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Deposited in DRO:

04 December 2017

Version of attached file:

Accepted Version

Peer-review status of attached file:

Peer-reviewed

Citation for published item:

Kahn, Elizabeth (2014) 'The Tragedy of the Commons as an essentially aggregative harm.', *Journal of applied philosophy.*, 31 (3). pp. 223-236.

Further information on publisher's website:

<https://doi.org/10.1111/japp.12057>

Publisher's copyright statement:

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The Tragedy of the Commons as an Essentially Aggregative Harm¹

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ABSTRACT: This paper identifies ‘the tragedy of the commons’ as an essentially aggregative harm and considers what agents in such a scenario owe to one another. It proposes that the duty to take reasonable precautions requires that agents make efforts to establish collective solutions to any essentially aggregative harm to which they would otherwise contribute.

Baylor Johnson has argued that the general obligation to promote the common good requires that agents make efforts to establish a collective agreement to avert a potential tragedy of the commons. This article agrees with Johnson’s analysis but argues that there are also negative duties, which give commons users additional moral reason to take collective action to prevent the destruction of the utility of the commons. These duties link commons users to resolving this particular problem and provide grounds to demand that they make greater efforts to prevent the destruction of the commons compared to bystanders.

The article suggests that fulfilling negative duties can require establishing collective institutions with the power to regulate human action and interaction. This analysis could be applied to a range of social problems which result from the aggregation of actions and practices.

1. Introduction

In the much discussed case of ‘The Tragedy of The Commons’ multiple agents graze animals on a piece of common land, the compound effect of which is that its use to the community is destroyed.² Garrett Hardin, in his famous paper discussing the problem, states that what is required in such a scenario is mutual coercion mutually agreed to.³ Instead of considering what it is rational or

mutually beneficial, this paper is concerned with what individuals in such a scenario *owe to one another*. Baylor Johnson has suggested that the general obligation to promote the common good *requires* agents work to establish and effectively enforce a collective agreement that prevents the destruction of the commons.⁴ This paper does not dispute Johnson's position. Instead, it observes that the tragedy of the commons involves the threat of essentially aggregative harm and that avoiding the tragedy prevents commons users from making contribution to harm. It suggests that agents have an obligation to take reasonable precautions to avoid contributing to the suffering of others. It proposes that in a commons scenario these precautions include efforts to establish and maintain a collective solution that can prevent the essentially aggregative harm from occurring.

It is significant that there are precautionary duties to avoid these problems in addition to positive duties to resolve them. Understanding duties to prevent significant collective action problems as duties to avoid contributing to harm strengthens the case for making these issues a priority and highlights the connection between the actions of individuals and essentially aggregative problems. Furthermore, the proposed duty links commons users to resolving *this* particular problem rather than promoting the common good in general. It also provides moral reason to demand more from commons users than can be demanded from mere bystanders.

There are those who accept the demands of negative duties but either reject a general positive obligation to promote the common good or claim that this is a humanitarian duty that is not a demand of justice. My account offers a moral reason that even these more minimal accounts of obligations can accept.⁵

By analysing the obligations which apply in this specific example I aim ultimately to draw more general conclusions about moral demands in situations where an individual's actions have indirect effects on the prospects of others. I hope that this analysis can be applied to a range of political and social problems that result from the aggregation of actions and practices.⁶

This paper assumes that there is a set of norms which should be adhered to by all out of consideration for other persons and that the precise nature of these norms can be determined through reasoned argument. It assumes that moral obligations can be determined through a process of reasoning that considers whether the obligation in question can be justified to all affected parties in terms that they cannot reasonably reject. Moreover, the argument begins from the assumption that there is a general moral obligation to avoid unjustly harming the essential interests of others.⁷

The paper starts by introducing an example of 'the tragedy of the commons' and outlining Johnson's account of the moral obligations that arise in such scenarios. It suggests that we should consider negative duties relevant in this scenario in addition to the positive duties identified by Johnson. The second section explores this possibility. It discusses holding individuals responsible for threatening the viability of the resource and holding the group collectively responsible for the threat. It proposes that the case discussed involves an essentially aggregative harm. In the third section, the obligation to take reasonable precautions to prevent contribution to essentially aggregative harm is introduced. The idea that commons users are obliged to make efforts to establish a collective agreement as a precaution to prevent contribution to the destruction of the resource is discussed. This suggestion is compared to other strategies for avoiding contribution to essentially aggregative harm. The penultimate section briefly discusses potential objections to the proposed obligation and the paper concludes by considering possible applications of this analysis.

2. The Tragedy of the Commons and Harm

Consider a situation in which a group of people graze sheep on a piece of common land. The situation is such that if too many animals are grazed on the land its utility to the community will be destroyed. Imagine that the situation is such that those grazing sheep on the commons rely on this practice as their sole source of income; they use the meat and wool to feed and clothe themselves and their dependents. Thus, if the commons is permanently damaged these people will suffer deprivation. In such a scenario, an individual grazer's has a prima facie interest in having as many

animals on the commons as can be accommodated without risking the utility of those sheep they currently have grazing. Whilst the use of the commons remains unregulated, commons users are vulnerable to being deprived of the common resource as a result of over-grazing.

