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Animal Rights and the Wrongness of Killing

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This essay explores the moral reasoning underpinning the common view that it is worse to kill a human compared with killing an animal. After examining the serious deficiencies of traditional approaches, the author develops an alternative utilitarian-based framework that proportions the seriousness of killing to levels of sentience. He demonstrates how this new approach avoids the problems faced by the application of standard utilitarian formulae in weighing the seriousness of killing many low-sentience animals *vis-à-vis* killing a single human. The author concludes with a discussion of how this new approach overcomes the difficulties faced by Peter Singer's dualist form of utilitarianism.

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1. Introduction

Billions of non-human animals¹ are killed annually and for a variety of reasons. We kill on such a vast scale to provide us with food, to alleviate the nuisance of stray pets, in testing commercial products, in scientific experiments and as sport. The overwhelming majority of people would regard the killing of human beings for such reasons as absolutely abhorrent and unthinkable, and yet this wholesale killing of animals barely raises a murmur amongst the general public.

In this essay, my aim is to develop a robust utilitarian approach that does justice to our prohibitions against killing humans while guiding our attitudes to killing animals. I will begin this enterprise with a critical review of non-utilitarian approaches to moral rights; in particular, Tom Regan's intrinsic value view and the claim theory of rights. I will argue that these approaches fail to ground moral rights in animals.

I then go on to examine whether Rawls' theory of justice and a utilitarian rendering of moral rights and justice can inform us on how we ought to treat animals. After reviewing both the utilitarian *prima facie* duty view of moral rights and social contract views of rights and justice, I deem them of some value, but neither essential nor primary to our understanding of animal obligations.

The question of life's intrinsic value, that is, the value it has for its own sake, is pivotal to our understanding of the morality of killing. I devote one section to discussing what things have intrinsic value. Considered here are such notions as consciousness, pleasure, happiness and satisfaction. I conclude that happiness is intrinsically valuable while life has consequential value. This theory of value is then wedded to the principle of impartiality that underpins ethical discourse. It is the adoption of this rational utilitarian normative framework, I argue, that validates the inclusion of sentient animals within our moral universe.

How we view the wrongness of killing human beings compared with the killing of animals depends on what utilitarian maximizing principle we choose. I critically review the problems faced by both the 'total' view and the 'average' view and propose a revised 'mixed' view that avoids the fatal objections to earlier principles. A number of examples are worked through to demonstrate the application of the principle.

Applying the 'mixed' view maximizing principle in practice to real world situations requires that we first rate the relative utilities of human beings and animals on a common scale. I deal with this vexed issue of making interspecific comparisons and suggest a novel approach that does justice to our moral intuitions. In the final section of this essay, I compare the classical 'mental state' version of utilitarianism and 'preference utilitarianism' and examine how they each approach the issue of the replaceability of one sentient life with another. For this purpose, I focus on Peter Singer's approach and show how the 'mental state' and 'mixed' views combined provide a more coherent and plausible account of our obligations to human and animal life.

¹Even though *homo sapiens* is properly speaking a species of animal, for the sake of brevity I will hereinafter refer to non-human animals simply as 'animals'.

2. Animal Rights and Justice for Animals

2.1 Tom Regan and Animal Rights

Much of the relatively recent and increasingly voiced criticism of the disparate treatment of animals and human beings has been couched in the terminology of moral rights. So, before I develop a credible utilitarian view on the killing of animals, I will consider briefly one such argument for animal rights. This view is advanced by one of the best known contemporary critics of our treatment of animals, Tom Regan.

In his essay, '[The Moral Basis of Vegetarianism](#)' [1982: 27–31], Regan had initially hoped that his argument for animal rights would guarantee that human beings and animals with interests possess a right to life to an equal degree. In his later essay, '[An Examination and Defense of One Argument Concerning Animal Rights](#)' [1982: 136–44], Regan appears to have changed his view to the more moderate position that because not all human beings seem to have an equal right to life, then not all animals have a right to life that is equal to all humans. Regan did not say this explicitly, but I think that this view is strongly suggested by his remark that severely mentally defective human beings possess lower inherent value than normal human beings. (For Regan, as we shall see below, moral rights are grounded in inherent value.) Whatever Regan's view is on the relative strengths of the rights to life of different human beings and animals, however, I will argue that Regan has not succeeded in showing that human beings or animals have any moral rights at all.

What is Regan's argument for moral rights? He begins his two essays, '[Utilitarianism, Vegetarianism and Animal Rights](#)' [1982: 40–60] and '[Animal Rights, Human Wrongs](#)' [1982: 75–101], by criticizing utilitarianism for not providing sufficient grounds for radically censuring our current practices towards animals.² He claims that a more substantial critique is likely to be provided by the notion of moral rights. The force of such rights, he argues, affords its possessor a moral immunity from having his/her interests traded off in a utilitarian calculus. Regan goes on to recommend what he considers to be the most plausible grounding for such rights, arguing first for the case of human beings and then applying the same argument to the case of animals with interests. In his '[Animal Rights, Human Wrongs](#)' [1982: 93f], Regan explains it so:

. . . human beings have a certain kind of value: inherent value. By this I mean that each human being has value logically independently of whether he/she is valued by anyone else (or, what perhaps comes to the same thing, whether he/she is the object of anyone else's interest).

. . . it is individuals who have inherent value who have moral rights, and it is *because* they have value of this kind that they have a moral right not to be treated in ways that deny their having this kind of value.

What is there about being a human being that underlies this inherent value? . . . human beings are not only alive; they have a life. What is more, we are the

²Peter Singer's reply to this charge is contained in his Singer [1980b].

subjects of a life that is better or worse for us, logically independently of anyone else's valuing us or finding us useful.

The question now arises whether this same line of argument can be developed in the case of animals. It can, at least in the case of those animals who are the subjects of a life that is better or worse for them, logically independently of whether they are valued by anyone else.³

The first curious feature about this argument is Regan's attempt to ground the inherent value of human beings and animals with interests in the fact that these creatures place value judgements on their own lives; that their lives are better or worse for them. In his 'Animal Experimentation: First Thoughts' [1982: 70f], Regan makes explicit this connection between a creature placing a value judgement on his/her own life and him/her having inherent value.

. . . these individuals have a life that is better or worse for them, logically independently of whether they are valued by anyone else (e.g., whether anyone else finds them useful). To put this last point differently, these individuals are *valuers* whether *valued* by others or not. As such, these individuals have a different kind of value than those objects (things) that have value only if (and then only so long as) they are valued by someone else . . .

But what is the relationship between the propositions 'x is a valuer whether valued by others or not' and 'x has inherent value'? It cannot be one of logical entailment of the latter from the former. We can easily imagine constructing a machine in the future that has the capacity to evaluate the worth of other machines and even one that can evaluate its own worth as a machine. However, that this machine has this capacity seems to be neither a necessary nor a sufficient condition for its having inherent value. With his argument, Regan has not even begun to show that valuers have any kind of value at all, let alone value of a different kind than instrumental value.

His repeated emphasis on the logical *independence* of the inherent value of a creature from the value placed on it by *others* seems to suggest covertly that the inherent value of a creature is supposed to be logically dependent on the value that they place on themselves. If this is what is in Regan's mind, then it is pertinent to point out that what is being used here is a strange notion of 'inherent value'. An inherent value of a being (that is, an essential value or a value that naturally belongs to the being) can be no more dependent on the value that the being places on themselves than on the acts of valuing performed by other beings. It would be a queer kind of 'inherent value' that a being could have that could be lost simply because the being comes to regard themselves as worthless.

³For the same argument, see also his 'The Moral Basis of Vegetarianism' in his [1982: 30]; 'Animal Experimentation: First Thoughts' in his [1982: 70f] and his 'An Examination and Defense of One Argument Concerning Animal Rights' in his [1982: 135f].

Regan, when his mind is otherwise concentrated on supporting an environmental ethic, restates this original criterion, based on the logical independence from the value judgements of anyone else other than the being themselves, as an explicit criterion requiring logical independence from *all* value judgements. He says, in a footnote to 'Animal Rights, Human Wrongs' [1982: 100, n. 19]:

An *x* has inherent value if it has value logically independently of *anyone's* valuing *x* [italics mine].

This revision manages to avoid the conceptual difficulty involved in tying 'inherent value' to a particular value judgement.⁴ In addition, it succeeds in avoiding the uncomfortable consequence for Regan that his earlier view would have entailed that people bent on suicide may be treated merely as means for other purposes because they do not value their own life.

The cost of avoiding these difficulties, however, is that he has failed to show the connection between '*x* values their own life' and '*x* has inherent value'. And without the demonstration that some beings have inherent value, we can conclude that his argument for moral rights cannot get off the ground.

⁴Of course, *contra* Regan, what could be meant by 'inherent value' is 'valued for its own sake and not as a means to some further end'. On this analysis, 'inherent value' is ultimately grounded in some particular act of valuing. But this type of analysis will not guarantee that creatures with interests will always have 'inherent value'. Regan, understandably, avoids this analysis in favour of attributing 'inherent value' independently of particular acts of valuing. However, if the 'inherent value' of a being is independent from the acts of valuing performed by other beings, then why should the acts of valuing performed by the being itself have privileged status? This is the conceptual difficulty that Regan is faced with.

2.2 Two Utilitarian Approaches to Grounding Rights

Whether and how a utilitarian should attribute rights to some animals remains a matter for debate. For a utilitarian, there appear to be two main approaches to grounding a rights theory within a utilitarian ethical framework. One approach is to correlate rights with *prima facie* or certain basic duties. In this case, some animals, infants and mental defectives have rights because we owe them certain obligations. This view is attractive to some act utilitarians.⁵

Alternatively, moral rights may be derived from the duties stipulated by formal and implicit social contracts struck between autonomous, rational beings and with utilitarian warrant.⁶ Duties prescribed by such contracts and quasi-contracts not only have as their objects rational, autonomous beings, but also some non-contractors, thereby ensuring such non-contracting beings their moral rights. Special duties to our own children are prominent examples of this type of obligation. (Assuming, of course, that the stipulation of such special duties is in our communal interest. In defence of this proposition, it may be argued that raising the next generation will ensure our future security and material prosperity, and that assigning such quasi-contractual duties is the most efficient means of achieving this aim.)

The distinct advantage of this utilitarian contractual view of moral rights is that it is faithful to the commonly held conviction that to have a moral right is to possess a moral immunity from having one's interests weighed against others in the all-encompassing utilitarian balance. For on this view, the *raison d'être* of the social contract is to guarantee specific social and personal goods by co-ordinating the behaviour of individuals, and this can only be achieved by stipulating specific duties and barring certain act utilitarian defences against the infringement of such duties. The drawback of this view is that moral rights are made conditional on the existence of the social contract or quasi-contract that guarantees them.

The *prima facie* or basic duties view of moral rights avoids this problem, but at the expense of doing an injustice to the anti-act utilitarian (or partially deontic) nuance of 'moral rights'. A salient feature of either view is that it allows the utilitarian the opportunity to cash in on the polemical advantages gained in engaging in popular 'rights' talk. Neither utilitarian analysis of 'rights' language, though, is without benefits and disbenefits.

In the face of these difficulties, the utilitarian may abandon talk of 'moral rights' altogether and simply concentrate on the question of how we ought to treat animals and what legal rights they ought to have. What if after admitting 'moral rights' into the utilitarian vocabulary, it is found that animals do not have moral rights after all? It remains open for a utilitarian to say that 'rights' talk does not encapsulate the whole of the moral universe; that we have obligations to others over and above those entailed by their possession of certain 'moral rights'.

⁵See, for example, Singer [1979c: 81] and Frey [1983: 73–8].

⁶For such a contractual view of utilitarianism, see Rawls [1967] and my Allan [2015: §3.2].

2.3 Non-Utilitarian Theories of Rights and Justice

In the previous section, we saw how finding out that animals do not possess ‘moral rights’ does not preclude us from having other kinds of obligations to animals. This question about the limits of the scope of application of certain types of moral strictures also applies to the demands of justice. Objections to killing human beings are often based on such demands. Do we owe justice to animals? A utilitarian could, perchance, settle on a utilitarian theory of justice, from those available, that entails that animals are not the kind of creatures to whom we can owe justice. In this case, the utilitarian could simply conclude that the demands of justice cannot exhaust our obligations.

