Normative Uncertainty and Wild-Animal Suffering

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Abstract: Should we intervene in nature to reduce or prevent wild-animal suffering, or instead use our resources on other matters? Roughly, this is our research question, framed as a decision under normative uncertainty. Someone has to make such a decision iff she has credence in at least two ethical propositions that prescribe multiple options. We apply two theories for decision-making under normative uncertainty to our decision, "My Favourite Theory" (MFT) and "Maximize Expected Choice-Worthiness" (MEC), which we both also evaluate. We conclude that we should reject two versions of MFT and that although MEC is more promising than MFT, we should reject three of the four methods that comprise it. We conclude that we should accept the central method of MEC in part because of two novel arguments in favour of the possibility of making intertheoretic value comparisons. Furthermore, we conclude that the correct decision theory should abide by two principles, namely Dominance and the Principle of Equal Say. (See below for an extended abstract).

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[1] I included an extended abstract and made some stylistic changes.

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This thesis was written, via the Effective Thesis Project,[2] for Wild-Animal Suffering Research (WASR), a research group conducting interdisciplinary research with the purpose of finding effective interventions to improve the well-being of wild-animals.[3] Any remaining mistakes are mine. The views expressed here do not necessarily represent those of anyone else.

[2] <http://effectivethesis.com/>.

[3] <https://was-research.org>. Note that WASR has merged with Utility Farm to form Wild Animal Initiative since I finished the official version. See <https://www.wildanimalinitiative.org>.

Extended Abstract

What is the impact of normative uncertainty on the prioritization of wild-animal suffering? This is the research question I started with, posed by WASR. The case of wild-animal suffering concerns the question of what we ought to do about the immense amount of suffering amongst wild-animals. Should we intervene in nature to reduce or prevent (some) wild-animal suffering, or instead use our resources on other matters? Different ethical theories can prescribe different options. If we are uncertain about which ethical theory (or value, proposition, etc.) is correct or which we should accept, this is referred to as *normative uncertainty*. If we have to make a decision while giving credence to various ethical theories that prescribe different options, we face a *decision under normative uncertainty*. Suppose that we face such a decision and that one of our options is to intervene in nature to prevent some wild-animal suffering. How should we choose? What would be the impact of our normative uncertainty on the prioritization of this wild-animal suffering? (For more a more detailed explanation of the case of wild-animal suffering and (decision-making under) normative uncertainty, see the *Introduction*, pp. 9-11).

The impact of normative uncertainty seemingly differs considerably per case. Firstly, different people give credence to different ethical theories. Someone might give credence to many ethical theories according to which we should intervene in nature, while another might give credence to only one ethical theory according to which we should. Secondly, even for those that give credence to the same ethical theories, the precise credences they give might differ. Someone might give credence of 2% to utilitarianism and 98% to prioritarianism, while another gives 71% to utilitarianism and 29% to prioritarianism. Thirdly, per case the available options can differ. Someone might be able to choose between intervening to relieve wild-animal suffering, alleviating poverty and reducing harm on factory farms, while another can only choose between intervening in nature and decreasing the risk of damage from climate change. Fourthly, the interventions available to people can differ. Perhaps someone is only able to donate money to alleviate wild-animal suffering, while another can only donate time. Clearly, it is impossible to consider all cases. I focused on one very much simplified case. It is more of an illustration of how normative uncertainty might impact one's prioritization of wild-animal suffering than a general answer to the original research question.

In the case I settled on, I assume that we potentially give credence to only four ethical theories. I developed these by combining values or views held by seemingly most EAs. All theories are *maximizing* (roughly, we should choose only the best option), *welfarist* (roughly, in evaluating options we only consider well-being) and *impartialist* (roughly, we give equal weight to everyone, not more to, e.g., ourselves or those we love) consequentialist ethical theories. The first, T_1, gives weight only to the well-being of *actual* (currently living) humans; T_2 only to the well-being of actual humans and animals; T_3 to the well-being if actual and *possible* humans, that is, future generations of humans); T_4 to the well-being of actual and possible humans and animals. Clearly, many EAs hold other values (as well). Some value biodiversity, some lean towards environmentalism, virtue theory or deontology. Unfortunately, it was impossible to include all this. (For more details on the ethical theories of the case, see section one, *Preparations, §1. Theories*, pp. 12-3).

Besides four theories, I settled on three options other than intervening for the sake of wild-animals. These other options are three EA-causes (roughly, sets of related opportunities): focussing on climate change, relieving suffering on factory farms, and alleviating poverty. It is not fully specified what it means to choose any of these options, or what the consequences of choosing any of them are. Considering only four rough options in total is less than ideal, so this counts as another simplification and limitation. Regarding the intervention in nature for the sake of wild-animal suffering, this is also unspecified, in the sense that it is left open precisely what kind of intervention we are talking about, and precisely what its consequences are. When introducing the option of intervening in nature for the sake of wild-animals, I offer a novel argument that, tentatively, shows that it is likely that an enormous amount of wild-animal suffering can be prevented by intervening. Note, first, that there are roughly $9{,}16 \times 10^{21}$ wild-animals, many of which can likely suffer. Second, there are various tools that could be used to intervene (vaccines, pesticides, contraceptives, provisions of additional food, etc.), each of which can be used for a variety of purposes. Combined there are millions of possible interventions. It is incredibly likely that out of all possible interventions, *at least some* are expected to prevent or alleviate an enormous amount of wild-animal suffering. (For the more developed version of this argument and the treatment of all four options, see section one, *Preparations, §2. Options*, pp. 13-6).