In such a scenario there is very little any particular commons user can do to guard against the degradation of the common resource through over-grazing. However, the possibility of engaging in collective action offers commons users a way to avoid the destruction of their shared resource. Commons users could work together to regulate the use of the commons so as to prevent its utility from being destroyed. Under such a scheme, commons users would have reasonable assurance that their efforts would not go to waste and that the tragedy would be avoided. Furthermore, by acting together they could fairly share the burden of protecting the resource.

Those who wish to continue grazing animals on the common have a prudential reason to engage in such collective action. Baylor Johnson argues that potential contributors also have moral reason to work with others to establish such a scheme.⁸ He suggests that it is part of an imperfect general obligation to promote the common good. This obligation to promote the common good is a positive duty. Marion Hourdequin in her discussion of Johnson's work also acknowledges an obligation to work with others to prevent the tragedy of the commons. However, she does not discuss the precise nature of this obligation. This is chiefly because her article focuses on demonstrating that agents are obliged to reduce their personal contributions to a tragedy of the commons.⁹

The threat to the commons is the result of human action rather than natural forces: the fact that so many animals have been put to graze on the common is what threatens the viability of the resource. Thus, the tragedy of the commons can be considered harm rather than misfortune because the problem is the net result of human action. In cases where a potential problem is humanly caused there are often negative duties to avoid the problem in addition to positive duties to avert the problem. In order to determine whether there are negative duties in a tragedy of the commons it will now be considered who is responsible for causing the damage if the commons is destroyed.

When there is one human factor that contributes to a state of affairs amongst a host of natural and predictable background factors we usually identify the human action as *the cause*. However, in the case of the tragedy of the commons many different actions come together to destroy the utility of the resource. When there are multiple human factors which contribute to a problem sometimes we can often identify a morally responsible party by isolating the agent who intended to cause a particular result. However, no commons user intends to destroy the utility of the resource. Another way that a morally responsible party can be identified is by singling out the contributing actor who does something unusual or violate an established norm. In such cases any other contributing factors can be considered part of the 'natural background'. However, in the commons case it is impossible to isolate any commons user who acts unusually or violates an established norm. Hence, there is no clear basis for isolating a single responsible party.

Perhaps instead we should consider whether the group as a whole could be held morally responsible in the event that the commons utility is destroyed. In her work on collective moral responsibility Tracy Isaacs argues that groups can be responsible for what they cause if they fulfil certain conditions. She defines two sorts of collective that can be held responsible for their actions. The first is an organisation. In an organisation individuals knowingly join a collective enterprise and self-consciously act to further the organisation's goals. These organisations have decision-making mechanisms that determine the goals and strategies of the organisation. The other example of a morally responsible collective that Isaacs highlights is a 'goal orientated collective'. A goal orientated collective is a group of individuals with a collective goal. All those who share in this goal are part of the collective. The goal is essentially collective because the individuals intend to do something with others; usually something they cannot achieve alone. Goal orientated collectives need not have a formal decision making procedure or extensive organisation. All that is required is that they have a shared collective intention and that they alter their individual actions to be responsive to the actions of others.¹⁰

The users of the commons do not intend to take part in any collective project or organisation. This suggests that the group of all commons users cannot be held responsible for the destruction of the common resource. The group who graze animals on the commons have no organisational structure. Nor do they share a collective goal. Each is consumed with an individual project: grazing their animals on this land. The destruction of the utility of the commons is not the foreseeable result of some collective enterprise. Hence the group cannot be identified as either a goal orientated collective or organization.¹¹ Without some form of organisation or shared collective goal commons users are just a random set of individuals. Thus, the concept of collective causal responsibility is inappropriate for considering the situation of individuals unilaterally contributing to a collective action problem.

3. Essentially Aggregative Harm

The group of individuals that contribute to the harm can be identified as a set only because they all contribute to a potential problem. This makes them an aggregate rather than an organisation or a group of individuals engaged in a shared project. The tragedy is an aggregative problem because it is the result of the aggregation of a number of independent actions.

Harm can be classified as aggregative when it results from a number of contributory actions. In cases of *essentially* aggregative harm the harm in question would not result from any one of the contributory acts if they were performed in circumstances where the other contributory acts did not occur.¹² Furthermore, an essentially aggregative harm is more than the sum of many acts which are harmful rather it is a harm that only results when the actions in question occur together.

In her discussion of essentially aggregative harm, Judith Lichtenberg distinguishes essentially aggregative harms from aggregative harms which are made up of individual acts that are wrong in themselves.¹³ However, it is possible that several actions which are wrong in themselves contribute to a different harm which is more than the sum of its parts and thus is *essentially* aggregative. For example hunting an animal to extinction is an essentially aggregative harm. Suppose that each act of

hunting is wrong in itself. This would not change the fact that causing extinction is an essentially aggregative harm. This is because hunting an animal to extinction involves removing a species from existence: this is a wrong over and above the wrong that is killing a large number of animals for pleasure. Hence, even if hunting is wrong in itself, hunting to extinction can be considered an essentially aggregative harm.