These observations apply equally to non-utilitarian theories of moral rights and justice. Consider, for example, a claim theory of rights and a Rawlsian ideal contract theory of justice. Within a claim theory of rights, animals cannot possibly have rights because they cannot make claims on their own behalf. Similarly, within Rawls’ ideal contract theory, as articulated in his [A Theory of Justice](#) [1972], animals cannot possibly be owed justice because they cannot be contractors. In both these cases, such theories simply raise the question of whether ‘moral rights’ and ‘justice’ in these senses prescribe the sum total of our obligations.

As explanations of commonly held basic moral judgements, these two types of theories fail because of their exclusion of mental defectives and very young children from the class of beings that possess rights and are owed justice. In the case of Rawls’ contract theory, the exclusion of animals from the class of the recipients of justice is compensated by Rawls [1967: 512] by their inclusion under duties of compassion and humanity. However, his attempt to include very young children within the ambit of justice by appealing to their potentialities [1967: 504f, 509], in order that his contract theory will accord with considered intuitions, is clearly *ad hoc*.

Rawls [1967: 509] considers this manoeuvre of including children whilst excluding animals defensible on the grounds that ‘regarding the potentiality [of children] as sufficient accords with the hypothetical nature of the original position, and with the idea that as far as possible the choice of principles should not be influenced by arbitrary contingencies.’ This move fits poorly with Rawls’ [1967: 12, 120, 136–42] stipulated intention behind the hypothetical nature of the contract and the veil of ignorance, which was to guarantee unanimity of agreement over principles of justice and the fairness of these principles in their application to the contractors. The inclusion of very young children within the terms of justice furthers neither of these aims and so is not necessitated by the demands of coherence.

If Rawls now wants to expand the hypothetical nature of the contract so as to include ‘undeveloped capacities’ for rationality and autonomy as an ‘arbitrary contingency’ and ‘fortuitous circumstance’ that must be eliminated as a partial determinant of the content of the principles of justice, then there can no longer be any *a priori* barrier to including also ‘no capacities’ for rationality and autonomy as an ‘arbitrary contingency’ and ‘fortuitous circumstance’. Young children with undeveloped capacities are just as unable to enter into contractual arrangements as dogs with no capacities. If Rawls’ hypothetical

original position is to include the former, I can think of no non-arbitrary reason for not including the latter.

In making this concession to ordinary moral sentiments, Rawls is retreating from his original conception of the contract. Instead of watering down his contract theory, it may be easier for Rawlsians simply to include children in our duties of compassion and humanity, as with animals. With this restricted scope, his theory of justice will lose some of its explanatory power. However, within the scope of the theory, it will lose none of its prescriptive force.

Because of these conceptual difficulties involved in determining which beings are owed just treatment and which possess moral rights, I will not deal with this issue further here. For a utilitarian, the concepts of 'justice' and 'moral right', whenever they are used, are not morally primitive notions. These concepts derive from the more primitive ethical duty to maximize utility. For this reason, I will not rely on these notions for the purpose of this essay.

3. Intrinsic Value

What is intrinsically valuable? By intrinsic value, I do not mean a value that something can possess independently of anyone's valuing or preferring it. What I do mean is a value that a thing possesses independently of the value of the thing's effects on other entities. A thing has intrinsic value if it is valued or preferred simply for what it is and not for its consequences. So, for example, I value my car because it can take me wherever I want to go. By this token, it has consequential value and not intrinsic value. Let us say that which has intrinsic value is 'intrinsically good' and that which has intrinsic disvalue is 'intrinsically bad'.

Life itself cannot be intrinsically valuable in this sense, because it seems to me that some lives are so burdened by constant misery that they are not worth living. Life, it seems, is valuable for most of us because it is the prerequisite for the possession and satisfaction of goals and for the having of pleasant experiences. Life, then, has consequential value. What of consciousness, in the sense of having phenomenological experiences and a subjective mental life? Once again, consciousness appears to be valuable because it is necessary for the having of certain experiences. Consider two beings. The first being is in a constant state of suffering while the second being's only capacity is to experience the sensation of redness without either liking or disliking this sensation. Our natural reaction is to say that, for both these beings, having a capacity for consciousness is of no intrinsic value.

Many moral philosophers propose that the feeling of pleasure is an intrinsic good. Pleasure is a difficult notion, so let us consider first its less problematic contrary; that of pain. In discourse outside of philosophical circles, what is normally meant by 'pain' is a certain sensation that is usually, but not always, the result of overstimulation of the sense-organs. Can this sensation be intrinsically bad? I cannot see how, because some people derive enjoyment from the occasional experience of pain; namely masochists.

Secondly, consider a being that has the capacity to sense pain, but does not have the capacity to be dissatisfied with it or want to avoid it. That these two capacities—sensing and dissatisfaction—are not only logically distinct but physiologically separable is evidenced by modern neurophysiological studies that show that the sensory and affective aspects of pain perception are served by different neurophysiological mechanisms in the brain.⁷ If a being can sense pain without having an attitude to it, then it seems that there is no more reason to think sensations of pain intrinsically bad than, say, sensations of redness.

Can the same now be said for sensations of pleasure considered purely as a sensory experience, divorced from affective states? One important difference is that the term 'pleasure', unlike the word 'pain', often seems to be associated with the satisfaction of some desire for sensory stimulation. In this sense, pleasure seems to be intrinsically valuable, for we value pleasure for its own sake and not for its consequences.

We can make the same observation for the more general mental state of satisfaction. A complication here, though, is that we cannot simply identify the feeling of satisfaction with that mental state resulting from the satisfaction of some desire. This is because we sometimes feel dissatisfied even though a desire of ours has been satisfied. For

⁷Melzack [1973: 93–6]

this reason, we need to stipulate that for a mental state to be called a feeling of 'satisfaction', the desire satisfied could not have been based on false beliefs or expectations. In contrast, dissatisfaction, that feeling we get from the frustration of some desire, is intrinsically bad because it is disvalued irrespective of its consequences.

Many utilitarians speak of 'happiness' as an intrinsic good. For the purposes of this essay, let us say that 'happiness' is that feeling resulting from the satisfaction of high-level desires not based on false expectations. I contrast here high-level desires from lower-level desires. High-level desires are longer-term and more permanent than their lower-level corollaries. Examples here are the desire to complete one's education, find a compatible life partner and write a best-selling book. These are contrasted with the more short-term and impromptu lower-level desires, such as the desire to go out with friends to watch a movie, read a funny book and dine on your favourite meal.

In the same vein, let us stipulate that 'suffering' is that feeling resulting from the frustration of high-level desires. Here, I contrast sufferings, such as the feeling of sickness from ongoing malnutrition and the experience of distress from mental and physical abuse from short-term inconveniences, such as having one's toe stubbed. Let us further stipulate that something is in a creature's 'interest' if it promotes their feelings of satisfaction. In short, we can conclude that what is in a creature's interest is increasing its happiness or, more generally speaking, its mental state of satisfaction, and that these things are intrinsically valuable.

Moral philosophers have proposed other things as being intrinsically valuable, such as knowledge, beauty, friendship, and so on. I am inclined to think that these things have value only in so far as they promote satisfaction, but I shall not argue for this here. Even if I am wrong in this, it will not greatly affect what I have to say on the morality of killing. In the next section, I will couple the foregoing theory of intrinsic value with an ethic of duty.

4. Duties and Sentience

In my Allan [2015: §3], I argued that in thinking about how we ought to act, we first need to divest ourselves of spurious metaphysical notions. These mistaken meta-ethical presuppositions that we need to avoid include notions that we ought obey the strictures of some supposed divine being, that we somehow intuit synthetic *a priori* constraints on our behaviour and that we are governed by some natural law. I argued that what underpins the ideal of objectivity in ethical discourse is not supernatural entities or supervenient properties, but the principle of impartiality. On this view, for a person to be objective in an ethical sense, they need to consider the interests of each party on an equal footing, irrespective of the identity of the interest holder.

This principle of impartiality seems to drive us to a consequentialist view of moral action; that the right thing to do is to maximize the satisfaction of interests without fear or favour. By tying this theory of duty to the theory of value elucidated above, we are now in a position to answer the question, 'To what kinds of beings do we owe obligations?' The answer is that for a being to demand our ethical concerns, it matters not whether they can make claims, enter into social contracts, possesses rationality or display autonomy. What matters is whether they have desires or preferences. From the above considerations, whether they can sense pain or see red is also morally irrelevant. A being is part of the moral landscape only if it can matter to them what conscious states they are in; that is, only if they have a conative life. Let us say that a being that has such a conative life is 'sentient'.⁸

What kinds of beings possess such a capacity for sentience? The most current evolutionary and neurophysiological evidence indicates that the border between those creatures with affective states and those without roughly corresponds to the distinction between vertebrates and invertebrates.⁹ On utilitarian grounds, then, if utility is satisfaction and that which promotes satisfaction, we can have no direct duties to avoid killing invertebrates and plants.

In saying that we do not have a direct duty in these cases, let me clarify what I mean by 'direct duty'. A direct duty to treat an entity in a certain way is a duty owed to the entity itself. In contrast, an indirect duty is a duty to treat an entity in a certain way that derives from a duty owed to another. In this latter case, the duty is not owed to the entity itself. For example, although I have a direct duty not to kill my neighbour, I only have an indirect duty not to steal his car. The latter duty is indirect because this duty is not owed to his car but to my neighbour.

Applying this distinction to the killing of invertebrates and plants, we have a duty not to end their lives only when to kill them would result in a diminishing of net satisfaction for creatures with a conative life. To extend our direct duties to non-sentient entities in a way that would not simply be a token gesture would be to encroach on the interests of creatures with a conative life. I cannot see how such an extension could be morally justified, considering that what happens to a tree or jellyfish matters not one iota to the tree or

⁸This usage of the term 'sentient' is not strictly correct. However, because of the lack of a suitable substitute in the English vocabulary, it has been increasingly used in this way. I shall follow this deviant practice.

⁹See Melzack [1973: ch. 4]; Singer [1976: 29–33; 1979c: 60f] and Sumner [1981: 143–7].

jellyfish. It may matter a great deal, however, to some sentient creature. Conservation of the natural environment has, I think, more than adequate justification by appealing to our global and national interests, the interests of conservationists and the interests of non-human vertebrates. Such a justification is compelling without recourse to an ethic of the environment, although this is not the place to argue this point here.¹⁰

Could it be the case that the wrongness of killing lies in factors that are wholly or partly independent of the consequences for the existence of intrinsic goods? Could it be that consequentialism is mistaken? In my Allan [2015], I critically review deontic theories of the wrongness of killing and find them wanting. I will proceed here on the basis that whenever killing is wrong, it is because of the consequences it has for the happiness and sufferings of sentient creatures.

¹⁰On the global predicament resulting from our current rate of natural resource depletion, see the important work of the Club of Rome in Meadows *et al* [1974]. For a utilitarian critique of the possibility of an environmental ethic, see Frey [1983: ch. 14].

5. Utilitarian Maximizing Principles

5.1 The 'Mixed' View

Utilitarianism, as a consequentialist theory, at its core is a principle stipulating how utility is to be maximized. From the previous section, we can specify utility as 'happiness' and more generally as 'satisfaction'. (In the interests of simplicity, from this point forward I will use the term 'happiness' to include all forms of utility, including both 'happiness' and 'pleasure'.) For the utilitarian, then, the wrongness of an act, rule or practice is judged by its effect on the overall amount of happiness. The more the amount of happiness diverges from the optimal amount calculated using the principle of maximization, the more wrong the act, rule or practice is.