All four options are ranked by all four theories. Since we should intervene according to T_4 (which gives weight to the well-being of actual and possible humans and animals), but not according to $T_{1\text{-}3}$, we face a decision under normative uncertainty. Since all theories are underdetermined and all options rough, the rankings are simplified. (For the specific rankings, see section one, *Preparations, §3. Rankings*, pp. 16-7).

Now, how should we decide under normative uncertainty? Unfortunately, there is no consensus on how we should take normative uncertainty into account. Different normative theories for decision-making under normative uncertainty (metanormative theories for short) have been developed. I apply two metanormative theories to the case–"My Favourite Theory" (MFT) and "Maximize Expected Choice-Worthiness" (MEC)–which I both also evaluate. In the discussion of both metanormative theories, I discuss the most relevant arguments offered so far. Treating all arguments is unfortunately beyond the scope of this thesis.

In section two (pp. 18-26), I treat two versions of MFT. Roughly, what we ought to do according to this metanormative theory, is act on the ethical theory to which we give most credence. The first version was suggested by Edward J. Gracely (1996), and it can be defined as follows:

> *MFT_1*: A subject S ought$_2$ to choose an option *x* iff x ought$_1$ to be chosen by S according to the theory S has most credence in.

Ought$_1$ is the ought of normative theories (such as $T_{1\text{-}4}$), ought$_2$ is the ought of metanormative theories (such as MFT_1). According to MFT_1, we should (ought$_2$) intervene in nature to prevent WAS iff we give more credence to T_4 than to any of $T_{1\text{-}3}$. However, as I conclude after the discussion of MFT_1, we should not accept this metanormative theory. (For the discussion of MFT_1, see section two, *My Favourite Theory, §1. MFT_1*, pp. 18-22).

Two revisions of MFT_1 by Johan E. Gustafsson & Olle Torpman (2014) dealing with some problems treated in the discussion of MFT_1 lead to a second version, MFT_2. This complicated metanormative theory can be defined as follows:

> *MFT_2*: A subject S ought$_2$ to choose an option *x* iff
> (a) *x* ought$_1$ to be chosen by a theory X_1 which

(i) is given at least as much credence by S as any other theory, and

(ii) has not been violated by S more recently than any other theory which is given at least as much credence, and

(b) there is no option *y* and no theory X_2 such that

(i) S ought$_1$ to choose *y* and not *x* according to X_2, and

(ii) there is no theory X_3

(1) which is at least as credible as X_2 for S, and

(2) according to which we ought$_1$ to choose *x* and not *y*.

Understanding MFT_2 requires some unpacking. It is noteworthy that according to MFT_2 we should intervene to prevent WAS iff we have a credence of 0 in T_2 and T_3 and have more credence in T_4 than T_1 *or* we have a credence of 0 in T_2 and T_3 and have equal credence in both T_4 and T_1, but have never violated T_4, or have violated T_1 more recently than T_4. We should not give credence of greater than 0 to T_2 and T_3 because MFT_2 (contrary to MFT_1) follows:

Dominance: A subject S ought$_2$ not to choose an option *x* if

(a) S ought$_1$ not to choose *x* but an option *y*, according to at least one theory S has credence in.

(b) S ought$_1$ to choose *x* but not *y*, according to no theories S has credence in.

Although MFT_2 rightly follows Dominance, I conclude after my discussion of MFT_2 that we should not accept this metanormative theory. (For the discussion of MFT_2, see section two, *My Favourite Theory, §2. MFT_2*, pp. 22-25).

In the discussion of MFT_2, I offer a new objection to it. Gustafsson & Torpman rightly claim that the correct metanormative theory (which they argue is MFT_2), if the normative theory to which you give most credence yields a tie (that is, allows you to choose multiple options), should take into account information provided by the second most credible theory. For instance, suppose I hold that T_1 is most credible, and it tells me that I can choose two options. Suppose furthermore, that according to T_2, my second favourite theory, I should choose the first of these two options, but not the second. That according to my second favourite theory I should choose only of option seemingly should be taken into account by the correct metanormative theory. However, I offer an example showing that MFT_2 does not always

take such information into account. (This objection is argument (11), which can be found on p. 24).

In section three (pp. 27-42), I explain, apply and discuss a second metanormative theory, referred to as Maximize Expected Choice-Worthiness (MEC), developed by Will MacAskill (2014). It is similar to expected utility theory, according to which we, roughly, should take both credences and weights given to possible outcomes of options into account. However, MacAskill's metanormative theory is pluralistic. Depending on the normative theories we give credence to, we have to apply one of four different methods. After some setting up in *§1. Concepts & Outline* (pp. 27-8), I explain, apply and discuss each of these methods in *§2-5* (pp. 29-41). I consider my explanation and application of the methods of MEC to be one of the more speculative parts of my thesis. MacAskill's metanormative theory is difficult, and especially his treatment of the methods referred to as Variance Voting (*§3*, pp. 33-6) and the Hybrid View (*§5*, pp. 38-41) remain quite abstract, making it difficult for me to determine whether I have properly understood them. I will not discuss all four methods here. What is worth mentioning is that according to all we ought$_2$ *not* to intervene if we give credence greater than 0 to T_2 or T_3, similar to MFT_2, since all methods follow Dominance. Furthermore, according to all methods, we should give more credence to T_4 than to T_1 for us to ought$_2$ to choose to intervene to alleviate WAS. If we do so, however, we ought$_2$ to intervene in nature according to MEC. I reject three of the four methods of WAS, mainly because of objections by Tarsney (2017).