In the case under discussion, the destruction of the utility of the resource is not simply the sum of many distinct acts of degrading the common by grazing animals on it. Adding a sheep to the common does not necessarily cause any degradation to the utility of the land. In fact adding an additional animal in some circumstances can actually improve the utility of the land. However, if too many animals graze on the common land its utility to the community will be destroyed. This suggests that if the commons is destroyed it will be an essentially aggregative harm. Given that commons users simultaneously graze sheep on the land it is unclear whether any particular animal can be identified as degrading or improving the utility of the land. In fact, given that sheep breed commons users decide whether or not to kill a particular sheep or lamb rather than whether to actively introduce an animal at a particular time. Thus, one cannot easily isolate particular acts of grazing an animal which occur after a certain tipping point has been reached and judge them as degrading the common. Thus if the common is destroyed the outcome cannot be blamed on any final act of introducing an animal to the common.

Essentially aggregative harms are interesting for several reasons. Unlike regular harms no single agent (either a collective agent or individual person) is morally responsible for the harm caused. Furthermore, essentially aggregative harm cannot be reduced to a collection of distinct individual harms for which agents can be held morally responsible. Thus it seems no agent can be held responsible for an essentially aggregative harm. This makes it difficult to assess these scenarios normatively. Yet, it would be wrong to treat an essentially aggregative harm as simply a misfortune.

Essentially aggregative harms are humanly caused; they will not occur unless a set of people act in a particular way. Thus essentially aggregative harms present a puzzle for moral theory.

Essentially aggregative harms can occur even when every actor's actions are impeccable when considered in isolation. Forms of essentially aggregative harm, like the tragedy of the commons, in which the contributory actions are not wrong in themselves are particularly interesting because these cases pose a dilemma as to whether any negative duties have been violated.

The idea that contribution to essentially aggregative harm is morally significant is intuitively appealing.¹⁴ In the following section I will consider what additional obligations those with a causal connection to a potential tragedy of the commons have and what these obligations require them to do.

4. Avoiding Contribution

It could be argued that agents have a negative duty that requires that they do not to contribute to essentially aggregative harm. However, there are reasons to doubt that there is a general prohibition on contributions to essentially aggregative harm. In modern society it is likely that many of an agent's actions make small contributions to aggregative harm. In these conditions a prohibition of this kind could have a paralysing effect.

Worse still, agents often have moral reasons to keep taking actions that risk coming together with the actions of others to cause harm. For example, engaging in the consumption of goods produced in poorer states is one way in which people in the modern world risk contributing to essentially aggregative harm. However, the benefits trade offers people from poorer states provides moral reason not simply to withdraw from consuming products made in poorer states. Furthermore, the moral reasons in favour of such a prohibition are often relatively weak because the connection between contributors and essentially aggregative harm is often weak. Furthermore, as Baylor Johnson notes, in many cases refraining from making a contribution to a potential essentially

aggregative harm will not prevent the harm from taking place and will make no significant difference to the seriousness of the problem.¹⁵

The connection between a contribution and essentially aggregative harm suggests that the action should be avoided. However, there may be other moral considerations that outweigh this prima facie obligation. These considerations include the demandingness of complying with the obligation, the likely consequences of making a contribution and the likely consequences of refraining to contribute. In cases where avoiding the contribution is extremely costly, the contribution is unlikely to make a significant difference to the seriousness of the harm and there are moral reasons in favour of contribution, the prima facie demand is likely to be outweighed by these other important considerations. However, in cases where avoiding contributions is not excessively costly, there are no moral reasons in favour of contribution, each contribution makes the problem worse, and the harm is significantly serious, it is likely that agents have an obligation to avoid contributing.

The significant interest people have in pursuing their own ends and living their lives without interference from others offers a moral reason to limit the extent of agents' moral obligations to avoid contributing to essentially aggregative harm. However, people's interest in avoiding being the victims of essentially aggregative harm offers good reason to prohibit contributions to such harm. A balance must be struck between these competing demands. The discussion above suggests not that there is no obligation to avoid actions that contribute to an essentially aggregative harm. Instead it suggests that it is unreasonable to demand agents always avoid contributing to essentially aggregative harm. I thus propose that there is only an obligation to make *reasonable efforts* to avoid contributing to essentially aggregative harm.