A problem arises in that happiness does not exist in disembodied form and in discrete units like pebbles on a beach, just waiting to be collected in a single, large bucket. Happiness always occurs in the lives of individuals; in lives that form structured wholes and in which happiness is an integral part of those structures. It is an integral part because, often, happiness is the result of goal directed activities; activities that only make sense in terms of an individual life to be lived. Utilitarianism, in some of its forms, has been criticized for not recognizing the boundaries around individuals. I think this charge has been justified.

With the importance of individuation in mind, we can restate the utilitarian principle to take account of this important insight. The claim that happiness *per se* is valuable can be expanded into the claim that the utility of a state of affairs is a function of both the total sum of happiness in a community and the amount of happiness in each individual life. This latter quantity, the amount of happiness in an individual's life, I will call the level of the 'quality of life'.

Whether we value the quantity of happiness, quality, or both, will determine which principle of maximization we choose. We could opt for the classical 'total' view, which states we should maximize the aggregate of utility within a population. Or we could choose the 'average' view, which stipulates that we ought to maximize instead average utility. Which principle of maximization we select will influence how we see the wrongness of killing human beings *vis-à-vis* animals.

For example, if we think that only quantity of happiness has value (the 'total' view), then, ignoring side-effects, we will regard the killing of a sufficient number of chickens worse than the killing of a single normal adult human being. If we accept that only quality of life has value (the 'average' view), then we will think that if the killing of all of the chickens in the world will have no effect on the happiness of human beings, then doing this would be morally obligatory because it would raise the average level of happiness. (These two examples assume that the life of a chicken has less utility than the life of a normal adult human being, which, to me, seems at least *prima facie* plausible. I will argue in §6 below that we have good reasons for thinking this so.)

In my Allan [2015: §5], I proposed what I considered to be the basic structure of an adequate utilitarian maximizing principle. I did not claim the theory to be free of problems.

However, I thought that it was good enough to deal with the ethical questions at issue in that essay; namely on contraception and abortion. I thought it adequate because a normal foetus has the potential to achieve a utility value within the range of a normal adult. This is not the case with animals, though. A more complex and less problematic principle of maximization is required in order to deal with this question of killing human beings *vis-à-vis* animals.

I termed this new maximizing principle the 'mixed' view. This approach contrasts with two current rival principles; the 'total' view and the 'average' view. The 'mixed' view is based on two postulates, each framed in terms of a variable population base. The two postulates encapsulate key insights and are as follows:

Postulate 1: For any given variable population with fixed total utility x , if the average utility decreases (with a corresponding increase in population level), then the moral desirability of the population level will diminish.

Postulate 2: For any given variable population with fixed average utility y , if the total utility decreases (with a corresponding decrease in population level), then the moral desirability of the population level will diminish.

These two postulates are satisfied by the 'mixed' view maximizing principle. With this principle, what we should be aiming to maximize in a utilitarian maximizing theory is 'mixed utility'. The 'mixed utility' of the population is a product of its total and average utilities and can be expressed by the simple equation:

$$m = t.a$$

where 'm' = 'mixed utility'
 't' = 'total utility'
 'a' = 'average utility'

Where one of the variables t or a is unknown and the number of individuals in the population n is known, mixed utility m can be calculated using the following considerations.

$$\text{Since } t = n.a \quad \text{and} \quad a = t/n$$

$$\text{then } m = a^2.n \quad \text{and} \quad m = t^2/n \quad \text{where 'n' = 'number of individuals in population'}$$

The 'mixed utility' that ought to be maximized in a given population is simply a 'mixture' of that population's total and average utilities. It is important to note that this maximizing theory is intended solely for application to problems involving a variable population base. The classical theory stipulating the maximizing of total utility (or what is an extensionally equivalent consideration in this case, average utility) is still to be used for fixed populations.

Derek Parfit, in his [Reasons and Persons](#) [1984: 381–90], levelled a fatal objection against the 'total' view; what he called the 'Repugnant Conclusion'. As he explained it, for any given possible population in which all members have a very high quality of life, there is a much larger possible population whose members have lives that are barely worth living. The 'Repugnant Conclusion' that the 'total' view leads us to is that the existence of the latter population is morally preferable to the existence of the former. Unfortunately, the 'mixed' view maximizing principle, as it stands, also does not avoid Parfit's 'Repugnant Conclusion'.

Although the 'mixed' view is an improvement over the classical 'total' view, both views fail to avoid the basic idea behind Parfit's objection: that there is a level of quality of life below which no aggregate of satisfaction can compensate for the loss of quality.

Let us encapsulate this basic intuition in a third postulate:

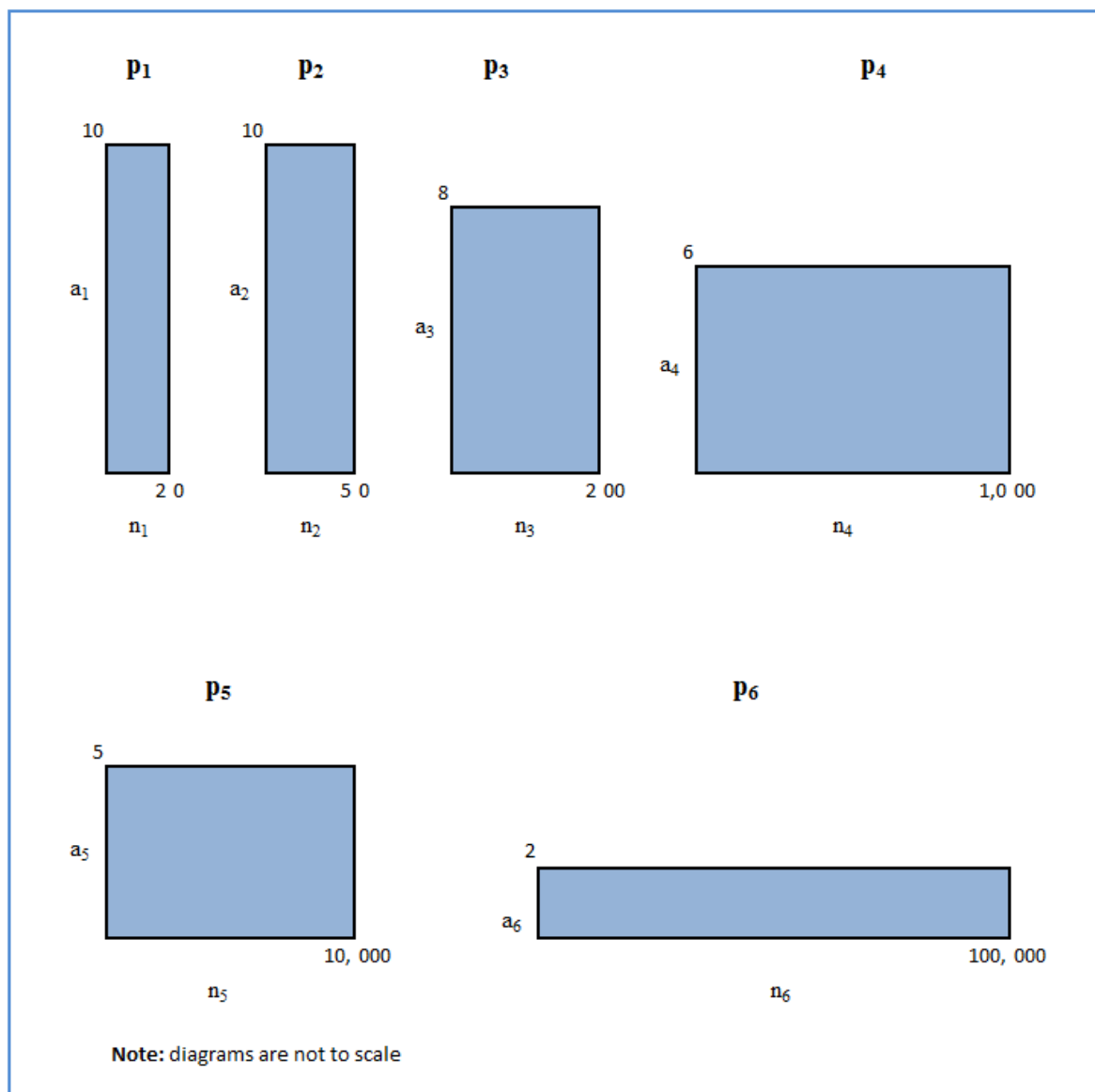
Postulate 3: For any given variable population with variable average utility and variable total utility, such that $t.a = k$, where k is a constant, if the population level is steadily increased, there is a level of average utility below which no further increase in total utility will compensate for the loss of average utility.

What is this level of average utility below which an increase in total utility no longer compensates? I propose a threshold value of 0.7 of the average utility of the original population. More specifically, the point below which a further decrease in average utility cannot be compensated by any further increase in total utility is $0.7a_y$, where a_y is the average utility of the original population or state of affairs. The threshold level of $0.7a_y$ is somewhat arbitrary, but not completely. I will leave the determination of this value to future discussion, proposing at the moment to offer $0.7a_y$ as a tentative level only. None the less, I think it reasonable to suppose that the value could be no lower than 0.6 and no higher than 0.9. I think there would be little argument that outside of these levels, the increase in utility is clearly insufficient compensation.

5.2 Ranking Homogeneous Populations

I will now go on to articulate and apply a revised maximizing principle that takes account of our *Postulate 3*. Once again, this principle is intended solely for application to problems involving a variable population base. To illustrate the principle, I will begin by using it to rank a number of theoretical populations in terms of moral desirability. I will do this initially for the simplest kind of scenario. This scenario is one in which each population to be ranked is homogeneous. In each of these populations, every member of the population has the same utility as all other members of the same population.

Diagram 1 – Calculating utilities of homogeneous populations



Consider the six homogeneous populations p₁ to p₆ depicted in *Diagram 1* above. The average utility for each population (a₁, a₂, a₃ . . .) is represented in the diagram on the

vertical axis, while the number of beings in each population ($n_1, n_2, n_3 \dots$) is represented on the horizontal axis. Let us say that on an arbitrary scale of happiness, a being with a life that is neither worth living nor not worth living has a utility of zero units, while a being that has a happiness level equivalent to that of a very happy, normal human being has a utility of 10 units.

To calculate the moral desirability, or mixed utility, of each population under consideration, first rank the populations in order of average utility. Rank the population with the highest average utility first and that with the lowest average utility last (from left to right and from top to bottom), as shown in the diagram. If there is more than one population in which the average utility is not exceeded by the average utility of any other population (that is, if there is more than one contender for the highest position), then rank these populations in order of their values of n , with the population with the *lowest* value of n ranked first. For populations other than these that also have identical average utilities, their ordering with respect to each other is immaterial. By convention, the population with the highest ranking is designated p_1 .

Next, calculate the moral desirability m_x for each homogeneous population p_x . The equation to apply for each population under consideration depends on whether the average utility for that population is greater than or equal to 0.7 of the average utility of the first ranked population. Where this condition is satisfied, apply *Equation 1*; otherwise, apply *Equation 2*.

$$\text{Equation 1: where } \frac{a_x}{a_1} \geq 0.7, \quad m_x = a_x^2 \cdot n_x \left(\frac{a_x}{a_1}\right)^3$$

$$\text{Equation 2: where } \frac{a_x}{a_1} < 0.7, \quad m_x = \frac{m_y}{\left(\frac{a_y^2 \cdot n_y}{a_x^2 \cdot n_x}\right) + 1}$$

where 'm_x' = 'moral desirability of population'
 'a_x' = 'average utility of population p_x'
 'n_x' = 'number of individuals in population p_x'
 'a₁' = 'average utility of population p₁'
 'n₁' = 'number of individuals in population p₁'
 'a_y' = 'average utility of population p_y, where population p_y is population with lowest mixed utility in the set of populations that have average utilities > $\frac{a_x}{0.7}$ '
 'n_y' = 'number of individuals in population p_y'
 'm_y' = 'mixed utility of population p_y'

Considering *Equation 1* first, this equation is identical to my original equation, $m = t.a = a^2.n$, except that I have now added an extra weighting factor, $\left(\frac{a_x}{a_1}\right)^3$. The purpose of this weighting is to give a more rapid falloff in mixed utility as the average utility falls to $0.7a_1$. A more rapid falloff is required in order to make the new equation consonant with the insight that below $0.7a_1$ no increase in n_x or t_x (total utility) will compensate for the drop in average utility.

