noted, 'DDE' will from now on mean Quinn's version of the DDE as it is understood by us.

alternative from a moral point of view, which means that we must do everything necessary for the human population to be fed.

Killing Animals is Necessary for Producing Food

Animals are often killed for food. That much cannot be denied. All kinds of animals are killed for their meat. Producing other animal products, like eggs and milk, often goes along with killing animals, too. Male chicks will never become laying hens and are therefore killed in the process of producing eggs. Old milk cows that are no longer profitable usually do not die of natural causes in an animal sanctuary but are instead killed in order to eliminate them as a cost factor. The production of plant-based foods results in animals being killed, too. Combine harvesters kill deer and small mammals, pesticides kill insects, rodents, and birds, while trucks that transport plant-based (or any kind of) foods will run over animals ranging from bugs to frogs to bigger mammals like foxes and deer. Not all of these killings are intentional, but they are all instances of killing animals that occur in the process of food production.

Another, more difficult question is whether these killings are just a lamentable feature of the present, contingent way of producing food or whether killing animals is a necessary part of food production. On a theoretical level, there is indeed no necessary connection between killing animals and the production of most food items. Plants could be grown, harvested and transported with utmost care, so that no animal whatsoever gets killed. Male chicks and milk cows could spend their (final) days in animal sanctuaries where they would die of natural causes. And even most pieces of meat could be gained by non-fatal amputation or using carrion. However, we do not think that producing food in the order of magnitude needed to feed the present human population is realistically possible without killing animals. The large-scale production of plant-based food in sealed-off laboratories (maybe with an equally sealed-off underground transportation system) might be our most realistic shot at producing significant amounts of food without killing a single animal. But there is a reason why this sounds like science fiction—it is just not feasible at the moment and will not be feasible for the foreseeable future.

The paper in which these points were made most forcefully was written by Davis (2003).[7] He, too, makes these points in connection with Regan's theory of animal rights. Although he does not reach a definitive conclusion, he argues that we should take seriously the possibility that diets other than the vegan one turn out to be the least harmful. Our project differs from his in that we take his observation that killing animals is necessary for producing food as a starting point. We then present a more deontological alternative to some kind of Minimize Killing Principle to deal with said observation. This is why we, in contrast to Davis, need not argue that in fact *more* animals are killed during the production of plant-based food than during

[7] A paper with a similar focus is Schedler (2005).

the production of certain kinds of meat.[8] Matters like these are important and need to be dealt with if one wants to reach an all things considered judgment on the ethics of food production, though. Our more modest aim can be reached without doing so.

Killing Animals Falls Within the DDE's Scope

The DDE is a moral principle (or bundle of principles) with which one can evaluate actions that have both a good and a bad effect. In Quinn's version the bad effect is usually characterized as a victim being harmed. Looking at the examples that feature in the academic discussion of the DDE, being killed is quite a common harm but animals are an unusual victim. Basically all examples are about human beings being harmed in some way. Animals are largely absent from the discussion.[9] This may very well lead to the suspicion that applying the DDE to cases in which animals are the victims is an error. Maybe the special moral importance we attach to the difference between intending harm and merely foreseeing it does not apply in the case of animals being harmed.

While giving a full justification for why animal deaths should fall within the DDE's scope is a project for another paper, we want to briefly sketch two lines of reasoning that could be used to this end: First, the DDE is frequently used in cases in which the harmed individual, just like an animal, does not grasp the intentional character of the harm being done, does not even have the capacity to do so, and is not a full-grown human being. These are cases in which human fetuses are harmed by operative measures like hysterectomies and craniotomies. They belong to the most widely discussed applications of the DDE. Therefore, a classic 'marginal cases' argument can be brought forward in favor of including animal deaths within the DDE's scope.