In the tragedy of the commons case described, the only way commons users can ensure they do not contribute to the destruction of the common resource is to remove all their animals from the pasture.¹⁶ However, removing one's sheep from the commons is very costly and will not significantly decrease the risk of the commons being destroyed. This is because it is likely that the outcome is

over-determined. Furthermore, it is possible that any decrease in use by one individual will be taken up by another such that the number of sheep on the common will not even be reduced as a result of an individual's restraint.¹⁷ In this case the action demanded – avoiding grazing – is as costly as the outcome of the essentially aggregative harm, which is that agents cannot graze their livestock. In the example under discussion it is specified that people rely on the commons as their sole source of income. In such conditions, it would be unreasonable to demand agents refrain from utilising the commons. This is because complying with such a demand would undermine their most basic and fundamental interests: it would prevent them from feeding and clothing themselves adequately. Their dependence on the resource is what (at least in part) grounds the demand to preserve the common resource.¹⁸ This dependence also offers a moral reason against banning people from using the common. The demand that agents refrain from grazing animals on the commons is unreasonable because the cost of complying is too high to justify the action. Furthermore, in the particular example laid out here, the fact that the grazers need to feed and clothe their dependents offers a moral reason in favour of grazing animals on the common. In these conditions contribution to essentially aggregative harm is justifiable.

Preventing the destruction of the commons through collective agreement is a way in which commons users could avoid contributing to the essentially aggregative harm without sacrificing their own access to the commons. This means that it represents a strategy for preventing the destruction of the commons (and thereby avoiding contributions to its destruction) which is not overly demanding and which promotes the common good. I will now explore whether making efforts to establish such a collective agreement can be required by the duty to make reasonable efforts to avoid contributing to essentially aggregative harm.

5. Taking Precautions

Obligations to avoid harming others sometimes require that individuals take action prior to or during engagement in a risky activity in order to reduce the risk of the activity causing harm to others. For

example, those wishing to conduct firework displays are required to take certain precautions in order to avoid causing harm to others. Obligations to avoid harming others sometimes require ex-ante precautionary action.

Although it is unreasonable to ask commons users not to graze any animals on the commons, it is not unreasonable to ask that they make efforts to establish a collective agreement that prevents the destruction of the common resource. My proposal is that each commons user has an obligation to make reasonable efforts to avoid contributing to the tragedy. Such an obligation requires that potential contributors make efforts to form a collective to prevent the tragedy. By working together agents can agree on a scheme and adopt an enforcement mechanism that provides reasonable assurance. Such a strategy would reduce to an acceptable level the risk of the commons being destroyed.¹⁹

Taking a precaution is never guaranteed to prevent one's actions causing harm. In the case of a fireworks display there remains a risk of injury. The precautions taken aim to reduce the risk of injury to an acceptable level. In the case of essentially aggregative harm, individual action aimed at trying to establish a collective agreement may not be successful. However, such efforts increase the likelihood that an agreement will be forged. If an agreement is forged then it becomes considerably less likely that the commons will be destroyed. Hence, making efforts to establish a collective agreement (in circumstances where such efforts increase the likelihood of an agreement being forged) reduces the likelihood that the commons will be destroyed. This means that efforts to establish such an agreement can be considered a precaution against contribution to essentially aggregative harm.

6. Unilaterally Cutting Down

Marion Hourdequin has argued that individuals who contribute to a tragedy of the commons have an obligation to cut down their own contributions to the problem.²⁰ She suggests that in a tragedy of the commons each individual is obliged to restrict their own use of the commons. The obligation

Hourdequin identifies is an obligation to decrease contribution to essentially aggregative harm. She also recognises that there is an obligation to establish a collective agreement, however she does not discuss whether this is a negative or positive duty.

There may be an obligation to unilaterally cut down one's use of a common resource when it is threatened by overuse. However, the existence of such an obligation does not preclude the existence of an obligation to take reasonable precautions to avoid contributing to essentially aggregative harm. Those who cut back their use of the commons still causally contribute to the threat to the commons because they still use the resource. Hence, they still have an obligation to take precautions to avoid contributing to a tragedy of the commons.

However, taking action to reduce the number of animals one grazes could be seen as a precaution aimed at preventing the destruction of the resource. Hence it could be argued that such a precaution could be substituted for efforts to establish a collective solution. However, cutting back can only prevent an agent from contributing to the tragedy if enough other agents cut back such that the tragedy is avoided. In the absence of a general norm governing restraint, an essentially aggregative harm is still likely to emerge from the combination of the agent's actions with the actions of others. An individual choosing to cut back is unlikely to manage to avoid the destruction of the value of the common resource and thereby *avoid contributing* to the destruction of the commons. In contrast, making efforts to establish a collective agreement and some sort of assurance mechanism is a strategy more likely to prevent the destruction of the value of the commons. Making a collective action solution work so as to prevent contribution to essentially aggregative harm only requires a critical mass to establish an agreement and an assurance mechanism, whereas a strategy of unilaterally cutting down (in the absence of an assurance mechanism) requires almost universal compliance in order to be effective in preventing contribution to the destruction of the commons. Hence, it is a more effective *precaution* to take

If individual acts of restraint develop into a norm of restraint, then the destruction of the common resource could be avoided. However, without an explicit agreement there is no guarantee the commons will be protected even if all commons users seek to cut back to some degree. This is because in such a scenario it would be unclear how much any individual must cut down their contributions. Users may disagree about what constitutes their fair share of restraint and which factors dictate the size of their share of use. Only if a collective strategy is agreed upon can an individual know how much they need to cut down to ensure the tragedy is avoided.