Equation 2 is applicable to populations in which the average utility is less than $0.7a_1$. This equation is designed to satisfy the requirement that as the utility value $a_x^2 \cdot n_x$ of the population under consideration approaches infinity units, its mixed utility approaches the mixed utility of some comparison population in the limit. This comparison population, p_y , could not remain fixed at p_1 for all populations under consideration, for this would have allowed some population p_z with a low average utility to possess a mixed utility greater than the mixed utility of a population in which the average utility is greater than $\frac{a_z}{0.7}$. To have allowed this would have been in contravention of *Postulate 3* and, secondly, would have led to interpopulation comparisons of mixed utility being intransitive. *Postulate 3* and the requirement for transitivity demands that the comparison population not be fixed and that it be one of the set of populations in which the average utilities are greater than $\frac{a_x}{0.7}$. Since *Postulate 3* stipulates that m_x cannot be greater than the mixed utility of any of these populations, the comparison population p_y must be that population in which the mixed utility of the set is lowest.

Continuing with our scenario, it is now possible to calculate the mixed utilities of the populations depicted above. The average utility a_1 of population p_1 is 10. The next step is to apply *Equation 1* to the populations with average utilities greater than $0.7a_1$ (or 7); that is to populations p_1 , p_2 and p_3 . The results are:

$$\begin{aligned} m_1 &= a_1^2 \cdot n_1 \left(\frac{a_1}{a_1}\right)^3 & m_2 &= a_2^2 \cdot n_2 \left(\frac{a_2}{a_1}\right)^3 & m_3 &= a_3^2 \cdot n_3 \left(\frac{a_3}{a_1}\right)^3 \\ &= 10^2 \cdot 20 \left(\frac{10}{10}\right)^3 & &= 10^2 \cdot 50 \left(\frac{10}{10}\right)^3 & &= 8^2 \cdot 200 \left(\frac{8}{10}\right)^3 \\ &= 2,000 & &= 5,000 & &= 6,553.6 \end{aligned}$$

For population p_4 , $\frac{a_4}{a_1}$ is less than 0.7. So, to solve for m_4 , apply *Equation 2*. First find population p_y . This is the population with the lowest mixed utility m_y in the set of populations that have average utilities greater than $\frac{a_4}{0.7}$ (or 8.6). Only populations p_1 and p_2 have average utilities greater than 8.6, with population p_1 having the lowest mixed utility m_1 at 2,000 units. Now applying *Equation 2*, solve for the mixed utility of population p_4 :

$$\begin{aligned} m_4 &= \frac{m_y}{\left(\frac{a_y^2 \cdot n_y}{a_4^2 \cdot n_4}\right) + 1} \\ &= \frac{2,000}{\left(\frac{2,000}{36,000}\right) + 1} \\ &= 1,894.7 \end{aligned}$$

To calculate m_5 and m_6 , *Equation 2* likewise applies. In the case of mixed utility m_5 , m_y is the lowest value in the set $\{m_1, m_2, m_3\}$. This value accords again with the mixed utility of population p_1 at 2,000 units. Applying *Equation 2*, solve for the mixed utility of population p_5 :

$$m_5 = \frac{2,000}{\left(\frac{2,000}{250,000}\right)+1}$$

$$= 1,984.1$$

In the case of mixed utility m_6 , m_y is the lowest value in the set $\{m_1, m_2, m_3, m_4, m_5\}$. This value accords with the mixed utility of population p_4 at 1,894.7 units. Next, apply *Equation 2* to population p_6 . The result is:

$$m_5 = \frac{1,894.7}{\left(\frac{36,000}{400,000}\right)+1}$$

$$= 1,738.2$$

So, in order of moral preferability, p_3 is the most preferable with a mixed utility of 6,553.6 units, with p_2 , p_1 , p_5 , p_4 and p_6 next in order of preferability. I think this is in accord with the considered judgements of those who attend carefully to the populations depicted in *Diagram 1*.

5.3 Ranking Populations with Negative Utilities

So far, I have considered homogeneous populations with both positive total and average utilities. I now want to consider populations with values of total and average utility below zero. First, applying our previous definition, any individual being that has a utility below zero leads a life that is not worth living. Also, note that for such populations, average utility a and total utility t will have as their values negative real numbers. However, because I am here speaking of amounts of *suffering*, whenever I say that one level of negative utility, either average or total, is *above* another, what I mean is that the former is a greater amount of suffering than the latter.

I think we can now state a corollary to the third postulate, dealing with the comparison between different populations of such miserable beings.

Postulate 4: For any given variable population with variable average negative utility (average level of suffering) and variable total negative utility (total amount of suffering), such that $t.a = -k$, where k is a constant (or, alternatively, $a^2.n = -k$), there is a level of average negative utility above which no further decrease in negative total utility will compensate for the increase in average negative utility.

How should we calculate the moral desirability, or mixed utility, of a set of populations comprised of miserable beings? Consider the simplest case in which the populations are homogeneous, with every member of each population having the same utility as all other members of the same population. First, rank the populations under consideration in order of average negative utility, with the population with the lowest average negative utility (least miserable) ranked first (designated p_1) and that with the highest (most miserable) ranked last. If there is more than one population in which the average negative utility is not higher than the average negative utility of any other population (that is, if there is more than one contender for first position), then rank these populations in order of their values of n , with the population with the *highest* value of n ranked first. For populations other than these that also have identical average negative utilities, their ordering with respect to each other is immaterial.

If one of the populations under consideration has no members (that is, if one option is a state of affairs in which no sentient beings exist), then designate this population p_0 and designate the population with the next lowest average negative utility p_1 , subject to the above condition dealing with multiple contenders for p_1 . Apply the same rule to those populations under consideration that contain beings with zero utility (that is, beings whose lives are neither worth living nor not worth living). All such populations designated p_0 have a mixed utility of zero units and are, therefore, morally preferable to any other population with a mixed utility of less than zero. If only two populations are under consideration, one of which is p_0 , then the mixed utility of the remaining population m_1 , is given by the equation:

$$m_1 = a_1^2 \cdot n_1$$

If the set of homogeneous populations under consideration contains at least two members that have an average negative utility of less than zero units, then calculate the

moral desirability m_x for each homogeneous population p_x using one of two equations. Apply *Equation 3* where the average utility of the first ranked population is greater than or equal to 0.7 of the average utility for that population; otherwise, apply *Equation 4*.

$$\text{Equation 3: where } \frac{a_1}{a_x} \geq 0.7, \quad -m_x = a_x^2 \cdot n_x \left(\frac{a_x}{a_1} \right)^3$$

$$\text{Equation 4: where } \frac{a_1}{a_x} < 0.7, \quad m_x = m_y \left(\frac{a_x^2 \cdot n_x}{a_y^2 \cdot n_y} \right) + 1$$

where 'm_x' = 'moral desirability of population p_x'
 'a_x' = 'average negative utility of population p_x'
 'n_x' = 'number of individuals in population p_x'
 'a₁' = 'average negative utility of population p₁'
 'n₁' = 'number of individuals in population p₁'
 'a_y' = 'average negative utility of population p_y, where
 population p_y is population with highest average negative
 utility in the set of populations that have average negative
 utilities < 0.7a_x'
 'n_y' = 'number of individuals in population p_y'
 'm_y' = 'mixed utility of population p_y'

5.4 Ranking Non-homogeneous Populations

The populations that I have considered so far have been homogeneous populations; that is; populations in which each member has an identical utility to all other members of the same population. The task of comparing the preferability of populations in which their constituent members possess non-identical utilities is considerably more complex. At this early stage in the development of the 'mixed' view maximizing principle, I will content myself with describing two methods for making comparisons between populations with relatively simple utility distributions.

These two methods are:

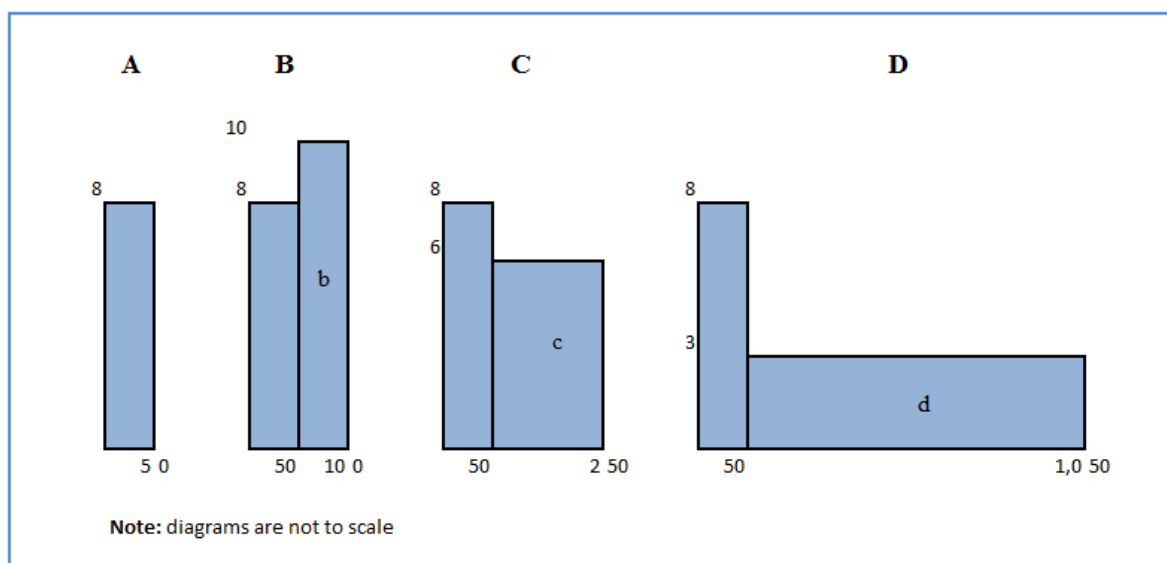
1. simple addition
used where all populations in the comparison set share a common sub-population type
2. segment-whole comparison
used where a segment of one population is morally preferable to the whole of a comparison population

I will illustrate the application of each method in turn. Beginning with the *simple addition* method, consider these two examples.

Example 1

The diagram below depicts four populations: A, B, C, and D. The average utility for each population is represented in the diagram on the vertical axis, while the running total of the number of beings in each population is represented on the horizontal axis.

Diagram 2 – Calculating utilities of simple non-homogeneous populations

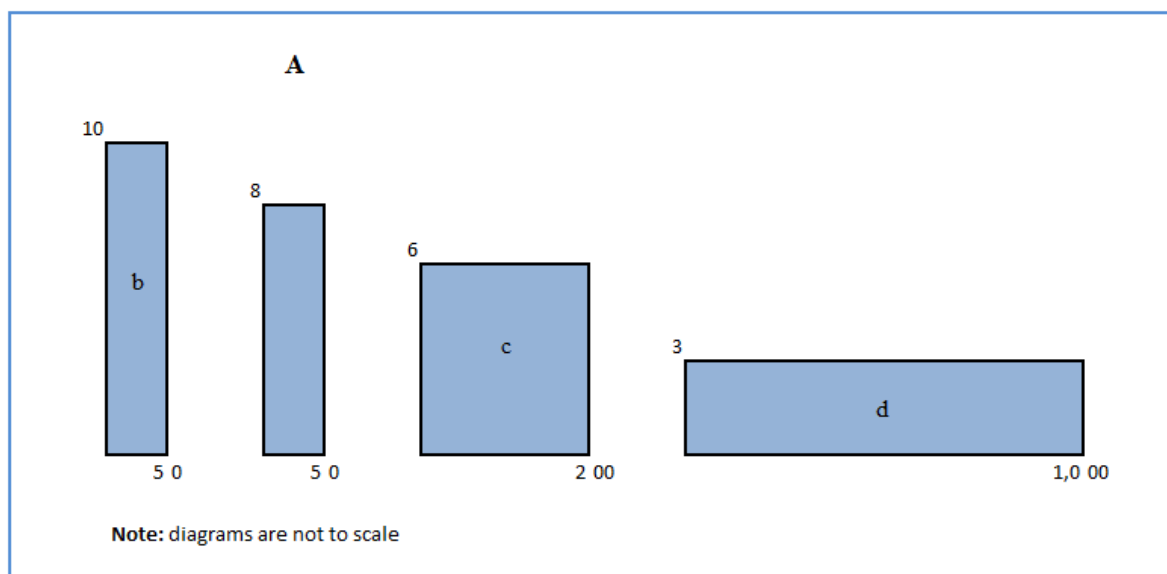


Once again, let us stipulate that on an arbitrary scale of happiness, a being with a life that is neither worth living nor not worth living has a utility of zero units, while a being that has a happiness level equivalent to that of a very happy, normal human being has a utility of 10 units.