Second, some theories on the moral status of animals fit a doctrine like the DDE very well. Tom Regan's theory of animal rights is a prime example. As was already mentioned, a duty to treat animals with respect is one of the central elements of Regan's theory. The notion of respect is also central to some of the rationales given for the DDE, for example by Warren S. Quinn, whose version of the DDE we will work with (Quinn 1989: 348). Some forms of harming an individual are more disrespectful than others. Quinn does not apply the DDE to animals, but there is surely a case to be made that the notion of respect can bridge the gap between typical applications of the DDE and animal ethics. We therefore conclude that an inclusion of animal deaths within the DDE's scope seems justifiable.

[8] Davis' (tentative) conclusion that some forms of meat production might result in fewer animals being killed was roundly criticized on an empirical basis in Lamey (2007).

[9] Short mentions of the underlying rationale of the DDE applied to animals can be found in Taylor (1999: 87) and Lamey (2007: 342–344). Both do not mention the DDE by name. Delaney, while discussing the problem of closeness, mentions the practice of tuna/dolphin fishing as a potential application of the DDE. See Delaney (2008: 335–367, 347–348).

Quinn's DDE

In most of its classic formulations the DDE spells out a bundle of conditions by which we can evaluate actions that have both a good and a bad consequence. Each individual condition is thought to be a necessary condition for the action in question being morally permissible. Together they form a sufficient condition for the action in question being morally permissible. Here is one rather succinct version of the DDE[10]:

(1) The aim the agent pursues in acting must be morally acceptable,
(2) the resulting harm must not be intended (either as an end or as a means) but must be a consequence the agent merely foresees to bring about or does not foresee at all,
(3) and the resulting harm must be proportionate to the resulting good consequence.

The key part of the DDE is the second condition and its mention of a morally significant difference between intended harms and those that are, at most, foreseen. In what follows we will focus on this key component of the DDE only, as does most of the existing literature on the DDE and, more importantly, the specific formulation that we will employ. The first condition is likely to be satisfied in most cases of food production because aims such as 'producing food' or 'feeding the world' (or even 'making money') seem to be morally acceptable. The third condition is open to several possible interpretations, all of which involve complex assessments of the consequences of specific modes of food production. Since it is impossible to properly deal with this complexity within the constraints of this paper, we will focus on the DDE's second condition only. The more modern variant of spelling out the second conditions of the DDE that we will work with was first advocated for by Warren S. Quinn. We choose Quinn's version of the DDE because it allows for a more nuanced evaluation of harmful actions compared to more classic versions. Also, we do not think there is a clearly superior way of expressing the DDE's basic idea all things considered out there. In what follows, we will outline and clarify Quinn's account.

Quinn's version of the DDE does not rely on the distinction between harm the agent intends and harm the agent merely foresees. Rather, Quinn differentiates between three kinds of harmful agency: *indirect harmful agency* and two forms of *direct harmful agency*: *eliminative* direct harmful agency and *opportunistic* direct harmful agency.

Here is what he says about direct and indirect harmful agency:

> We should [distinguish] between agency in which harm comes to some victims, at least in part, from the agent's deliberately involving them in something in order to further his purpose precisely by way of their being so involved

[10] There are about as many formulations of the DDE as there are philosophers who have written about it. The second condition is the main topic of controversy. For an overview of the discussion see McIntyre (2019).

> (agency in which they figure as *intentional objects*) and harmful agency in which either nothing is in that way intended for the victims or what is so intended does not contribute to their harm. Let us call the first kind of agency in the production of harm *direct* and the second kind *indirect*. (1989: 343f, original emphasis)

The key difference to the classic version of the second condition of the DDE is that the agent need not intend the harm itself. It is sufficient that he intends the involvement leading to the harm for the action to be among those actions that the DDE strongly discriminates against, or in Quinn's terms, to be a case of direct harmful agency. This shift was meant to provide the DDE with a better response to the so-called 'problem of closeness', one of the most widely discussed problems of the DDE. Central to the problem of closeness is the observation that it is not always possible to tell if harm is actually intended by the agent or merely foreseen. Whether Quinn was fully successful in solving the problem of closeness is debatable, but not the topic of this paper.[11]