The only reliable way to avoid these problems would be to establish a norm governing fair use of the commons and to adopt a mechanism capable of offering assurance that each individual will stick to the norm. In certain circumstances such a norm could emerge through reciprocal restraint, trust and casual discussion. Hourdequin suggests that individuals cutting back their use of a common resource can help to develop such a norm through communicating their intention not to overuse. She also suggests that such action can motivate others to also practice restraint and help to develop cooperative behaviour.²¹ These observations seem plausible. Thus if agents practice restraint in order to try to establish a norm of restraint and cooperation they are in fact making efforts to establish an informal agreement and informal assurance mechanism. Alongside individual restraint such agents could also explain their behaviour to others and sanction those who do not follow their lead. In this way they can promote a norm of restraint and sanction it through disapproval.²² In such circumstances this solution becomes a species of the sort of action recommended here.

The analysis here does not suggest that there is no moral reason for individuals in a potential tragedy of the commons to practice restraint. However, it is argued that restraint is not the best *precaution* to take in order to prevent contribution to essentially aggregative harm unless it is part of efforts to establish and enforce a social norm that can prevent the destruction of the resource.

It could be objected that it is only *unsustainable* use of the commons that contributes to its destruction. It could be argued that it is only those who use more than their fair share of the use the

commons can sustainably support who as an aggregate cause the destruction of the commons.²³

Thus those who only use the commons sustainably avoid contributing to the destruction. In contrast my account suggests that those who use only their fair share of what the commons can support still graze animals and therefore still are part of the aggregate who cause the destruction of the commons because their animals still contribute to the over-grazing. I will now discuss some problems with this rival understanding.

This rival understanding of the problem assumes that there is a fair share of sustainable use that applies even in the absence of any collective agreement. It advises commons users to stay within the limits of that fair share. However, in the absence of a collective agreement this may be difficult because commons users will not know the extent of their fair share. It could be assumed that each grazer is entitled to an equal number of animals. However, it can be argued that those grazers with larger families are entitled to more animals whilst those without children or other relatives to support are entitled to fewer. Furthermore, there may be some commons users whose skill set and level of ability is such that they can only rely on the common whereas others have skills and abilities which mean they can secure the same standard of living whilst grazing fewer animals. It could be argued that these individuals have a smaller fair share than others. Thus, there may be good faith disagreement as to what constitutes a fair share.

Furthermore, given this disagreement it is likely that no individual person can be sure that they have successfully determined what constitutes a fair share in isolation.²⁴ Even if the deliberations that individuals take alone can come up with a right idea of what moral criteria determines a fair share, determining how many animals they may graze will require substantial information about commons and substantial knowledge of other commons users' needs and situation. This will require a thorough knowledge of other commons users' needs and abilities. Thus it may be practically impossible as well as normatively problematic for any individual to calculate their own fair share of sustainable use of the common resource.

Despite these problems a commons user may have a rough idea of what their fair share of use is and stay well within it. According to the alternative understanding of contribution, individuals who do so will avoid contributing to essentially aggregative harm. However, even if this 'sustainable use' understanding of the causes of the tragedy of the commons is correct, successfully establishing a collective agreement would both prevent contribution to harm and promote the common good, whereas unilaterally cutting back commons use to a sustainable level only prevents (one making a) contribution to harm. Thus even if the sustainable use understanding of contribution is correct there remains moral reason to prefer a strategy of seeking to establish a collective agreement. If it is true that only unsustainable use of the common contributes to the problem, in circumstances where a collective agreement fails to be established, the commons users' negative duty to avoid contributing to essentially aggregative harm will require that they cut back their use of the common to a sustainable level. That way they can guarantee they do not contribute to harm. However, the moral demand to promote the common good would also give agents in such a scenario reason to work towards a collective agreement.

7. Objections

I have argued that those who graze animals on common land have an obligation to make efforts to form a collective and take action to prevent a tragedy of the commons as a precaution to avoid contributing to the tragedy. This obligation is in addition to the obligation to promote the common good identified by Baylor Johnson that also requires agents to take such action. Some objections to the obligation I have proposed will now be considered.

Establishing a collective and preventing a tragedy of the commons is a demanding project. However, the efforts required to maintain and enforce a collective agreement can be divided up between commons users and thus preventing a tragedy need not be overly demanding. However, establishing an initial collective agreement and institutions capable of sharing out duties will require substantial effort. Persuading enough commons users to support a collective agreement will require dedicating

a fairly substantial amount of time and effort to the project. An agent's time and effort could be otherwise spent at her own discretion; working to pursue her plans and living as she wishes.

Fulfilling the demand outlined will thus substantially reduce the time, energy and resources agents have to pursue what is valuable to them and to develop the relationships that are important to them. Thus it could be that the obligation proposed could be rejected on the basis that it is overly demanding.