I accept MEC's first method, also referred to as Maximize Expected Choice-Worthiness, (§2, pp. 29-33). In the discussion of this method, I offer two original arguments concluding that at least sometimes, it is possible to make *intertheoretic comparisons of value*: claims that according to an ethical theory an option is more, less or as valuable as it (or another option) is according to another ethical theory. For example, the claim 'lying is worse according to Kantianism than according to utilitarianism' is an intertheoretic comparison of value. Such comparisons are necessary for applications of this first method of MEC. If they are never possible, the method can never be applied. The first argument that they are at least sometimes possible is an example of a comparison between two theories, where the comparison is clearly possible since it relies only on the possibility of doing basic mathematics (see argument (19) on p. 32). The second argument shows that if intertheoretic comparisons of

value are never possible, we cannot argue that ethical theories are correct or incorrect (in some respects), which is unacceptable. Hence, they are at least sometimes possible (see argument (20) on pp. 32-3). (For an overview of all my main conclusions and results, see the *Conclusion*, pp. 43-4.).

Introduction

There is an enormous amount of wild-animal suffering (WAS for short). Since there might, roughly, be as many as $9{,}16 \times 10^{21}$ wild-animals,[4] a significant number of which are likely to be capable of suffering,[5] this is unreasonable to deny. Concern for WAS can be traced as far back as John Stuart Mill (1874), but it seems that only in the last decades it has attracted an amount of attention somewhat worthy of its seeming importance.[6] Interventions in nature focused on the well-being of wild-animals have already been carried out, although these have not necessarily been ideal. For example, additional food was provided to nonhuman animals (animals for short) in the Dutch nature reserve Oostvaardersplassen.[7]

But, should we intervene in nature to relieve or prevent WAS? Note that humans already intervene in nature, generally because of benefits for humans or environmental reasons.[8] Most accept such interventions, but intervening for the sake of wild-animals is controversial. Although some of us might give more credence to the position that we should intervene rather than that we should not (or vice versa), few of us, if any, can reasonably claim to be certain.

Our uncertainty could be empirical. We might give some credence to the position that interventions are always likely to cause over-all suffering.[9] However, some interventions, such as mercy killing, seem unlikely to cause over-all suffering.[10] Most proponents of intervention are aware of the potential dangers and argue for careful consideration before intervening.[11] We will assume interventions with an expected increase in well-being are possible. From here on out we will consider only such interventions.

Our uncertainty could also be normative. We might believe we perhaps ought not to intervene because there is a more pressing matter, such as helping humans living in poverty. We could say that we are normatively uncertain (or morally uncertain):

[4] Ray (2017a). See also Tomasik (2018).
[5] E.g., Ng (1995, esp. pp. 269-72).
[6] Besides the founding of WASR in 2016, see, e.g., Ng (1995); Horta (2010a); Faria & Paez (2015); Tomasik (2017).
[7] Staatsbosbeheer (2018).
[8] Horta (2010a, p. 84).
[9] As, roughly, argued by Singer (1973). See also Everett (2001) and Delon & Purves (2018).
[10] Palmer (2015, p. 205). See also Brennan (2017).
[11] See, e.g., all authors mentioned in footnote 6.

Normative Uncertainty: A subject S is normatively uncertain if and only if (iff for short) S gives credence to at least two ethical propositions that are at least occasionally conflicting.

Although there is some discussion over whether we should take normative uncertainty into account,[12] we will assume we should. That we are normatively uncertain does not mean we have to be uncertain about what we ought to do in every situation, since the ethical propositions to which we give credence could prescribe the same option. However, sometimes we might have to decide under normative uncertainty:

Decision-making under Normative Uncertainty: A subject S has to make a decision under normative uncertainty iff S has credence in at least two ethical propositions prescribing different options in the situation S is in.

The traditional method of trying to properly make decisions under normative uncertainty is seemingly evaluating arguments pro and con the propositions in question, aiming to end the uncertainty.[13] Since there is still much disagreement amongst philosophers about normative matters in general,[14] and since little research is done on whether we ought to intervene for the sake of wild-animals, it is impossible for at least most people to reach certainty this way.

The approach we will pursue takes our uncertainty into account. We should, the proponents of this approach argue, apply the correct normative theory for decision-making under normative uncertainty (metanormative theory for short) to properly decide whether we should intervene.[15] Unfortunately, decision-making under uncertainty has only recently attracted considerable attention,[16] so it is unsurprising there is no consensus about which metanormative theory is correct.

To decide under normative uncertainty, we need at least one option besides intervention, and at least two normative theories (theories for short) which we will assume to give credence to. As a guide for our selection of options and theories, we will use the likely preferences of most EAs, since they are the intended audience of this thesis.

In the first section, we will introduce our theories and options. We will conclude with, for

[12] E.g. MacAskill (2014, pp. 6-11); Weatherson (2014); Harman (2015); Sepielli (2016); Hedden (2016, esp. pp. 121-6); Bykvist (2017); Tarsney (2017, pp. 39-96).
[13] MacAskill (2016, p. 1000).
[14] Bourget & Chalmers (2014, p. 476).
[15] The term "metanormative theory" is borrowed from MacAskill (2014).
[16] Bykvist (2017).

each theory, a ranking of all options, based on the relation "ought to be chosen rather than." Since our theories produce different rankings, we have to decide under normative uncertainty.