Populations B, C, and D are identical to A, except for the addition of extra members. All four populations share a sub-population type comprising 50 members with an average utility value equalling 8. The mixed utility of the sub-population type that all four populations have in common must also be identical. Let us designate this mixed utility m_s . Let us call the extra population segments that populations B, C and D possess, 'b', 'c' and 'd' respectively. These are labelled in *Diagram 2* as such. To calculate the mixed utility of population B, C or D, we can simply add the mixed utility of the population's additional segment (m_b , m_c or m_d respectively) to the mixed utility of the segment they share, m_s .

We can calculate the mixed utility of the common segment and each additional segment using the procedure given in §5.2 above. First, rank the segments in order of average utilities. The result of this ordering is shown in *Diagram 3* below.

Diagram 3 – Ranking segments in simple non-homogeneous populations



Using *Equation 1* and *Equation 2* in §5.2 above, calculate the mixed utilities of the segments m_b , m_a , m_c and m_d in turn.

$$m_b = 5,000$$

$$m_s = m_A = 1,638.4$$

$$m_c = 2,950.8$$

$$m_d = 1,208.6$$

The mixed utilities of the segments can now be summed to find the mixed utilities of populations A, B, C, and D, or m_A , m_B , m_C and m_D , as follows:

$$m_A = 1,638.4 \qquad m_B = m_s + m_b$$

$$\qquad \qquad \qquad = 6,638.4$$

$$m_C = m_s + m_c \qquad m_D = m_s + m_d$$

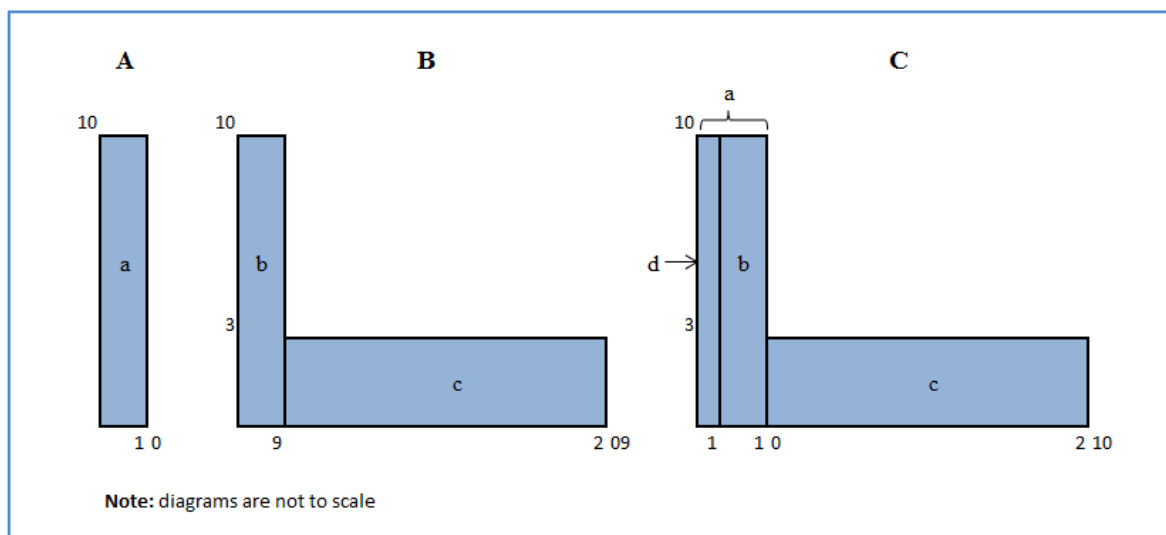
$$= 4,589.2 \qquad \qquad = 2,847$$

So, in order of moral preferability, population B is the most preferable, then C, D and A in descending order. I think this marries with our considered judgements about this scenario.

Example 2

For the second example of using the *simple addition* method for calculating the preferability of populations with non-uniform utility distribution, consider a more complicated scenario. Populations A, B and C are represented in *Diagram 4* below. Once again, average utility for each population is represented on the vertical axis, while the running total of the number of beings in each population is represented on the horizontal axis. This scenario is more complex as all three populations do not share a common complete sub-population.

Diagram 4 – Calculating utilities of complex non-homogeneous populations

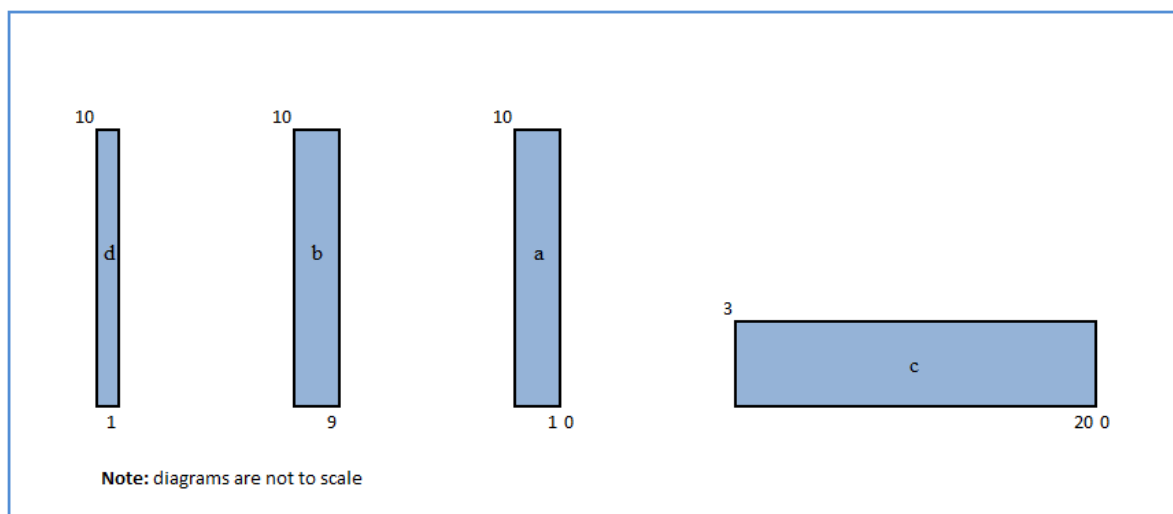


None the less, commonalities and segments can be identified. Population C is identical to A, except for the addition of a sub-population comprising 200 beings, each with a utility of 3 units. Let us designate this extra segment, 'c'. Population C is also identical to

B, except for the addition of one being with a utility of 10 units. Let us designate this extra segment comprising one individual, 'd'. Let us also designate the segment that population C has in common with A, 'a', and the remaining segment of B, 'b'. Segment a, then, is the summation of segments b and d. All four segment types are labelled as such in *Diagram 4*.

As before, we can calculate the mixed utility of population B and C by adding together the mixed utilities of the separate segments comprising each population (m_a , m_b , and m_c) as required. Start by ranking the segments in order of average utilities. The results are shown in *Diagram 5* below.

Diagram 5 – Ranking segments in complex non-homogeneous populations



Again, using *Equation 1* and *Equation 2* in §5.2 above, calculate the mixed utilities of the segments m_d , m_b , m_a and m_c in turn.

$$m_d = 100$$

$$m_b = 900$$

$$m_a = 1,000$$

$$m_c = \frac{100}{\left(\frac{100}{1,800}\right)+1}$$

$$= 94.7$$

Finally, sum the mixed utilities of the segments to find the mixed utilities of populations A, B and C, or m_A , m_B , and m_C .

$$m_A = m_a = 1,000$$

$$m_B = m_b + m_c = 994.7$$

$$m_C = m_a + m_c = 1,094.7$$

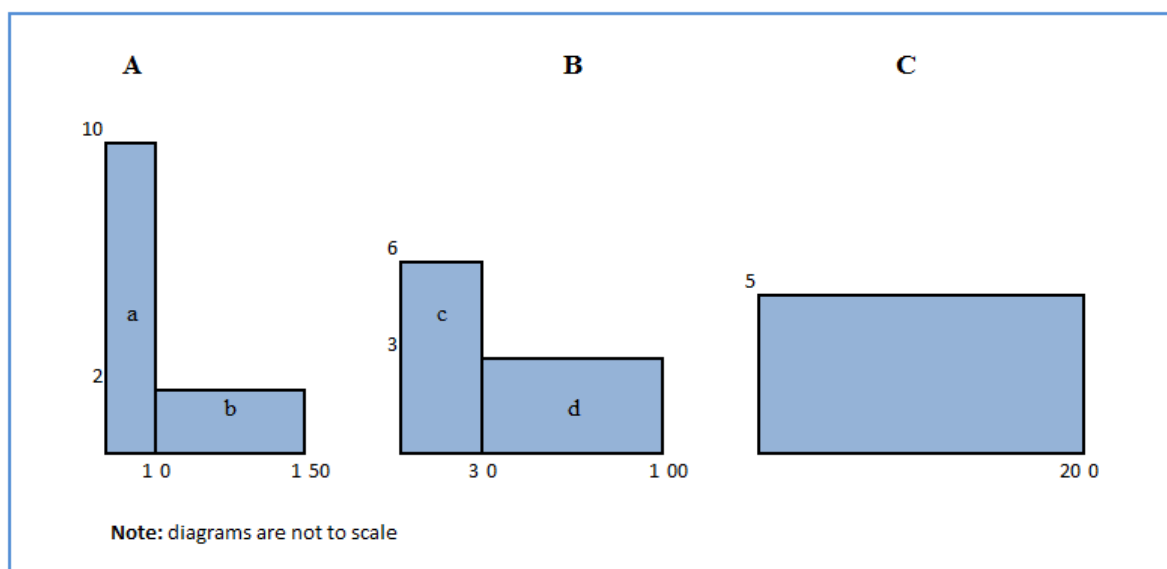
Using this method reveals that Population C is the most morally preferable, then A, then B. This result is consistent with *Postulate 1* to *Postulate 4* and so is to be expected.

Compared with population C, the lack of one being with a utility of 10 units in population B is less preferable than the lack of 200 beings, each with a utility of 3 units, in population A.

I now want to illustrate the second method for making ethical comparisons between populations; the *segment-whole comparison* method. The basic idea here is that for any two given populations, if a homogeneous segment of the first population is morally preferable to the whole of the second population, we can conclude that, all other things being equal, the first population is morally preferable to the second. I will illustrate this with an example.

Consider the three populations depicted in the diagram below; populations A, B, and C. Average utility for each population is represented on the vertical axis, while the running total of the number of beings in each population is represented on the horizontal axis.

Diagram 6 – Comparing utilities of non-homogeneous populations



Population A comprises two segments, labelled 'a' and 'b'. If it turns out that one segment of population A, considered in isolation, is morally preferable to the whole of population B or C, then the combination of segments a and b in population A is morally preferable to the comparison population. Examining the two segments in population A reveals that segment a satisfies this requirement. This judgement is reached by applying *Postulate 3* in §5.1. No member of population B or C has a utility of greater than or equal to $\frac{7}{10}$ ths that of the average utility of segment a. Using the *segment-whole comparison* method, we can conclude that population A is morally preferable to both population B and population C.