A sphere of activity in which individuals are free from the demands of others is essential to a decent life. However, the importance of such a sphere is unlikely to provide good reason to reject the demand that agents spend a reasonable amount of time and energy preventing the destruction of the commons. It is unlikely that other commons users should accept the excuse given that the destruction of the common land will leave them in a situation where *their* ability to pursue their life plans and live how they choose will be severely reduced.

One case in which the demandingness of the proposed duty becomes especially significant is when fulfilling an obligation may require neglecting other significant obligations. For example, suppose a parent has an obligation to provide for the needs of their young children. This obligation may limit what can be demanded of the agent in terms of precautions to avoid contributing to a tragedy of the commons. Each commons user will be in a unique situation in terms of ability to help with collective efforts to prevent a tragedy of the commons. Some will have other obligations, some will be in a position where contribution will be more costly, and others may have to dedicate the majority of their time to maintaining their existence. The obligation to make reasonable efforts will require different amounts of time and commitment from different individuals based on their precise circumstances.

That is to say, there is a limit to the precautions it is reasonable to demand an agent takes. Where the precaution is costly and its ability to limit harm marginal we do not demand that agents take precautions. The freedom of those who wish to take part in potentially harmful activities is balanced

against the risk of causing harm and the seriousness of that harm. Similarly, the obligation outlined only requires that agents take *reasonable precautions* to avoid contributing to essentially aggregative harm. The demandingness of a precaution must be balanced against the seriousness and likelihood of the threat in question.

In some commons examples the negative effects of the loss of a resource will be too small to justify the limitation to liberty a collective agreement to prevent that destruction would require. In these cases it may not be right to establish such an agreement. Similarly there may be situations where the costs of participating in collective action may be such that a demand to take part in it can be justifiably refused. Agents may also reject the demand to take collective action on the basis that the threat to the resource is too low to justify the demand for action. If the threat is unlikely to be realised, fulfilling the demand could be rejected on the basis that it is an acceptable risk. If the commons can cope easily with the current level of grazing and an increase is unlikely, then commons users are not required to establish an agreement to protect the commons. A balance must be established between the burdens imposed by a duty and the problem it attempts to avoid. The seriousness of the potential consequence in combination with its likelihood should be weighed against the difficulty and sacrifice involved in discharging the proposed duty and the likelihood that the efforts demanded will succeed.²⁵

A further objection to my account may lie in an individual arguing that it is unfair to demand they make efforts to establish a collective agreement because even if they make reasonable efforts others are unlikely to join in collective action and as a result the destruction of the commons will not be avoided. If other commons users are apathetic and unlikely to participate in establishing a collective solution, then it may be unreasonable to demand that any particular individual makes efforts to establish a collective solution.²⁶ If a collective agreement is not secured, efforts expended on trying to establish such an agreement will have done nothing to lessen the aggregative harm. Worse still, agents who have made efforts to establish such a solution will be at a disadvantage

compared to their fellow commons users. This is because they will have devoted time and effort to trying and failing to secure a collective solution rather than to any of the other things they could have been doing with their time.

Alternatively, it could be argued that whether or not the individual contributes to establishing a collective solution will have no significant effect on whether the tragedy occurs. This problem is sometimes known as 'inconsequentialism'. The accusation is that for any individual agent, that agent making efforts to establish a collective solution cannot make any significant difference to the outcome. This is used to suggest that there is no moral reason to take the action recommended.

Both the outlined objections suggest that efforts to establish collective institutions have no effect on future contributions to essentially aggregative harm. It is difficult to see why such efforts should be seen as necessary precautions if they are unlikely to have any effect on future contributions to the destruction of the resource.

However, in the commons case discussed, a collective solution is not necessarily doomed to failure, nor is it the case that an individual's efforts to establish a collective solution will necessarily be insignificant. It is likely that commons users will cooperate since a collective solution allows them to fulfil their obligations and promote their own interests. Furthermore, if there are only a relatively small number of commons users, supporting or proposing a collective solution can make a significant difference to its likelihood of success.

In circumstances where there are large numbers of commons users who are fairly uncooperative the above objections may pose a serious problem to a collective action solution. However, even in circumstances of widespread apathy and numbers large enough to make individual choices insignificant there may be moral reasons to pursue precautionary action even if its chances of success are slim. Many accounts of moral reasoning argue that it is not just the likely consequences of a particular action that can ground an obligation to take action. For example, recent work on

patterned principles of action from Christopher Woodard offers an account of moral reasons that do not rely on the likely consequences of a particular action.²⁷ Woodard's account suggests there can be moral reasons to play one's part in a pattern of action based on the likely consequences of the pattern considered as a whole. Thus he argues that a marginal contribution to a larger collective effort can be morally required. Furthermore, Woodard even argues that the moral reason in favour of a particular pattern of action can offer moral reason in favour of taking an action which is part of that pattern even if it is unlikely that others will perform their part in the pattern. This suggests that one can be obliged to promote a collective solution even if it is unlikely that sufficient others will join in the effort.