In sections two and three, we will apply and discuss two metanormative theories.[17] Firstly, we will treat two versions of "My Favourite Theory." The first was suggested by Edward J. Gracely (1996), the second by Johan E. Gustafsson & Olle Torpman (2014). Roughly, what we supposedly ought to do, is act on the theory to which we give most credence. Secondly, we will discuss "Maximize Expected Choice-Worthiness", developed by Will MacAskill (2014). Roughly, it is similar to expected utility theory, according to which we, roughly, should take both credences and weights given to possible outcomes of options into account. However, MacAskill's metanormative theory is pluralistic. Depending on the theories we give credence to, we have to apply different methods.

Note that we will use "ought" in two ways: there is the ought of our theories ($ought_1$) and our metanormative theories ($ought_2$). We will occasionally refer to options using *x*, *y* and *z*, and to theories using X, X_1, X_2,...,X_n.

We can now state our research question–should we intervene for the sake of wild-animals or do something else, if we frame our decision as one under normative uncertainty?–more precisely:

> If we have to decide under normative uncertainty which of the options from section one we $ought_2$ to choose because we give credence only to at least two theories from section one, when $ought_2$ we to choose to intervene according to the metanormative theories from sections two and three?

[17] Other metanormative theories have been proposed by, among others, Lockhart (2000), Bostrom (2009), and Tarsney (2017). However, considering all proposed metanormative theories is beyond the scope of this thesis, so we will refrain from discussing any other than "My Favorite Theory" and "Maximize Expected Choice-Worthiness."

1. Preparations

We will make the necessary preparations for the applications of the metanormative theories. In §1 we will introduce the theories to which we will assume to possibly give credence. In §2 the intervention and other options will be introduced. We will end with a ranking of all options for each theory in §3.

§1. Theories

We will develop our theories by combining values or views held by seemingly most EAs.

What do most EAs value? Firstly, well-being, the amount of which should be maximized.[18] Secondly, impartiality when making ethical judgments or decisions.[19] Thirdly, many EAs accept that in the case of empirical uncertainty the option with the highest expected value should be chosen.[20] We can combine this as follows:

> *T_1*: A subject S ought$_1$ to choose an option *x* iff *x* maximizes expected well-being considering impartially only all actual humans.

But, many EAs oppose speciesism (roughly, discrimination based on species).[21] So, we can restate our first theory as follows:

> *T_2*: A subject S ought$_1$ to choose an option *x* iff *x* maximizes expected well-being considering impartially only all actual humans and animals.

But, many EAs also give weight to the well-being of future generations, that is, possible people or animals. We might alter T_1 as such:

> *T_3*: A subject S ought$_1$ to choose an option *x* iff *x* maximizes expected well-being considering impartially only all actual and possible humans.

And T_2:

> *T_4*: A subject S ought$_1$ to choose an option *x* iff *x* maximizes expected well-being considering impartially only all actual and possible humans and animals.

[18] MacAskill (2017).
[19] Idem.
[20] Not all do, however, see e.g. EA Concepts (n.d.).
[21] Singer (2015, chapter 13).

These are our theories.[22] They can be rewritten in at least the following ways without altering the rankings given below in §3. Firstly, we can replace "maximizes expected well-being" with "minimizes expected suffering," which some EAs would prefer.[23]

Secondly, some EAs lean towards deontology,[24] which we can deal with by adding to our theories deontological constraints, that is, roughly, conditions according to which we ought$_1$ not to choose options requiring us to perform certain acts, even if doing so would produce a better outcome over-all.[25] Examples are that it is (almost) always wrong to murder, or lie. Fortunately, none of our options requires us to violate these or other commonsensical constraints.

Finally, note that our theories are underdetermined. But, at least conditions specifying that we ought$_1$ to aim for total or average well-being can be added without altering the rankings.

§2. Options

Besides giving a brief description of our options, we will determine roughly what the result of our choosing an option is in terms of well-being for actual and possible humans, and actual and possible animals. We will use the terms "enormous," "great," and "zero" to express the expected amount of increase in well-being for actual and possible humans and animals if we choose an option.[26] We will determine what happens, roughly, if we invest equal time and money in each option if we aim to spend our money and time as effectively as possible.[27]

For our first option, intervention in nature, which we will refer to as "WAS," we will begin by arguing that an enormous amount of increase in well-being is possible for possible animals. Unfortunately, it is currently unclear how much can be achieved,[28] so our conclusion is

[22] Ideally, we would consider more. Many EAs give credence to other theories, and value more than is assumed (see e.g. Gertsch 2017; Todd 2017). Some accept environmentalism–although this seems to be a very small group (Knutsson 2016)–which is often used in the debate concerning the ethical aspects of intervention. Considering all this is, unfortunately, beyond the scope of this thesis, so we will leave it out.
[23] Knutsson (2016).
[24] Gertsch (2017).
[25] This description of deontological constraints was inspired by Oberdiek (2008).
[26] Ideally, the expected amounts are expressed more precisely. Unfortunately, this is beyond the scope of this thesis.
[27] We will focus, roughly, on amounts of time and money which can be given by the average EA.
[28] Brennan (2017).

tentative.