One important caveat to applying this method is that the remaining segments of the first population have an average utility of zero or greater. It cannot be the case that a population with miserable beings necessarily outweighs in moral preference another

population simply because some of the happy beings the former contains have an average utility greater than or equal to $\frac{7}{10}$ ths that of the average utility of the beings in the latter population.

In cases of segment-whole comparison such as this, as yet there is no metric available to *measure* the moral desirability of each population. So far, we are unable to determine computationally whether population B is morally preferable to population C. However, with this method, we are able to find out that population A is preferable to B and C. What the *segment-whole comparison* method does is give us a limited ability to order complex populations. A more powerful calculus must await further interpretation of the postulates and equations.¹¹

Now that we have completed this complicated journey through various maximizing principles, what have we achieved? Recall the question that was posed at the beginning of the previous section: Is there some finite number of chickens that can be killed that will outweigh the moral wrongness of the killing of one normal adult human being, all other things being equal? The 'mixed' view maximizing principle developed above allows us to answer this question once we know the relative utilities of the animal being killed and that of the human being.

¹¹The four postulates and four equations advanced in this essay seem to provide the basic structure for an adequate theory of maximization, or what Derek Parfit [1984: part 4] calls 'Theory X'. It appears to satisfy Parfit's four requirements for an adequate theory: it solves the Non-Identity Problem, avoids the Repugnant and Absurd Conclusions and dissolves the Mere Addition Paradox.

6. The Value of Human and Animal Life

We have now in our philosophical toolkit the essentials of a plausible utilitarian population comparator. However, before we are in a position to apply it to the problem of the morality of killing humans *vis-à-vis* animals, our maximizing principle requires further interpretation. What we need to know is the relative utilities of the life of a normal adult human being and the life of a normal sentient animal. More specifically, if we stipulate that the life of a very happy, normal human being is 10 units, on an arbitrary scale of happiness, and that a life that is neither worth living nor not worth living is zero units, what we need to know are the utilities of the normal lives of sentient members of other species. Furthermore, we need to ask: What are the average utilities of the lives of people living in developed and developing countries, those living at peace and in war-torn states, and so on? Answers to these questions will give us some indication of the relative values of the lives of normal human beings and normal animals.

These questions are extremely difficult to answer and, unfortunately, not much work has been done on them to date. I can only propose here a sketchy and tentative solution. The basic idea behind my answer is that, in general, normal human beings are happier than normal animals because they have more satisfied desires. Stated bluntly like this, this answer seems crude and naïve. However, I hope that a little reflection will reveal it to have a measure of plausibility.

Consider our own lives for a moment. Each of us has a vast number of desires, too numerous to count. Even though we cannot identify each and every one of them, it seems clear that for every desire of ours that is not based on false expectations and that comes to be satisfied, we feel happier (or, to put it more accurately, we feel more satisfied). How much happier we feel will, of course, depend on how important we considered our desire to be in our inventory of preferences. Let us ignore levels of importance for the moment.

Now, what happens when we develop a new desire, such as a taste for Beethoven, for philosophy or for wine, that we had not possessed before? If this new desire is satisfied periodically or at the appropriate time, it seems that we become happier for having cultivated this new desire. Our life has gained in richness and variety and, furthermore, in contemplating this added depth to our life, we can become even happier. The conclusion that we seem to be able to draw from this is that the more satisfied desires we have, the happier we are.

Now consider my dog. As dog's lives go, she is a happy dog, but her desires are very limited. I would suppose that she desires tasty food, absence of pain, shelter, companionship, outings in our car, walks and play. I think this just about sums up her basic preferences. Contrast this with her owner. I prefer all of the basic things that my dog prefers and considerably more. It is not that my dog can desire the number and types of things that I desire and that, as a matter of fact, she does not. The point is that my dog does not have the psychological capacities to desire what I desire. If I am right, then, there is an upper limit to how happy a member of the canine species can possibly be, just as there is, no doubt, a limit to how happy a member of *homo sapiens* can be. So, if my dog leads a reasonably satisfying life as far as dogs go and I lead a reasonably satisfying life as far as human beings

go, then the amount of happiness in my dog's life must still be significantly lower than the amount of happiness in my life.

Consider, for a moment, a hypothetical example. Imagine two sentient creatures that are otherwise identical in their desires, except that the first has a desire for continued life while the second has a desire neither for life nor for death. Imagine further that the desires that are satisfied in the second being are exactly the same as those satisfied in the first, except that the first has their extra desire for continued life also satisfied and suspects no impending threat to their life. I suggest that the first creature is happier than the second because they have all of the satisfactions that the second has, in addition to the satisfaction of being alive. This additional satisfaction is akin to our own feeling when we feel happy to be alive.

I appreciate my example is purely hypothetical. The capacity to desire one's own future existence is dependent on the existence of a relatively complex central nervous system, and such a state of complexity brings with it the capacity to possess other complex preferences. Moving beyond the hypothetical, though, further bolsters my argument. For once a being can desire their future existence, they can also have many desires concerning what they are to do with their future life. If self-consciousness is the capacity to recognize oneself as a distinct entity with a past and a future, then there appears to be a sizable gap between the capacities for happiness of a merely conscious creature and those of a self-conscious creature. Just where self-consciousness first appears in the evolutionary continuum between simple vertebrates and the higher-order mammals is a matter in much dispute. I will leave that question to those best qualified to answer.

It may be objected that the capacity for a larger number of desires not only brings with it a larger number of satisfied desires, but also its opposite; a larger number of unsatisfied desires. So, with all things considered, the objection continues, it may be that my life is no happier than my dog's. If I did not have a desire for material possessions, the objector protests, I could not be dissatisfied with not having enough money; if I did not have a desire for music, I could not be dissatisfied with not having enough leisure time to listen to my favourite pieces; if I did not have a desire for knowledge, I could not be dissatisfied with my ignorance; if I did not desire my life, I could not be dissatisfied with its brevity, and so on.

I readily admit that an increased capacity to desire brings with it an increased potential for dissatisfaction. In this important respect, the more neurophysiologically complex the species, the greater is its members' capacity for suffering. However, I do think that once a desire is satisfied beyond a certain degree, this satisfaction will outweigh any remaining dissatisfaction. So, for example, the satisfaction that a normal person obtains from the material comforts that they do have far outweighs their dissatisfaction with not having more; the satisfaction that they gain from listening to their favourite music easily surpasses their frustration at not having more time to spend in this way; the satisfaction that they gain from living their life far outweighs their disappointment at the fact that it will be necessarily brief, and so on.

No doubt, there are some individuals who are miserable from obsessing over these unmet desires. These individuals become so focused on what they don't have that they miss

out on enjoying what they do have.¹² I think these cases are more the exception than the norm and so do not appreciably impact the points I am making here.

The extra utility gained from the possession and satisfaction of desires not possessed by members of other species applies, I think, to most people living in peace in developed countries. For those living in dire poverty or in a war zone and at the borderline of existence, though, these extra desires go largely unsatisfied. In the struggle to scratch out a meagre existence and to just survive, the opportunity to develop such desires as a love of art, knowledge, fellowship, and so on, is largely missed. Sadly, it is not an exaggeration to say that many of these people live lives that are much less worthwhile than my dog's.¹³

We are now in a position to order roughly the utilities of the lives of members of different species, where those lives are reasonably satisfying. The lives of *homo sapiens* have the highest value, followed by the lives of the other higher-order mammals, such as whales, dolphins and chimpanzees. The value of life decreases as we descend the ladder of neurophysiological complexity to the level of reptiles and continue down through to the level of fish until we reach the borderline of sentience at the level of crustaceans.

Given our current state of scientific knowledge, it is extraordinarily difficult, perhaps impossible, to place a numerical value on the worth of individual lives from different species, where those lives are reasonably satisfying. One suggestion is that we simply count the number of types of desires that a creature of a particular species has and correlate this with a scale of values from 1 to 10. An ancillary or alternative suggestion is that we consider how impoverished our own lives would be if we no longer had the capacity to enjoy those things that are unable to be enjoyed by members of other species. Nevertheless, the fact that we do not have at our disposal such a metric will not substantially affect what I have to say. One thing that is clear from the foregoing discussion is that it is harder to justify the killing of a creature that lives a reasonably satisfying life for its kind the further up it is located on the scale of neurophysiological complexity. The taking of the life of a reasonably happy human being appears the most difficult of all to excuse.

¹²This point was raised by Peter Singer in personal correspondence with me.

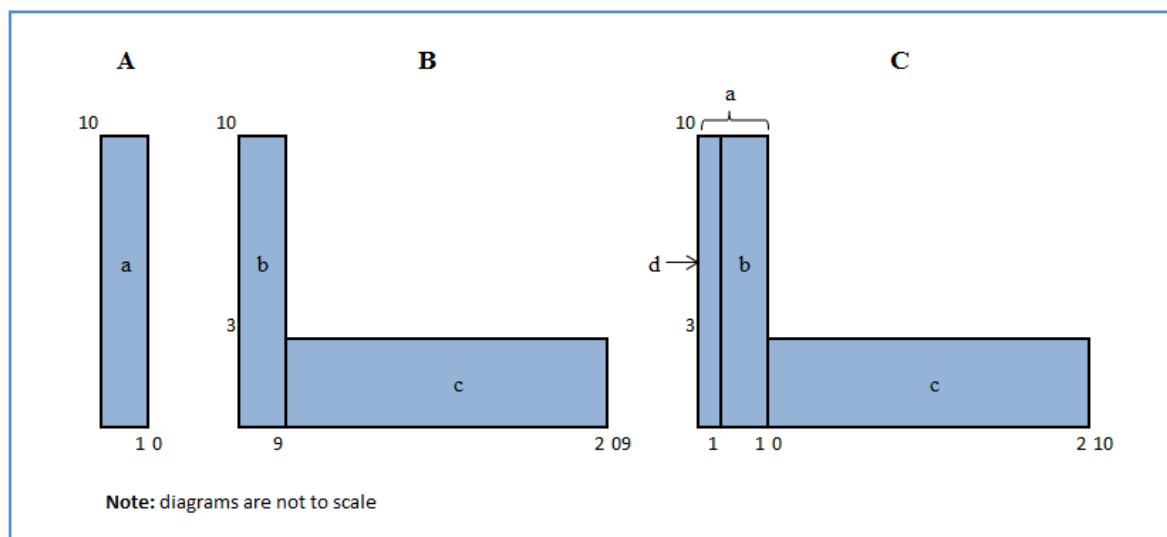
¹³For an alternative utilitarian approach to this daunting problem of interspecific comparisons of utility, see Singer [1979c: 88–90].

7. Lives Killed vs Utility Lost

In the previous section, I argued that if all other circumstances are kept the same, it is worse to kill a happy human being than it is to kill a happy animal. The question arises: Is it also worse to kill a happy human being than it is to kill a large number of happy animals, other things being equal? Is there some number of lives of happy animals whose loss would outweigh the loss of one happy human being, other things being equal? If we had accepted the ‘total’ view maximizing principle, this answer would always be in the affirmative, irrespective of the species of sentient animal considered. All that would be required for the balance to weigh in favour of the animals is that the sum of utility lost through their deaths be greater than the utility of the life of the human being.

As we saw in §5.1 above, the ‘total’ view cannot avoid the ‘Repugnant Conclusion’ and must therefore be rejected. I had also found the ‘average’ view wanting. You may think that the ‘prior existence’ view will give us a convincing answer to our question. This view was devised specifically to overcome the intractable problems with the ‘total’ view and ‘average’ view. On this view, our only obligation is to maximize the aggregate utility of beings that exist, or will exist, independently of the act or rule under consideration. To its detriment, this view also suffers from a repugnant conclusion. And that is that it implies the counterintuitive conclusion that if it were possible to create a number of very happy beings *ex nihilo*, and at no cost in utility to the creator, then the creator would have done nothing wrong if they had refrained from creating these beings. This conclusion runs counter to the central idea underlying utilitarianism.¹⁴

Diagram 7 – Comparing human lives with chicken lives



In contrast, the ‘mixed’ view maximizing principle developed in this essay provides us with a very different answer; one that is both moderate and intuitively appealing. The answer that it gives is that where the average utility of the lives of the animals killed is

¹⁴See my Allan [2015: §5] for a fuller discussion of this criticism.

below a certain threshold (namely $0.7a_y$, where, in this case, a_y is the utility of the life of the human being), then no number of lives of these animals will outweigh the value of a single human life.