Shelly Kagan has also recently produced work offering reasons to take action in circumstances where we are uncertain whether our action will make a significant difference.²⁸ Kagan explains that in cases where a change in outcome requires the number of individuals who take action to pass a certain threshold it can appear that whether or not any particular individual takes action is unlikely to have any effect on outcomes. Kagan compares these cases to examples where every individual action makes a small difference and shows that in threshold cases an individual taking action has a small chance of making a larger difference and that this fact can ground a reason to take the action in question just as much as having a hundred percent chance of making a much smaller difference.

These arguments suggest that there is much that can be said to blunt the force of inconsequentialist objections to my account. That said, all I can do here is point to these responses. A full explication of the issues would take the argument too far from the purpose of the paper.

8. Conclusions

It has been suggested that the destruction of a common resource through overuse is a form of essentially aggregative harm. Baylor Johnson argues that agents have positive obligations to try to prevent the destruction of a common resource through a collective agreement. I have argued that commons users must take such action as a part of an obligation to take reasonable precautions to

avoid contributing to essentially aggregative harm. I have briefly considered possible objections to the demand to make efforts to prevent the destruction of common land as a precaution to avoid contributing to essentially aggregative harm. Some of these objections offer reasons to limit the cases in which the obligation applies and the amount of effort the obligation can demand. I have discussed considerations that should guide judgement on this matter. I have also suggested two routes that could be employed to defend the idea that commons users must contribute to establishing a collective agreement to avoid the destruction of the commons against the objections that such efforts are unlikely to work and that any contribution to such efforts will not make a significant difference to outcomes.

Some of these routes may also offer reason to support an obligation to cut down one's use of the commons unilaterally. I have argued that as a solution to the destruction of the commons this option remains suboptimal compared to my proposed solution. Furthermore, I have pointed out that the strategy of trying to establish a collective agreement is more reasonable in its demands: it does not ask individuals to reduce their use of the commons in conditions where this sacrifice is unlikely to prevent the destruction of the resource and they are likely to be disadvantaged relative to others.

There are a diverse range of cases that mirror the commons example in that no individual factor or action can be identified as their cause. In many of these cases collective action represents the most effective route through which harm can be avoided. Possible examples range from environmental problems such as human-accelerated climate change to economic problems such as the prevalence of poverty wages in manufacturing worldwide, to social problems such as the unreasonable grooming standards expected of women in many cultures. As in the commons scenario, those who contribute to these social problems often do not intend to make contributions to these outcomes. Furthermore, contributors are unable to prevent their contribution without substantial personal cost. In some cases unilateral change is impossible. This is the case when the harm is caused by the amalgamation of a set of complex practices engaging many disparate individuals and participation in

these practices is the only available way to access essential resources. A final similarity is that those who contribute often regard avoiding such contributions as not necessary because such a change in behaviour would have no significant effect on the social problem in question.

My analysis here suggests that those who contribute to these problems have obligations to work with others to establish collective solutions to these problems: they must make efforts to establish a collective system of regulation and adjustment that allows them to prevent the essentially aggregative harm from emerging. These obligations apply even if it cannot be reasonably demanded that agents refrain from making contributions to these problems. I have argued that negative duties to make reasonable efforts to avoid contributing to essentially aggregative harm require such action in addition to obligations to promote the common good and the rational demands of prudence.

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NOTES

¹ I would like to thank Matt Matravers for reading many drafts of this paper and helping me to develop my ideas. I would also like to thank Amy Pao, Thomas Pogge, Uwe Steinhoff, and two anonymous reviewers for their very helpful comments on previous drafts. Whilst writing this article I have been generously funded by an AHRC doctoral scholarship at the University of York. Without their support this article would not have been possible. I have been lucky enough to be supported whilst revising this paper by a post-doctoral fellowship from Justitia Amplificata Centre for Advanced Studies at the Goethe University in Frankfurt for which I am also very grateful.

² Garrett Hardin, 'The Tragedy of the Commons', *Science*, 162 (1968):1243 - 1248.

³ Hardin op. cit., p. 1247.

⁴ Baylor Johnson, 'Ethical Obligations in a Tragedy of the Commons', *Environmental Values*, 12, 3 (2003):283.

⁵ Thomas Pogge has developed an account of how taking certain actions can allow agents to fulfil negative duties. See Thomas Pogge, *World Poverty and Human Rights: Cosmopolitan Responsibilities and Reforms* (Cambridge: Polity, 2008). Pogge's account is based on the idea that agents who contribute to the imposition of unjust institutional orders can *compensate* for these contributions by taking other actions to shield the victims or promote an end to the harm such that *overall* they cannot be said to contribute to harming the victims. The sort of compensatory action Pogge recommends can count as a precaution of the kind recommended here if it lowers the risk of an agent contributing to essentially aggregative harm.

⁶ My analysis here suggests that fulfilling negative duties can require establishing collective institutions with the power to regulate human action and interaction. This suggests that negative duties alone may be enough to ground a demand to establish and support political institutions.