Consider, first, the enormous number of wild-animals capable of suffering. There might roughly be $9{,}16 \times 10^{21}$, but, roughly, 10^{17}-10^{19} of these are insects.[29] It can be objected that, since these are unlikely to suffer, we should not give them consideration. Now, science seemingly is not settled yet on whether or not insects are capable of suffering.[30] However, it has been argued persuasively that, roughly, we should still consider them, since the amount of suffering, if they are capable of suffering, outweighs even unrealistically low credence given to that possibility.[31]

Secondly, there are various tools that could be used to intervene. Examples include vaccines, pesticides, contraception, the provision of additional foods. We could mercy-kill, or even use CRISPR technology, roughly, to alter specific genes[32] of populations of wild-animals.[33] Each tool can be used for a variety purposes. For example, we could use CRISPR to edit mosquitoes so that they no longer spread malaria,[34] or alter predators so that they no longer prey on other animals.[35] Combined there are millions of possible interventions. Consider the following, hypothetical, example:

> *Altering Ladybirds*: The seven-spotted ladybird is a predator. Mostly, they feed on aphids.[36] Conservative estimates are that there are 1.000.000 such ladybirds world-wide,[37] each of which eats on average 2751,05 aphids,[38] taking about 1,5 minutes per aphid.[39] If so, actual ladybirds, taken together, are responsible for (2751,05 x 1,5 x 1.000.000)= 4.126.575.000 minutes of aphids being eaten in their lifetimes, meaning the total amount of suffering is enormous if aphids are capable of suffering.

[29] This estimate of the total number of insects, as well as some others, are mentioned in Ray (2017a).
[30] For an overview of studies on insect suffering, see Ray (2017b).
[31] Horta (2010b); Tomasik (2017).
[32] Jinek et al. (2012).
[33] Church et al. (2014).
[34] Idem.
[35] Pearce (2015).
[36] Hodek & Honek (1996).
[37] It is unclear how many there are. They are found in Eurasia (Schaller & Nentwig 2000) and North-America, and in 1973-1978, 500.000 were counted in New Jersey alone (Evans & Snyder 2011).
[38] A larva eats 134-250 aphids (Varvara et al. 1982) or, during its 1st to 4th instar, 21,9, 55,9, 107,4 and 227,3 aphids (Sattar et al. 2008). As adults, their mean daily consumption is 36,5 (Varvara et al. 1982) or 77,8 aphids (Sattar et al. 2008). Total larval, and pupal, duration lasts 18,3-4,9 days (Sattar et al. 2008), and the average longevity is 94,9 days (Kontodimas et al. 2007), so, a low estimation of the number of aphids eaten by a ladybird is (134 aphids+((94,9 days-(18.3 days + 4,9 days))x 36.5 aphids))= 2751,05 aphids.
[39] "Handling time" is for 1st-3rd instar nymphs two minutes, and eight for 4th instar nymphs and adults (Minoretti et al. 2000).

> A way of preventing future aphid suffering would be by altering ladybirds genetically so that they are no longer predators but instead eat plants containing the nutrients they require. We can seemingly do this using CRISPR technology (after some research, of course). However, many people believe most aphids need to die since they are a "pestspecies." If so, it is presumably less painful if we use pesticides.

In-depth research likely shows this particular intervention has fatal downsides. But, it is unlikely that of the millions of possible interventions, there are not at least a couple with an expected impact as great as *Altering Ladybirds* seemingly has. We do have to discover them, which seems likelier to happen in the (distant) future than anytime soon, meaning intervening has expected increase in well-being for possible, but not actual, animals. So, for possible animals, we will say an enormous amount; for actual animals, zero. We will say zero for actual and possible humans too since WAS does not focus on humans.

Our other options are three causes (roughly, sets of related opportunities or problems)[40] considered important in the EA community.[41] We will look at what 80.000 Hours[42] recommends we do, roughly, with our time and money.

Our second option: "Climate." There is a small but significant chance that temperatures will increase even more than 2,6ºC–4,8ºC, which might lead to catastrophic results. Regarding our time, careers in research, engineering or policy are promising. Our money should be donated to CoolEarth.[43] Since Climate focuses on the long-term we will say zero for actual humans and animals, and an enormous amount for possible humans. Since Climate focuses on humans rather than animals, we will say a great amount for possible animals.

Our third option: "Factory-farming." Roughly, fifty billion animals are raised and slaughtered in factory farms annually, causing immense amounts of suffering and negatively impacting the environment. We can work as a social or political advocate, develop plant-based alternatives, or do research to determine the most effective advocacy methods. We can donate to charities recommended by Animal Charity Evaluators.[44] Since Factory-farming seems to have a great impact for actual animals, we will say an enormous amount for actual animals and great for possible animals. Since it does not focus on humans, we will say zero

[40] Todd (2013).
[41] Ideally, we would consider more options, but that is beyond the scope of this thesis.
[42] If you are unfamiliar with 80,000 Hours, see e.g. <https://80000hours.org/about/>
[43] Duda (2016a).
[44] Duda (2016b).

for actual and possible humans.

Our final option: "Poverty." Millions of people die each year of diseases such as malaria. Our time could be spent doing research or creating a charity. Our money seems best donated to GiveWell.[45] Since it is effective for humans living today we will say it is an enormous amount for actual humans. Poverty focuses more on the short-term, and since in the future there (hopefully) will no longer be any poverty, we will say that according to possible humans it is great. Since it focuses on humans, we will say that according to actual and possible animals, it is zero.

Now we need, for each theory, a ranking of these options.

§3. Rankings

We will make the rankings. If according to a theory we ought$_1$ to choose an option *x* rather than an option *y*, we will express this ranking as "x>y." If we ought$_1$ to choose either *x* or *y*, we will express this as "*x*~*y*." Our rankings are as follows:

T_1:Poverty>Climate~Factory-farming~WAS

T_2:Factory-farming>Poverty>Climate~WAS

T_3:Climate>Poverty>Factory-farming~WAS

T_4:Climate~Factory-farming~WAS>Poverty

Since WAS is zero for actual and possible humans, and according to T_1 and T_3 we ought$_1$ to consider only humans, WAS is not favoured by those theories. WAS is zero for actual animals, so it is not favoured by T_2 either, according to which we ought$_1$ to consider only actual animals and humans. Since WAS is enormous for possible animals, it is favoured by T_4, according to which we should also consider possible animals and humans.