What is central to our aim, though, and why we chose to work with Quinn's particular version of the DDE, is that Quinn differentiates not only between direct and indirect harmful agency but also between two forms of direct harmful agency. A harmful action is a case of opportunistic direct harmful agency when the involvement leading to the harm is intended and the agent "benefits from the presence of the victim" (Quinn 1989: 344). In cases like these "the availability of potential victims presents an opportunity" (ibid.). In contrast to that, eliminative direct harmful agency is defined as "direct agency that aims to remove an obstacle or difficulty that the victim presents" (ibid.). We understand Quinn as saying that every instance of direct harmful agency is either an instance of opportunistic or eliminative direct harmful agency.[12]

The terminology Quinn uses to distinguish between indirect/direct harmful agency and opportunistic/eliminative direct harmful agency does not always stay constant and he does not present us with definite formulations.[13] Because fixed formulations are helpful when applying the DDE to cases of food production, we choose the following ones, which are not direct quotes of Quinn but capture the distinctions intended by him:

> *Indirect Harmful Agency* (a) The agent involves the victim in one or multiple ways, (b) at least one of those involvements leads to the victim being harmed, (c)

[11] For criticism of Quinn's solution to the problem of closeness, see Bennett (2001: 103–104) and Hull (2000).

[12] It is conceivable that a single action is an instance of opportunistic direct harmful agency in relation to some victims and an instance of eliminative direct harmful agency to others. See Quinn (1989: 344). Cases like these will not feature in our discussion.

[13] For example, in differentiating between opportunistic and eliminative direct harmful agency Quinn does not explicitly say whether the presence of the victim must be a opportunity/difficulty for the agent, must be seen as such by the agent or both. (Quinn 1989: 344) We chose the strongest version in which both must be the case.

none of the involvements are intended or the ones that are intended do not lead to the victim being harmed.
Eliminative Direct Harmful Agency (a) The agent involves the victim in one or multiple ways, (b) at least one of those involvements leads to the victim being harmed, (c) the involvement(s) which lead(s) to the victim being harmed is (are) intended, (d) the presence of the victim is a difficulty for the agent and is seen as such by the agent.
Opportunistic Direct Harmful Agency (a) The agent involves the victim in one or multiple ways, (b) at least one of those involvements leads to the victim being harmed, (c) the involvement(s) which lead(s) to the victim being harmed is (are) intended, (d) the presence of the victim is an opportunity for the agent and is seen as such by the agent.

An action counts as an instance of harmful agency when (a) and (b), which are identical in all three forms, are fulfilled. The intended involvement is usually a means for reaching a specific aim. The notions 'opportunity' and 'difficulty' are both meant in relation to that aim. When the presence of the victim is both an opportunity and a difficulty for achieving the same aim, we can classify the action according to whatever factor prevails in a net comparison. 'Presence' should be understood in a wider sense that can mean 'presence at the time of action' or 'continued presence'. In what follows, we will usually ignore the part of the two (d) conditions on the agent *seeing* the presence of the victim as an opportunity/difficulty. The real-life cases of food production that are the topic of this paper are usually cases in which 'is an opportunity/difficulty for the agent' and 'is seen as such by the agent' are coextensive. Food producers know whether the presence of an animal is a difficulty or an opportunity for them.

According to Quinn, cases of indirect harmful agency are *ceteris paribus* easier to justify than cases of direct harmful agency and within the category of direct harmful agency, cases of eliminative direct harmful agency are *ceteris paribus* easier to justify than cases of opportunistic direct harmful agency:

> Harder to justify (*ceteris paribus*): opportunistic direct > eliminative direct > indirect (Quinn 1989: 344)

This roughly aligns with the core idea behind the more traditional versions of the DDE. The harder an instance of harmful agency is to justify according to Quinn, the closer it is to classic examples of instrumentalization which the DDE is supposed to discriminate against. No judgment on the final deontic status of actions that count as indirect or the two forms of direct harmful agency is made. Even actions that qualify as opportunistic direct harmful agency are not necessarily morally prohibited. Even actions that qualify as indirect harmful agency are not always morally permitted (Quinn 1989: 345).[14]

[14] Quinn himself seems to understand the DDE as part of a wider deontological theory. He mentions the concept of moral rights in particular which fits very well with the idea of coupling the DDE with a theory of animal rights like the one Tom Regan advocated. See Quinn (1989: 346–347).