⁷ The obligation to avoid harming others is not without qualification. There may be circumstances in which harming others is not immoral. In these cases the causing of suffering or dis-benefit can be justified using moral reasons. Possible cases where harm is not proscribed may include cases where the harmful action is justified because it is either unavoidable, consented to, required to neutralise an innocent threat or a form of justifiable punishment.

⁸ Johnson op. cit., p. 283.

⁹ Marion Hourdequin, 'Climate, Collective Action and Individual Ethical Obligations', *Environmental Values*, *Environmental Values* 19 (2010): 443–464. In her later discussion of the tragedy of the commons Hourdequin suggests that using more than one's share of the commons contributes to harm and restraining one's use contributes to benefit. However she does not further develop or defend this view. See Marion Hourdequin, 'Climate Change and Individual Responsibility: A Reply to Johnson,' *Environmental Values*, 20, (2011): 162. I offer an alternative understanding of contribution in this paper.

¹⁰ Tracy Isaacs, *Moral Responsibility in Collective Contexts* (Oxford: Oxford University Press, 2011), pp.23-25.

¹¹ Virginia Held has argued that in certain circumstances a random collective can be held responsible for failing to form a collective and failing to take action. See Held, Virginia Held 'Can a Random Collection of Individuals be Responsible?', *Journal of Philosophy*, 67(1970): 471–481. It could be that the aggregate can be held responsible for failing to avoid the tragedy because they have an obligation to form a collective and avoid causing it. However, there are difficulties with ascribing liability, moral responsibility or obligations to non-agents like aggregates. This article avoids ascribing liability or obligations to aggregates that together cause essentially aggregative harm. It instead it considers what an individual agent who contributes to essentially aggregative harm is obliged to do. For a discussion of the agency objection to ascribing responsibilities to aggregates and possible ways to overcome it see: Bill Wringe, 'Global Obligations and the Agency Objection', *Ratio*, 23, 2 (2010): 217-231.

¹² For an instance of harm to be classified as essentially aggregative it need not be the case that the acts in question do not increase the amount of harm done. However, if it is the case that harm is significantly increased by the number of actors involved there may be additional moral reason not to contribute.

¹³ Judith Lichtenberg argues that it is prima facie plausible that a causal connection to a problem gives an additional moral reason to be concerned with resolving it. See Judith Lichtenberg, 'Negative Duties, Positive Duties and the "New Harms"', *Ethics*, 120, 3(2010):568.

¹⁴ Lichtenberg, op. cit., pp. 557-578.

¹⁵ Johnson, op. Cit., p. 274.

¹⁶ It could be argued that it is only those who use more than their fair share of the commons who should be identified as contributors to the problem. This possibility is explored in section 6.

¹⁷ Johnson, op. cit., p. 274.

¹⁸ There may be additional moral reasons to preserve the natural resource in order to maintain the resource for future generations or preserve a valuable eco-system. I do not deal with these reasons here. Instead I concentrate on what is owed to existing people.

¹⁹ Outsiders may assist, but there may be legitimacy problems with allowing them to help design and enforce such a system.

²⁰ Marion Hourdequin, 'Climate Change and Individual Responsibility: A Reply to Johnson', *Environmental Values*, 20, (2011): 157-162.

²¹ Hourdequin, op. cit., p. 161

²² Indeed Hourdequin describes how a norm can emerge in this way. Hourdequin, op.cit., p. 161.

²³ Thomas Pogge and Uwe Steinhoff both suggested that only those who exceed their fair-share of use of the common resource contribute to the tragedy of the commons in their comments on earlier drafts of this paper. Marion Hourdequin suggests that this is the case. See Hourdequin, op. cit., p. 162.

²⁴ Iris Young argues that justice can only be established through inter-subjective dialogue and cannot be determined by a single agent. See Iris Young, *Justice and the Politics of Difference* (Princeton: Princeton University Press, 1990).

²⁵ It is likely that this weighing up is not simply a utilitarian cost benefit analysis where the advantages and disadvantages to a number of individuals are added together. It is probably necessary that the position of each individual is considered and the burdens they are asked to shoulder by the solution proposed considered. This is because there are probably cases where burdening a large number of individuals is preferable to allowing one individual to undergo serious suffering. See Tim Scanlon *What We Owe to Each Other* (Cambridge MA: Harvard University Press, 2000).

²⁶ The failure of others to acknowledge the obligation means there are less people to promote a collective solution so the burden on those who do take up the demand will increase if they are to be successful. This is not just a case of sharing the same work among fewer people. This problem means that there are more people to persuade and pressure to join in a collective solution and therefore more work to do. It may be unreasonable to demand a small group of agents to pursue a collective solution to the destruction of the commons in such circumstances.

²⁷ C. Woodard, *Reasons Patterns and Cooperation* (New York: Routledge, 2008).

²⁸ Shelly Kagan, 'Do I Make a Difference?', *Philosophy and Public Affairs*, 39,2,(2011):105–141.