Climate is zero for actual humans and animals, so it is not favoured by T_1 and T_2, like WAS. It is enormous for possible humans, so it is favoured by T_3, and great for possible animals, so it is favoured by T_4. Factory-farming is zero for actual and possible humans, so it is not favoured by T_1 and T_3. It is enormous for actual animals, so it is favoured by T_2. Factory-farming is great for possible animals, so it is favoured by T_4, like Climate. Poverty is enormous for actual animals, so it is favoured by T_1. It is great for possible humans so it is fa-

[45] Wiblin (2016).

voured by T_3. But, since Climate is enormous for possible humans, Climate is favoured over Poverty by T_3. It is zero for actual animals so Factory is favoured by T_2 rather than Poverty. It is also zero for possible animals, so it is not favoured by T_4 compared to our other options since all other options have a greater total impact in the long-term.

This is our case. Now we will apply two metanormative theories to it.

2. My Favourite Theory (MFT)

We will apply and discuss two versions of the metanormative theory known as "My Favourite Theory" (MFT). In §1 we will treat MFT_1, suggested by Edward J. Gracely (1996). Two revisions by Johan E. Gustafsson & Olle Torpman (2014) dealing with some problems lead to MFT_2, which we will treat in §2. We will end this section with a partial conclusion in §3.

§1. MFT_1

Gracely stated that "the proper approach to uncertainty about the rightness of ethical theories is to determine the one most likely to be right, and to act in accordance with its dictates" (Gracely 1996, 331). So, we may define MFT_1 as follows:

> *MFT_1*: A subject S ought$_2$ to choose an option *x* iff x ought$_1$ to be chosen by S according to the theory S has most credence in.

Application of MFT_1: Since we ought$_1$ to intervene according to T_4, but not according to $T_{1\text{-}3}$, we ought$_2$ to intervene if we give more credence to T_4 than to any of $T_{1\text{-}3}$. But, if we give more credence to any of $T_{1\text{-}3}$, we ought$_2$ not to intervene.

But, is MFT_1 correct? For clarity, most of the arguments of our discussion are separated.[46]

(1)–Argument for MFT_1 (Gracely 1996): Since we cannot avoid normative uncertainty, we need a metanormative theory, of which there seem to be two kinds. Firstly, there is MFT_1. The second approach (roughly, like the one we will consider in the next section) takes into account, besides credences given to theories, the weight given to the options by the different theories. This approach relies on intertheoretic comparisons of value (intertheoretic comparisons for short) (327-8). We can define this as follows:

> *Intertheoretic Comparison of Value*: A claim C is an intertheoretic comparison of value iff C expresses that according to a theory X_1 an option *x* is more, less or as valuable as *x* (or another option *y*) is according to a theory X_2.

[46] It is beyond the scope of this thesis to cover all arguments related to MFT_1. Furthermore, of the arguments that we do treat, we do not treat all as in-depth as would be best. However, we will treat most arguments, if not all, directly relevant for our purposes (so, e.g. many objections to our conclusions facing persuasive responses are left out, as well as the responses), and we do, hopefully, treat them as in-depth as is needed. The same applies to the other discussions.

As Gracely puts it, these are "comparisons of the relative weights given to the [options] by different [theories]" (328). For example, the claim that "lying is worse according to Kantianism than murder according to utilitarianism" is an intertheoretic comparison. However, it is argued these are meaningless (esp. 329-31), leaving us with MFT_1.

(2)–Response to (1): Intertheoretic comparisons of value might sometimes be possible. The discussion of this claim is more suitable for the next section, so we will wait for a proper evaluation of (1) until then (specifically, until §4 of section three). Roughly, the same applies to arguments (10), (13) and (14), given below.

(3)–Objection to MFT_1 (MacAskill 2014; Gustafsson & Torpman 2014): The correct metanormative theory is action-guiding (roughly, it tells us what we $ought_2$ to do) more often than MFT_1.

Suppose we give equal credence to T_1 (according to which we $ought_1$ to choose Poverty, but not Factory-farming) and T_2 (according to which we $ought_1$ to choose Factory-farming, but not Poverty), and lower credence to all other theories. MFT_1 does not prescribe an option, which is problematic. At least two solutions are implausible.

Firstly, we could pick a theory at random. As MacAskill notes, this seems arbitrary. Secondly, as MacAskill and Gustafsson & Torpman point out, allowing us to choose an option we $ought_1$ to choose according to one of the theories to which we give highest credence is not desirable either. This allows us to continuously change our minds, even if inappropriate. Consider:

X_1(50%):WAS>Climate
X_2(50%):Climate>WAS

Suppose if we choose WAS, this will result in an outcome terrible according to X_2, and if we choose Climate, this will result in an outcome terrible according to X_1. If we can choose an option we $ought_1$ to choose according to X_1 or X_2, we can choose WAS, then change our minds and choose Climate, then change our minds again and choose WAS, etc. Since both options are terrible according to one of X_1 and X_2, what we are doing has terrible results according to both theories in which we give highest credence.

(4)–Response to (3) (Gustafsson & Torpman 2014): There is a third solution, requiring some revision, so that we get:

MFT_{TV} (tentative version): A subject S ought$_2$ to choose an option *x* iff *x* ought$_1$ to be chosen by a theory X which

(a) is given at least as much credence by S as any other theory, and

(b) has not been violated by S more recently than any other theory which is given at least as much credence.