One further note on how to describe the agent's aim: we will see that the precise description of the aim can make some difference to the DDE's verdict on the case in question. What should be clear is that the aim should not be described as a variation of 'solve problem X' when applying Quinn's DDE version. Given descriptions like these, cases that are really instances of eliminative direct harmful agency will be falsely classified as instances of opportunistic direct harmful agency because the presence of a difficulty is an opportunity for the removal of said difficulty. A positive description of the agent's aim should be chosen instead. This should be possible because 'solve problem X' is usually only a means to reaching a higher-ranking aim.

What should be clear by now is that the DDE is a deontological alternative to Regan's Minimize Killing Principle. Consequentialist considerations have a part to play in the DDE as well, namely in its third condition. But the key part of the DDE is its second condition and its focus on what is intended by the agent. This is a classic deontological concept and opens up the possibility of a more deontological ethics of killing animals in the production of food.

In what follows, we sketch some implications of the application of the DDE to cases of food production. We want to emphasize once again that in doing so, we—like Quinn—focus on the DDE's second (and key) condition only.

Application to Some Cases of Food Production

In this section of our paper we will apply Quinn's version of the second condition of the DDE as it was phrased by us to several cases in which animals are killed in the process of food production.

Killing Animals for Their Meat

Here is a typical case of an animal being killed for its meat, just like it happens many thousand times every day all over the world: the agent slaughters a pig. Her aim is to produce meat.[15] She uses a stud gun to kill the pig. The agent involves the animal and harm comes from that involvement. Putting a stud into an animal's brain is a clear-cut example of involving in harm. Therefore (a) and (b) of all three forms of harmful agency are fulfilled and the action is an instance of harmful agency.

But is the involvement that leads to the animal being harmed intended by the agent? Freakish accidents aside, we can give an affirmative answer to this question. The harm springs from the use of the stud gun on the pig and doing so is clearly intended, irrespective of whether the harm itself is intended. This implies that condition (c) for the action being an instance of indirect harmful agency can no longer be

[15] This is a very general description of the agent's aim. We choose more general descriptions, if we don't think anything would be gained by choosing more specific ones. Looking at the example of killing an animal for its meat, we are confident of reaching the same verdict under more specific, yet realistic aim descriptions, like 'making profit', 'maximizing profit', or 'feeding people'.

fulfilled. Hence the action must be some form of direct harmful agency and condition (c) of the two forms of direct harmful agency is fulfilled.

Which form of direct harmful agency is at stake here can be answered by considering whether the presence of the victim poses an opportunity or difficulty for the agent. What exactly constitutes an 'opportunity' or 'difficulty' was not defined by Quinn and we didn't do so either. The following is a rough but, in our opinion, useful guide for separating the two: if an opportunity for an agent vanishes, that tends to be bad news for the agent. If a difficulty vanishes, that tends to be good news for the agent. This thought experiment should aid our direct intuitive grasp of whether something is an opportunity or a difficulty for the agent.

With that in mind, let us take another look at the example: the presence of the pig is an opportunity for the agent. More precisely, it is an opportunity for making meat out of it. Were the pig to suddenly disappear, that would be bad news for the agent. In typical cases, the agent is aware of this fact as well. Butchers do know that the presence of the pig is an opportunity for making meat out of it. Hence we can conclude that the action in question is an instance of opportunistic direct harmful agency because its fourth and final condition (d) is fulfilled.

Since the case of the pig is a fairly typical instance of an animal being killed for its meat and nothing hinges on the specifics of the case (for example, that the animal is a pig or that a stud gun is used), we can conclude that the DDE discriminates quite strongly against killing animals for their meat. The large-scale meat production that is the source of nearly every meat product we eat is an instance of opportunistic direct harmful agency and therefore very hard to justify. Please notice, though, that not all cases of killing an animal *and* eating its meat fall into the category of killing an animal *for its meat*. Those cases that do fall into this category are among the most clear-cut examples of opportunistic direct harmful agency, though.