This is best illustrated using the scenario pictured previously in *Diagram 4* in §5.4 above. The diagram is reproduced above as *Diagram 7*. In this scenario, I will contrast the moral seriousness of the killing of one human being with that of killing 200 chickens. Putting flesh to this example, let us say that segments b and d in population C is a sub-population consisting of 10 very happy human beings, each with a utility of 10 units. Let us say further that segment c in the same population is a sub-population of 200 very happy chickens, each with a utility of 3 units. (Whether the utility value of 3 units actually does or does not correspond to the utility of a very happy chicken will not affect the point I am trying to make here.)

Consider now alternative populations A and B. Population A is what is left if the 200 chickens in population C are killed. Population B is the population remaining following the killing of one of the human beings in population C. To ensure that we are *only* evaluating the utilities of the lives lost, without considering side-effects, we must stipulate that the killing of the chickens in the one case and the killing of the human being in the other affects the utility of no other being. In this sense, the depiction of populations A and B in *Diagram 7* above assumes all other things are equal leading up to and following the killings.

As we saw in §5.4, applying the 'mixed' view utilitarian calculus to this scenario led to the conclusion that population B is less morally preferable compared with population A. So, the 'mixed' view maximizing principle confirms our intuition that it is worse to kill the single human being (leading to population B) than it is to kill the 200 chickens (leading to population A). And we reached this conclusion in spite of the fact that the total utility of the 200 chickens ($200 \times 3 = 600$ units) is of far greater magnitude than the total utility of the single human being ($1 \times 10 = 10$ units). The 'mixed' view maximizing principle, in contrast with the 'total' view, enjoins us to maximize mixed utility. Comparing mixed utilities using the calculations completed in §5.4 above, we can confirm that the mixed utility of the single human being is 100 units while the mixed utility of the 200 chickens is less at 94.7 units.

The heavy lifting in contrasting the value of a single human life with that of many chickens is done by *Equation 2* in §5.2 above. What this equation signifies is that where the individual utilities of the animals to be compared are less than 0.7 that of the utility of a human being, then no number of such animals will outweigh the mixed utility of that single human being. As the number of animals considered increases, *Equation 2* ensures that their mixed utility asymptotically approaches the mixed utility of the human being. The important point to note here is that this contrast in value not only applies to the comparison between the lives of human beings and the lives of animals, but also more generally to the comparison between any two classes of sentient beings. Human beings have no special privilege in this regard.

Looking at the other side of the coin, if the animal lives to be compared with human lives have average utilities of greater than or equal to 0.7 that of the utilities of the human lives, then there will exist some finite number of animal lives whose loss will be greater than the loss of some specified number of human lives, other things being equal. The difficulty lies in discovering where this threshold of average utility is located on the scale of

neurophysiological complexity. For example, can the value of the life of a normal, happy human being be outweighed by the value of some number of lives of normal, happy chickens? If not, then what of the lives of zebras or dogs or chimpanzees? I am confident that the threshold cannot be as low as the level of chickens, or even dogs. I am inclined to place it at the level of chimpanzees, whales and dolphins, for these higher-order mammals have a level of sentience and richness of life somewhat comparable to normal human beings.¹⁵

It may be objected that the utility of the life of a normal, happy chimpanzee, whale or dolphin is not 0.7 that of a human being. I am inclined to think that this proportion cannot be far off the mark. This objection amply illustrates the observation that talk of abstract units of happiness is not as useful as direct comparisons of the relative worth of individual lives. What I mean by this is that in discussions of this sort, it may be more productive at this stage to try and reach agreement on how many happy lives of the members of a given sentient species will outweigh the life of a happy human being. I suspect this approach may be more useful than trying to place the lives of the members of each species on a scale of worth ranging from 1 to 10.

A related objection is that no animal can have a life that is comparable in richness and variety to that of a normal, happy human. Observing the natural curiosity, the depth of emotional responses and the intricate social behaviour of chimpanzees, whales and dolphins, I find this difficult to accept. A consequence of this objection is that the lives of one million happy chimpanzees are not more valuable than the life of a single normal, happy human being (other things being equal). Given the current state of ethology, I find this view most unpalatable.

What I have been doing here is offering my impressions. This highly complex and difficult question about the relative values of different animal lives, both human and non-human, requires much more thought and discussion. We ought not be surprised by the difficulty of the task at hand. It is only during the last few decades that the view that animal lives have value in their own right is being accepted as an ethical stance requiring serious consideration.

¹⁵See, for example, Goodall [1971: ch. 19] and Jenkins [1976].

8. Preference Utilitarianism and the Replaceability Thesis

8.1 The Theoretical Replaceability Thesis

In this final section, I want to explore further the notion that one sentient being can be replaced with another where doing so leads to no loss of overall utility. For this purpose, I will focus on Professor Peter Singer's characterization of preference utilitarianism and his replaceability thesis.

The theory of duty that I have been advocating here is unreservedly impersonal and unrestricted. What this means is that the scope of our obligation to maximize mixed utility is not constrained to particular beings, such as those that exist in a specific geographical location, or those that exist now or will exist independently of the moral decision at hand. So, for example, if a moral agent were to extinguish the life of a being and replace it with the life of another with equal utility, with the proviso that the creation of the latter being is not possible except for the extinction of the former and the utilities of no other beings were affected, then no wrong would be committed.

Furthermore, this judgement would hold for lives with any measure of utility and whether the beings were merely conscious or self-conscious. The act would not be wrong just so long as the utilities of the lives of the two beings were the same. Now, if such a replacement of one being with another will lead to an increase in mixed utility, either because the life of the replacement being has a higher utility than the one replaced, or because of an increase in the utilities of the lives of other beings, or both, then this action would be morally obligatory. Let us call this view the 'theoretical replaceability thesis'.

In his [Practical Ethics](#), Singer [1979c: chs 4 and 5] does not find this thesis objectionable when applied to merely conscious animals. However, he rejects its application to self-conscious human and non-human animals. For Singer [1979c: 102], 'rational, self-conscious beings are individuals, leading lives of their own, not mere receptacles for containing a certain quantity of happiness', and so their death cannot be adequately compensated by the creation of a similar being. He feels compelled, therefore, to restrict the application of a utilitarian maximizing principle for self-conscious beings to those beings that already exist or will exist irrespective of the action taken.

In addition to adopting a 'prior existence' view for self-conscious beings, for this same class, he also favours 'preference utilitarianism' over classical or 'mental state utilitarianism'. Conjoining these two views, Singer [1979c: 87, 99, 103] states his maximizing principle for self-conscious beings as an obligation to maximize the satisfaction of rational preferences for only those beings that already exist, prior to the decision that is being taken, or at least will exist independently of that decision.

Singer not only wants to hold the 'prior existence' view in order to circumvent the application of the theoretical replaceability thesis to self-conscious beings, but also in order to explain satisfactorily the asymmetry between our moral obligation not to kill and the lack of a moral obligation to bear children. In the previous section, I had already rejected the 'prior existence' view because it contravened a fundamental principle of utilitarianism. Must

we accept it now in order to avoid the seemingly unpalatable consequences of the ‘theoretical replaceability thesis’? I do not think so. In my Allan [2015: §6–§8], I demonstrated how this asymmetry in our obligations is naturally entailed by the ‘mixed’ view maximizing principle conjoined with a type of rules in practice utilitarianism. This synthesis, then, can explain what the ‘prior existence’ view explains without forcing us to accept the unfavourable conclusions of the ‘prior existence’ view.

Secondly, I can appreciate Singer’s aversion to the application of the replaceability thesis to self-conscious beings without being attracted to the ‘prior existence’ view. Rejecting the replaceability thesis does not logically force us to adopt the ‘prior existence’ view. This is because the ‘prior existence’ view entails some moral judgements that are not entailed by the replaceability thesis, given the same ancillary premises. The judgement that a powerful deity is morally blameless for not creating a number of very happy beings *ex nihilo* is an example.

In the final analysis, though, I am inclined to accept the theoretical replaceability thesis in its application to self-conscious beings. To reject it seems to contravene the utilitarian principle of impartiality. If the satisfaction of a desire to live is valuable, then the principle of impartiality entails that one satisfaction of a desire to live is as valuable as another identical satisfaction of a desire to live. The fact that one satisfied desire exists now while another depends for its existence on an agent’s future action is morally irrelevant in deciding what to do. Equal utilities are to count equally.

Consider a scenario in which a mother’s son is playing happily in the park. In this example, the mother knows that her son will derive as much enjoyment from playing at home. However, taking him home will involve an action on her part. The question here is whether the son’s happiness from playing in the park counts for more than his happiness from playing at home. To argue that the former utility should count for more than the latter because it actually exists *simpliciter* appears misdirected. Discounting the latter utility because it is only a possibility whose existence is dependent on the mother’s action is in breach of the principle of impartiality. The ‘prior existence’ view is similarly open to this same charge of partiality.¹⁶

Another problem that arises with the repudiation of the theoretical replaceability thesis is that this rejection looks implausible when we begin to consider replacing one being with many. We may be willing to admit that the replacement of one self-conscious being with another is not adequate compensation for the loss of life of the former. But what if we replace the one self-conscious being with two? If it is felt that this is still insufficient compensation, then what of replacing them with 5 or 10 or 1000 self-conscious beings? It seems plausible to suggest that there is some finite number of lives that would serve as adequate compensation for the loss of one. Singer [1979c: 81, 83] allows that a preference for life ‘could sometimes be outweighed by the preferences of others’. However, accepting as he does the ‘prior existence’ view, these preferences can never be the preferences of replacement beings whose existence depends on the decision of a moral agent.

¹⁶Sumner [1981: 211–17] provides a good discussion on maximising principles and the principle of impartiality. For a specific criticism of Singer on this point, see also Lockwood [1979: 159ff].

The surest answer to this question of replaceability, I think, is that provided by the principle of impartiality. Applying this principle means that it is morally permissible for one self-conscious being to be replaced by another of equal utility, all other things being equal. We should not discard the principle of impartiality simply because it leads to one seemingly counterintuitive result. To do this would be akin to rejecting a framework principle in science, such as the principle of the conservation of mass and energy, just because of a single experimental anomaly. In scientific practice, such a rejection would lead to the loss of theoretical justification for countless many experimental procedures, subsidiary theories and laws, with no more adequate replacement available. To abandon the principle of impartiality in utilitarian ethics, likewise, would deprive us of a theoretical justification for race, gender and species equality, with no better theory to replace it.

8.2 *The Practical Replaceability Thesis*

The 'theoretical replaceability thesis' allows for the replacement of one self-conscious human being with another of equal utility on the condition that all other circumstances are identical. This consequence appears shocking to some. I suggest that this startling result appears counterintuitive for two reasons. Firstly, *in practice* the killing of one normal, adult human being cannot be compensated by the production of another. For the human being killed, the potential future happiness brought to the lives of those close to the person cannot be replaced, nor can the sense of enormous loss be compensated, by the production of a new human being. Rational, autonomous human beings are not like plastic dolls; that if one gets broken another will do just as well.

Secondly, there are no conceivable circumstances in which an organized society would countenance the killing of rational, self-conscious human beings as a prerequisite to bringing into existence another such being and as a way of maximizing utility. Even if it were practically possible for a single act of replacement to maintain or increase utility, a social practice set up along such lines and allowing such motives as an excusable defence for killing rational, self-conscious human beings would rapidly lead to social disintegration. Such a practice could not possibly survive because of the intolerable strain placed on people's need for security. These comments similarly apply to non-human societies, but to a lesser extent, in which the adult members are self-conscious.