Let's explain it using the case from (3):

X_1(50%):WAS>Climate

X_2(50%):Climate>WAS

Which option ought$_2$ we to choose according to MFT_{TV}? According to (a) we, basically, ought$_2$ to choose an option which we ought$_1$ to according to the theory in which we give most credence. But, this applies to both X_1 and X_2.

Clause (b) is new. According to (b) we can only choose, say, WAS, if we have not violated X_1 (roughly, chosen an option we ought$_1$ not to choose according to X_1) more recently than X_2. Suppose we violated X_1 at some point in the past. We ought$_2$ then only to choose WAS, if we have violated X_2 a shorter while ago. If so, we also ought$_2$ not to choose Poverty according to MFT_{TV}. So, MFT_{TV} is action-guiding often enough (not always, but that is too strong a requirement).

(5)–Objection to MFT_{TV} (and MFT_1) (MacAskill 2014, Gustafsson & Torpman 2014): More revision is necessary. The correct metanormative theory seemingly must follow:

Dominance: A subject S ought$_2$ not to choose an option *x* if

(a) S ought$_1$ not to choose *x* but an option *y*, according to at least one theory S has credence in.

(b) S ought$_1$ to choose *x* but not *y*, according to no theories S has credence in.

For example, consider:

X_1(60%):Poverty~Factory-farming

X_2(40%):Factory-farming>Poverty

If we choose Factory-farming, we are guaranteed to make the right decision. Choosing Poverty might be wrong. So, it seems we ought$_2$ to not choose Poverty, but Factory-farming. This is what Dominance tells us: (a) there is a theory according to which we ought$_1$ not to

choose Poverty, but Factory-farming. And, (b) there is no theory according to which we ought$_1$ to choose Poverty, but not Factory-farming. So, Factory-farming is the "dominant option."

MFT$_{TV}$ violates Dominance. Take the case above. What we ought$_1$ to do according to X_2 isn't taken into account. X_1 is the most credible theory, and therefore we ought$_2$ to choose either Poverty or Factory-farming.

(6)–Response to (5) (Barry & Tomlin (2016)): We need not accept Dominance, since it can be too demanding. Consider:

X_1(99%):Donating~Not-donating
X_2(1%):Donating>Not-donating

where "Donating" refers to donating most of ones' income to charity (as e.g. Singer (1972) would have us do), and "Not-donating" to donating less or nothing. Even though, in this example, we find it much more plausible we ought$_1$ to choose Donating ór Not-Donating, according to Dominance we should choose Donating. This is too demanding, meaning Dominance is implausible.

(7)–Response to (6): This objection is guilty of double-counting (roughly, giving objections twice the weight they should have).[47] That a theory is too demanding might be relevant to evaluate a theory. Perhaps, before applying Dominance, we should give X_2 little credence. But, if we then use it again to argue against Dominance, we are guilty of double counting, which is unreasonable.

It could be objected that the example shows that Dominance delivers the wrong result, even without considering demandingness. But it does not seem so. It is certain we ought$_1$ to choose Donating, and there is a chance we ought$_1$ not to choose Not-donating. It seems that only if we find the chance that Not-donating is wrong somehow negligible, we reasonably ought$_2$ to choose it as well. But, I cannot think of any reason we would be justified to accept that any chance of wrong-doing is negligible when we can also be certain that we are doing the right thing (at least no "moral reasons," but I do not see why we should consider other reasons). Furthermore, the case from (5) is very convincing, meaning at least some version

[47] MacAskill (2014).

of Dominance (perhaps, ultimately, with some conditions, allowing us to choose Not-donating), should be accepted.

(8)–Objection to MFT_{TV} (and MFT_1) (Gustafsson & Torpman): Even if no option dominates, the correct metanormative theory should, if we $ought_1$ to choose more than one option according to the most credible theory, take into account information provided by the second most credible theory. Consider:

X_1(50%):WAS~Factory
X_2(40%):WAS>Factory
X_3(10%):Factory>WAS

According to MFT_{TV} we $ought_1$ to choose either WAS or Factory. But, we $ought_1$ to choose WAS according to X_2, meaning we $ought_1$ to choose it according to the two theories in which we have highest credence. So, it seems we $ought_2$ choose WAS.

(9)–Response to (5) and (8) (Gustafsson & Torpman): These objections are not fatal, some revision, which we will show below, saves it.

This concludes our discussion of MFT_1 (although several objections to MFT_2 also apply to MFT_1).

§2. MFT_2

Gustafsson & Torpman revise MFT_{TV} as follows:

MFT_2: A subject S $ought_2$ to choose an option *x* iff
(a) *x* $ought_1$ to be chosen by a theory X_1 which
  (i) is given at least as much credence by S as any other theory, and
  (ii) has not been violated by S more recently than any other theory which is given at least as much credence, and
(b) there is no option *y* and no theory X_2 such that
  (i) S $ought_1$ to choose *y* and not *x* according to X_2, and
  (ii) there is no theory X_3
    (1) which is at least as credible as X_2 for S, and
    (2) according to which we $ought_1$ to choose *x* and not *y*.

Application of MFT_2: We will explain MFT_2 by applying it to our case. When $ought_2$ we to choose WAS according to MFT_2? According to T_4 we $ought_1$ to choose WAS, but not according to $T_{1\text{-}3}$.

Clause (a) plays the part of clauses (a) and (b) from MFT_{TV}. Regarding (a): for us to $ought_2$ to choose WAS according to MFT_2 we (i) need to give at least as much credence to T_4 as to $T_{1\text{-}3}$, and (ii) if we give as much credence to any of $T_{1\text{-}3}$, T_4 has to either have never been violated, or any of $T_{1\text{-}3}$ we give as much credence to as T_4 needs to have been violated more recently than T_4.