Hunting for Environmental Reasons

There are many forms of hunting. Not all of them fall into the scope of this paper.[16] Most of them, however, do so because they result in food, in this case meat, being produced. If an animal is hunted *for its meat*, the case seems to be very similar from the point of view of the DDE to the example of the pig about to be slaughtered that was discussed in the last sub-section. These are instances of opportunistic direct harmful agency and need not be discussed any further.

But not all animals are hunted for their meat. Some hunting is motivated by environmental reasons.[17] In German national parks deer are killed not because of their meat but because it would have disastrous consequences for the forest if too many of them were to exist. They would damage most of the young trees. The absence of

[16] Trophy hunting, for example, does sometimes occur without any part of the animal being eaten and can therefore not be counted as a form of food production even if a rather wide sense of that term is used. Having said that, most cases of trophy hunting seem to be cases of opportunistic direct harmful agency. The involvement leading to the harm is intended and the presence of the animal presents an opportunity.

[17] For a more general discussion of this topic, see Varner (2011).

sufficient numbers of large predators means that human intervention is needed to keep the number of deer in check. The meat of the killed animals is used for food. Let us for the moment stipulate that the fact that shooting them produces meat plays no part in the motivation of the relevant agents. Their only aim is to protect the environment.

What is the verdict of the DDE in these kinds of cases? If a hunter shoots, for example, a deer, she involves the animal in something and harms springs from that involvement. Hence it is an instance of harmful agency. Is the involvement leading to the harm intended? Of course it is. The bullet is shot in the direction of the deer with the intention of impacting it. Had there been no chance of hitting the animal, the hunter would not have pulled the trigger. Involving the animal in something is the aim of the agent and harm comes from that intended involvement. That makes the action an instance of direct harmful agency because the condition (c) of indirect harmful agency can no longer be fulfilled. Since this case seems fairly representative of the whole category of actions that is 'hunting animals for environmental reasons' we can conclude that these actions are instances of direct harmful agency.

The next step is to ask which kind of direct harmful agency is present in this category of cases. Does the presence of the victim present an opportunity or difficulty to the agent? To answer this question, we have to take a closer look at the agent's aim. If the environmentalist hunter's sole aim is to protect the environment, the presence of the deer is a difficulty to her, not an opportunity. The deer prevents the forest from growing as well as the environmentalist hunter wants it to. By shooting the deer, the hunter "removes" an obstacle to her plans. We can now conclude that all four conditions for eliminative direct harmful agency are fulfilled. This fits well with the supplementary thought experiment we introduced in the last section: if the deer just vanishes, this is good news for agent. The disappearance of the animal, or, more likely, of the animals, solves the environmental problem instantly. Thus we can classify all relevantly similar cases of hunting animals for environmental reasons as instances of eliminative direct harmful agency and thus, *ceteris paribus*, easier to justify than, for example, hunting animals for their meat. Note that this is true even if the meat of the animal is later used for food as long as the production of food is not one of the agent's aims.

More difficult to account for are cases in which the agent tries to pursue multiple aims with the same action. Maybe the hunter shoots the deer not just because she wants to protect the environment but also because she wants to eat its meat. How should we deal with cases like these? This is a difficult question for the DDE in general and not just for our particular endeavor. We will not try to give and defend a full solution to this problem, but briefly sketch two possible and, from our perspective, not implausible answers. The first possible solution is to claim that actions should be evaluated by the DDE in the most discriminatory way possible. If one of the agent's aims is to produce meat and the other to protect the environment, we can simply ignore the second aim and judge the action as an instance of opportunistic direct harmful agency, just like we would if the agent was seeking to produce meat only. Deliberately involving the animal in a way that will result in it being harmed is a case of opportunistic direct harmful agency if the presence of the animal is an opportunity for the agent, no matter what other aims are involved or how prominent

they feature in the agent's deliberations. If the presence of the deer is an opportunity for reaching aim A and a difficulty for reaching aim B, we can just ignore the difficulty part.