Let us call the alternative thesis that it is practically feasible for a society of self-conscious individuals to establish and maintain such a practice, with utilitarian warrant, the 'practical replaceability thesis'. It is only because the practical replaceability thesis looks absurd that the theoretical replaceability thesis seems counterintuitive.¹⁷ But replaceability as a means of maintaining or maximizing utility can only be the prerogative of very special beings in incredibly unusual special circumstances. These beings must be a kind of deity with only limited power in some respects, but very powerful and intelligent in others. They are the kind of being who is able to kill rational, self-conscious individuals without negatively affecting the happiness of other beings by, for example, increasing their fear of being similarly killed. Furthermore, these deities must have the capability of creating new self-conscious beings with the same or greater utilities than the ones killed, but can only create such new beings on the condition that they kill an identical number of pre-existing individuals. Once we realize that, in the real world, such special conditions could not possibly be met, our disquiet over the theoretical replaceability thesis ought to be settled.

However, for Singer, this cannot be the whole story. While rejecting the application of the practical replaceability thesis to merely conscious animals, he none the less accepts the application of the theoretical replaceability thesis to these same creatures. Why this disparity with self-conscious creatures? I suspect that this incongruity is due to the fact that the application of the practical replaceability thesis to self-conscious beings seems so much more shocking than the application of this thesis to merely conscious animals. In this case, I think we need to put aside our initial intuitive impressions and favour a coherent and consistent approach to replaceability. Consider how difficult it is to justify the application of

¹⁷I have also argued against the practical replaceability thesis in its application to normal, adult human beings in my Allan [2015: §8].

the practical replaceability thesis to merely conscious beings.¹⁸ Now consider how much more difficult it is to justify its application to self-conscious beings. The implausibility of the practical replaceability thesis when applied to both merely conscious and self-conscious animals should strengthen our confidence in accepting the theoretical replaceability thesis in both cases without fear of dire consequences.

Singer [1979c: 102] points out that his acceptance of the application of the theoretical replaceability thesis to merely conscious beings and his rejection of its application to self-conscious beings is consonant with the much greater seriousness he places on the killing of the latter compared with the former. This greater seriousness of killing self-conscious beings cannot, he maintains, be adequately accounted for on a 'classical' or 'mental state' version of utilitarianism, such as the one that I have been advocating here. Singer [1979c: 78–81] concludes that we need to adopt 'preference utilitarianism' for such beings.

Is it true that the classical 'mental state' view cannot account for the greater moral gravity of killing self-conscious beings? Before addressing this question, I want to make a related point concerning Singer's form of utilitarianism. Singer [1979c: 12f, 80] adopts 'preference utilitarianism' not only to account for the extra seriousness of killing self-conscious individuals, but because he believes this to be the form of utilitarianism that follows from the universalisation of our interests. Such universalisation, he maintains, is the meta-ethical prerequisite for moral thinking. This second reason of consistency with meta-ethical principles allows Singer to escape comfortably the charge of making an *ad hoc* revision to square his theory with considered judgements about the seriousness of killing self-conscious *vis-à-vis* merely conscious individuals.

But why, then, does Singer retain a classical view for merely conscious beings? His stated reason that it is required by 'the universal aspect of ethical judgements' [1979c: 85] sounds very odd following his rejection of the classical 'mental state' view precisely because it does not follow from the universalisation of our interests. His retention of the classical view also cannot be grounded in a rejection of the view that merely conscious animals have interests. He steadfastly maintains that merely conscious animals *do* have interests. And that they do is absolutely essential to Singer's application [1979c: ch. 3] of the utilitarian principle, the principle of equal consideration of interests, to animals.

It may be the case that Singer has retained the classical view for merely conscious animals because to have also adopted a 'preference utilitarianism' in regard to them would have made the rejection of the application of the theoretical replaceability thesis to self-conscious individuals harder to defend. If we were asked to maximize the satisfaction of rational preferences for all beings, merely conscious and self-conscious alike, then the desire for life is simply one amongst many. And if the satisfactions of these other desires are replaceable, then it is not intuitively obvious why the desire for life should be singled out for special treatment as being irreplaceable. This reasoning may explain why Singer has

¹⁸For rebuttals of the application of the practical replaceability thesis to merely conscious animals, see Singer [1976: 169–74, 1979c: 100f, 1980a: 249f, 1980b: 332–4].

tenaciously avoided the adoption of the preference view for merely conscious beings, as is demanded by his meta-ethical theory.¹⁹

Let us return now to the question I posed above: Is it true that the classical ‘mental state’ view fails to account for the greater moral gravity of killing self-conscious beings? According to Singer [1979c: 78–81], on a classical view, the *only* difference in seriousness between the killing of a self-conscious being and the killing of a merely conscious being is due to the extra loss in utility resulting from the side-effects of killing a self-conscious individual. On this view, if I kill a self-conscious being and it became known to other self-conscious beings, then they would worry that their lives were also in danger, thereby reducing their happiness. As Singer points out, if the killing is committed in complete secrecy, then even this extra reason for not killing self-conscious individuals vanishes.

The answer to this question consolidates the points made in this essay. In §6 above, I argued how the normal life of a self-conscious being has much greater utility than the normal life of a merely conscious being. This is because the capacity for self-consciousness brings with it a whole host of new desires, including desires for the future. So, on the classical view that I propose, the killing of a normal, self-conscious being is much worse than the killing of a normal, merely conscious being, because, other things being equal, it leads to a much greater loss of utility. This loss of utility is greater not only because of the additional side-effects of the killing; that is, the effects on the utilities of those left alive. Most importantly, the greater loss is also direct; from the greater loss of utility of the self-conscious individual themselves.

The greater loss of direct utility from the killing of a self-conscious being happens whether the killing occurs in secret or not. In addition, the rules in practice that human beings and other self-conscious social animals adopt on mutually beneficial grounds morally prohibits the killing of fellow social members more so than merely conscious animals. The normative theory behind the rules in practice that deem such killings more serious is consistent with a ‘mental state’ version of utilitarianism.²⁰ For these reasons, I consider the ‘mental state’ view to account naturally and easily for the greater moral approbation we give to the killing of self-conscious beings.

I further suggest that the view on killing self-conscious beings, including humans, and other animals proposed here avoids the difficulties in Singer’s position without sacrificing its advantages. The view proposed is embedded within a unified utilitarian framework that is appealing because of its coherence and simplicity. It contains a single maximizing principle that avoids the problems of earlier views and sports a single theory of value; namely the classical ‘mental state’ theory.

In contrast, Singer has adopted two maximizing principles; the ‘total’ view for merely conscious beings and the ‘prior existence’ view for self-conscious individuals, both of which are encumbered with serious difficulties. He has also adopted two theories of value; the classical view for merely conscious beings and the preference view for self-conscious beings. This complication necessitates the development of a theory that will explain how these two

¹⁹In personal correspondence with me, Peter Singer indicated that he is now inclined to apply ‘preference utilitarianism’ to merely conscious animals as well.

²⁰I refer the reader to my Allan [2015: §3] for the development of such a view.

types of value are to be balanced in cases where they conflict with each other. A clear example of such a conflict of values is where we are forced to choose between saving one self-conscious human life and many merely conscious animal lives.

Furthermore, the theory that I have advocated here explains in a coherent and systematic way the increasing seriousness of killing an animal as we ascend the ladder of neurophysiological complexity. It explains naturally the much greater seriousness we attribute to the killing of a self-conscious individual compared with the killing of a merely conscious being. Also accounted for is the asymmetry between our obligation not to kill an adult human being and the lack of obligation to bear children.²¹

A few brief remarks are warranted concerning the implications of the 'mixed' view maximizing principle for our obligation to optimize non-human animal populations. An optimum population size, according to this principle of maximization, is one in which mixed utility is maximized.²² Ought we manipulate, using the technology we have available, the population size of each natural, non-human species in order to achieve some desired optimum? The short answer to this question is that there appears to be no conceivable means of manipulating natural ecosystems in a way that will increase mixed utility. Firstly, as far as we can tell, the mixed utility of a species' population cannot be increased by *reducing* the population size. (The exceptions here are cases of epidemic population growth that threatens the survival of other species within the same ecosystem.)

Secondly, to increase the population size of some species requires the importation of extra food resources from outside the ecosystem. These extra food resources, though, are better utilized in feeding severely undernourished human populations. Disadvantaged human populations possess a much higher potential for an increase in utility compared with non-human populations. It may be thought that it would be best, then, to kill all non-human animals in order to make extra room for an increase in human populations. However, this option is not feasible because of the already existing enormous difficulties we encounter in human populations with inequitable food distribution, rapid resource depletion, environmental pollution and global warming.²³ It seems, then, that it is not only in the interests of natural, non-human populations that we leave them substantially alone, but it is also in our human interests.

²¹On this last point, see my Allan [2015: §6–§8], where I deal with the problem of asymmetry in some considerable detail.

²²See my Allan [2015: §5]

²³See, for example, Meadows *et al* [1974].

9. Conclusion

The killing of a human being is judged with the utmost seriousness in most ethical and legal systems. The killing of an animal typically does not garner the same level of consideration, the act often being treated as a mere adjunct to human concerns. This essay explored the ethical principles and moral reasoning underpinning such a dualist approach to killing. Examining first rights-based and social contract theories, I argued that these theories failed to capture within a coherent framework all of our obligations; especially to children and mental defectives. Similarly, utilitarian approaches to grounding moral rights either demote our obligations to these same moral entities or ignore the deontic nature of rights.

The necessarily impartial nature of ethical discourse combined with a naturalistic view of duty led me to adopt a utilitarian schema for deriving our obligations to moral entities. From considering what things have intrinsic value, I concluded that the beings to which we owe direct duties are those that are sentient. The higher the being's level of sentience, I argued, the stronger is our obligation to avoid killing it. This means that our *prima facie* obligation to avoid killing higher-order mammals, such as apes and human beings, is more stringent than our obligation to avoid killing vertebrates with a lower level of neurophysiological complexity.

A complication arose when we considered the relative wrongness of killing a single human being compared with the killing of many animals with lower levels of sentience. I demonstrated how the traditional 'total' and 'average' utilitarian maximizing principles did not do justice to our considered moral judgments. To remedy the problems with these traditional views, I formulated four utility maximization postulates that combined the insights of the 'total' and 'average' views and I further refined my 'mixed' view maximizing principle. On the basis of the revised principle, I demonstrated how it accounted for our intuition that below a certain threshold level of sentience, no number of deaths of animals could outweigh the wrongness of the killing of one human being.

I considered the objection that the 'mental state' theory of value combined with the 'mixed' view maximizing principle I advocate does not adequately account for the greater seriousness with which we treat the killing of a self-conscious being compared with the killing of a merely conscious being. My discussion of the difficulties faced by Singer's preference utilitarianism and his 'prior existence' maximizing principle illustrated how using my framework avoids the inconsistencies and complexities faced by his view. I demonstrated how my schema accounts directly for the greater gravity we attribute to the killing of a self-conscious being while providing a coherent and credible framework for guiding our moral judgements on killing across the whole animal spectrum.

The story does not end here. Further discussion needs to be embarked on with the aim of gaining a consensus on the threshold level of sentience below which no number of killings will outweigh the killing of a single human being. More work also needs to be expended on refining the 'mixed' view maximizing principle so that it can be applied to a greater range of scenarios with more mathematical elegance.

Even though the theory is in its infancy, the framework that I have developed here is a significant step forward in ethical theory. It explains in a systematic and consistent fashion

the increasing seriousness with which we view the killing of an animal as we progress along the continuum of increasing neurophysiological complexity. It also accounts for our judgements about the greater wrong committed in killing a self-conscious being compared with the killing of a merely conscious animal. Most importantly, it accords sentient animals the status of primary moral entities to which we owe direct moral obligations. Hence, the implications of the conclusions reached in this essay are far reaching. These findings impact on a host of issues in human and animal ethics where sanctity of life arguments dominate. They are well-placed to inform our attitudes to wild-life hunting, factory farming, scientific experiments on embryos and animals, euthanasia and abortion.²⁴

²⁴I am indebted to Christopher Bartley [La Trobe University] for discussing with me some of the issues raised in this essay and to Professor Peter Singer for his thoughts and critical comments on an earlier version of this essay.

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