The second possible solution is a bit more intricate. Let us say the agent seeks to accomplish the three aims A, B, and C by performing the action in question. If we apply the DDE to aim A, the action is categorized as an instance of opportunistic direct harmful agency. Looking at aim B, the action seems to be a case of eliminative direct harmful agency and looking at aim C, it turns out to be a case of indirect harmful agency. Let us further assume that the combination of A & B & C and the combination of B & C alone would have compelled the agent to act in the way she did, but not the combination of A & C or A & B or A, B, or C alone. The second possible solution would propose to judge the action as an instance of eliminative direct harmful agency because B is the hardest to justify aim within the easiest to justify set of aims that is still sufficient for in fact compelling the agent to perform the action in question. The rationale behind this idea would be to not be overly critical of agents by judging them on the basis of aims that contributed no effective motivating force to the action in question while still maintaining a tough approach on harmful agency in general.

The first possible solution leads to us judging cases of hunting with the aim of environmental protection and producing meat as instances of opportunistic direct harmful agency while according to the second possible solution at least some of these cases are judged to be instances of eliminative direct harmful agency. Quinn's own formulation of opportunistic direct harmful agency as being direct harmful agency in which the presence of the victim is an opportunity for the agent (maybe among other things) is somewhat more in line with the first possible solution. Hence killing animals for environmental purposes *and* their meat would qualify as opportunistic direct harmful agency. We now close the discussion of cases that involve multiple aims for the remainder of this paper. The remaining thought experiments will only involve agents that pursue one particular aim by performing an action.

Killing Old Milk Cows

The following held true in all of the cases we have discussed so far: the involvement leading to harm temporally pre-dated attaining the agent's aim (or aims). The next case is less clear on that matter: an old milk cow that no longer gives enough milk to be profitable is killed. This is the first case we discuss in which the food being produced is not meat, but another animal product, namely milk.

Let us assume that the agent's aim is to produce milk and that she kills the cow by using a stud gun. Yet again, there is nothing unrealistic about this case. The overwhelming majority of old milk cows do not die of old age in some animal sanctuary but are instead killed. That this counts as an instance of direct harmful agency should be relatively uncontroversial. Harm springs from the involvement and the involvement is, freak accidents aside, surely intended. So far the case is indistinguishable from the ones we have discussed in "Killing Animals for Their Meat"

section. But now things start to become more complicated: is the action an instance of opportunistic or eliminative direct harmful agency?

In order to answer this question we have to find out whether the presence of the victim presents an opportunity or difficulty for the agent. So far we have described the agent's aim as 'producing milk'. This, like all the other aim descriptions we have used so far, is a very general description of the agent's aim. So far, these general aim descriptions have served us well. More precise ones were not needed or particularly helpful. This case if different, though. Matters are clearer if we choose the more specific, yet realistic aim description of 'producing milk as profitably as possible'.[18] Given this description, the action still turns out to be an instance of direct harmful agency. In addition, now we can better determinate which kind of direct harmful agency is at stake here.

If the killing of the cow is purely a means to reduce costs, the action turns out to be an instance of eliminative direct harmful agency. To feed and shelter the old animal leads to further costs for the agent and makes the process of milk production less profitable.[19] Killing it is therefore an instance of removing a difficulty and a form of eliminative direct harmful agency. Matters are more difficult if reducing costs is not the only way in which the killing of the animal contributes to reaching the aim of producing milk in a profitable manner. Under realistic conditions, it is quite likely that the dead animal or parts of it will be sold on. Its meat is used in low-quality meat products or sold as animal food. Other parts of the animal are used commercially as well. Therefore the presence of the animal is also an opportunity for the agent. But that in itself is not sufficient to classify the action as an instance of opportunistic direct harmful agency. As we have said in the third part of this paper, we have to make a net comparison in cases like these. Is the presence of the animal more of a difficulty or more of an opportunity for the agent?

This is where the more specific description of the agent's aim proves to be helpful. If killing the animal is primarily about saving costs, i.e. if the animal's presence results in a net loss for the agent, its presence is more of a difficulty that stands between the agent and her aim of producing milk in the most profitable manner. If the presence of the animal results in a net profit, however, because selling its remains brings in more money than it costs to slaughter it, the presence of the animal is an opportunity for keeping the milk production as profitable as possible by selling what might be considered a byproduct, namely the remains of the old milk cow. In this case, the agent intends the involvement of the animal that proves harmful and the presence of the animal is a (net) opportunity for the agent in achieving her aim. It would be bad news for the agent if the animal just vanished. Thus all four conditions of opportunistic direct harmful agency are fulfilled and the test question affirms this verdict as well.

[18] This aim description seems realistic for almost all milk production in capitalist economies, which in turn should be the lion's share of global milk production.

[19] One might object that the agent need not bear these costs. She could simply let the animal starve to death or let it die from exposure. However, luckily these options are off-limits for most agents due to animal protection laws. This is why the continued presence of the animal becomes a difficulty for the agent under the realistic conditions we are assuming.

Combine Harvesters Killing Deer

All the instances of animals being killed in food production discussed so far turned out to be cases of direct harmful agency. According to Quinn, instances of direct harmful agency are harder to justify compared to instances of indirect harmful agency. But if it weren't possible to produce food without killing animals in a way that must be classified as direct harmful agency, some instances of direct harmful agency would turn out to be morally permissible all things considered as long as it remains true that producing food without killing animals is impossible and not producing food is not an option. However, instances of animals being killed in the process of food production that are not cases of direct harmful agency are possible. This is a necessary, yet not sufficient condition for the possibility of producing (sufficient) amounts of food without resorting to direct harmful agency. The purpose of this last section is to point to some of these cases.

Here is one example of an animal being killed during the process of food production in a way that can be classified as indirect harmful agency: a combine harvester moves through a field, harvesting the crop. Some mice that lay hidden in the crop are caught in the harvester's machinery and thereby killed. The aim of the agent is defined as 'harvesting the crop'. We think this rather basic description of the agent's aim is sufficient as more elaborate but still realistic descriptions of the agent's aim do produce the same result.

When a combine harvester hits a mouse, the agent—in this case most likely the driver of the combine harvester—involves the animal. This is true, no matter the specifics of the case. What is also true is that harm comes from that involvement. The key question is the following: is the involvement leading to the harm intended?

Let us assume that the driver foresees that some mice will be caught up in the machinery. She might not spot any particular mouse from her position in the operator's cab, but anticipates that they lie hidden in the field and that not all of them will be able to escape the harvester. Even though the involvement is foreseen, there is no plausible explanation why it should be classified as intended in typical cases. We can realistically assume that the driver would be perfectly happy not to hit any mice at all. This remains true even if the driver does spot an individual mouse and doesn't take evasive actions because she doesn't want to slow down the harvesting process. Actions like these are therefore instances of indirect harmful agency and *ceteris paribus* easier to justify than all the other cases we have discussed so far.

Conclusion

Here is a list of what we did in this paper: we proposed using the DDE as a component in deontological theories on the ethics of producing food and especially for judging methods of food production that involve the killing of animals. We chose a specific way to spell out the core principle of the DDE, one first advocated by Warren S. Quinn, and tried to spell out the distinctions it employs in more detail. Finally, we applied our version of Quinn's variant of the key principle of the DDE to some cases of killing animals during the process of producing food.

Since we only focused on the second condition of the DDE and did not discuss all instances of animals being killed in the production of food, we cannot conclude with an all-things-considered judgment on which modes of food production are morally permissible.[20] However, here is what we tentatively take to be one upshot of the discussion: producing meat seems to be morally impermissible in most contexts since the vast majority of the current meat production falls into the category of actions that are especially hard to justify. While this finding stops short of directly implying that vegetarianism is obligatory, it certainly points in that direction. The Doctrine of Double Effect therefore seems to align with those moral principles calling for a substantial revision of the global food production and potentially the global diet.

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[20] Also, as was noted, Quinn's understanding of the DDE is such that it does not culminate in an all-things-considered judgment anyway.