Clause (b) is new. Because of (b) MFT_{TV} follows Dominance and takes information of the second most credible theory into account if the most credible theory yields a tie, even if no option dominates. Regarding (b): assuming (a) is satisfied, we $ought_2$ to choose WAS if there is:

(i) no theory X_2 we give credence to, according to which we $ought_1$ not to choose WAS, but another option. $T_{1\text{-}3}$ can all play the part of X_2. According to each, we $ought_1$ not choose WAS. According to T_1 we $ought_1$ to choose Poverty, according to T_2 Factory-farming, according to T_3 Climate. However, we can give credence to any of $T_{1\text{-}3}$ if:

(ii) there is a theory X_3 which (1) is at least as credible as $T_{1\text{-}3}$, (2) according to which we $ought_1$ to choose WAS, but not the options we $ought_1$ to choose according to any of $T_{1\text{-}3}$. T_4 might be able to play the part of X_3. Suppose only T_1 plays the part of X_2. Then we $ought_2$ to choose WAS since according to T_4, we $ought_1$ not to choose Poverty, which we $ought_1$ to according to T_1.

Suppose only T_2 plays the part of X_2. According to T_2 we $ought_1$ to choose Factory-farming. We $ought_1$ to according to T_4 as well. So, Factory-farming would dominate. If MFT_2 follows Dominance, we then $ought_2$ not to choose WAS. We indeed $ought_2$ not, since then T_4 cannot play the part of X_3, because it is supposed that according to X_3 we $ought_1$ not to choose Factory-farming, but we $ought_1$ to according to T_4.

The same applies if we also give credence to T_1. Even though Factory-farming then no longer dominates, T_4 still yields a tie, and it still cannot play the part of X_3 for T_2. The same applies to T_3 and Climate. So, we cannot give credence to T_2 or T_3.

So, according to MFT_2, in our case we $ought_2$ to choose WAS iff

(a) we have 0% credence in T_2 and T_3, and

(b) have more credence in T_4 than T_1, or

(c) have equal credence in both, but

(i) have never violated T_4, or

(ii) violated T_1 more recently.

Should we accept MFT_2?

(10)–Argument for MFT_2 (Gustafsson & Torpman): Like Gracely, Gustafsson & Torpman argue intertheoretic comparisons are meaningless. They add to their defence of MFT_2 that it deals with (5) and (8).

(11)–Objection to MFT_2 (and (10), MFT_1, MFT_{TV}): Gustafsson & Torpman rightly claim that the correct metanormative theory, if the most credible theory yields a tie, should take into account information provided by the second most credible theory (8). But, MFT_2 does not always do this. Consider:

X_1(51%):WAS~Factory-farming>*n* options>Poverty

X_2(49%):Poverty>WAS>*n* options>Factory-farming

The most credible theory, X_1, yields a tie: we $ought_1$ to choose WAS or Factory-farming. It seems that we $ought_2$ to choose WAS and not Factory-farming since according to X_2 we $ought_1$ to choose WAS, as well as *n* other options, rather than Factory-farming. Despite this, we $ought_2$ also to choose Factory-farming according to MFT_2 (even if *n*=500.000).

(12)–Objection to MFT_2 (and MFT_1, MFT_{TV}) (MacAskill 2014): If theories are individuated in different ways, the prescriptions of MFT_2 sometimes differ, which they should not. Consider:

X_1(90%):Poverty>Factory-farming

X_2(10%):Factory-farming>Poverty

Now we $ought_2$ to choose Poverty according to MFT_2. But suppose we realize that there are ninety versions of X_1, each equally plausible. So, we divide the credence we initially give to X_1 equally over its versions, meaning we give each version of X_1 a credence of 1%. Then we give most credence to X_2. According to MFT2 we then $ought_2$ to choose Factory-farming, which is the wrong result.

(13)–Objection to MFT_2 (and MFT_1, MFT_{TV}) (Sepielli 2013): It seems the correct metanormative theory should take into account the weight given to options. MFT_2 does not. Consider, shown with the weights given to options:

X_1(51%):Poverty=okay>Climate=little bad

X_2(49%):Climate=very good>Poverty=extremely terrible

According to MFT_2 we $ought_2$ to choose Poverty. But, Climate is either very good (according to X_2) or a little bad (according to X_1), and Poverty okay (according to X_1) or extremely terrible (according to X_2). So, it seems Climate is preferable over-all, even though we give slightly more credence to X_1.

(14)–Response to (13) (Gustafsson & Torpman): This objection relies on the possibility of making intertheoretic comparisons, which are impossible. For the objection to work, we need a "common scale," such as:

very good>okay>little bad>extremely terrible

where ">" represents "is better than." Only then can we say, for example, that an option which is okay according to both X_1 and X_2 is equally good according to both. And, only then can we say that, since Climate is either very good or a little bad, and Poverty okay or extremely terrible, Climate is preferable over-all, meaning we $ought_2$ to choose it. But, such a scale only makes sense if intertheoretic comparisons are possible, which they are not.

This concludes our discussion of MFT_2.

§3. Partial Conclusion

So, in our situation, if MFT_1 is the correct metanormative theory, we $ought_2$ to choose WAS iff we give more credence to T_4 than to any of $T_{1\text{-}3}$.

In our situation, if MFT_2 is the correct metanormative theory, we $ought_2$ to choose WAS iff

(a) we have 0% credence in T_2 and T_3, and

(b) have more credence in T_4 than T_1, or

(c) have equal credence in both, but

(i) have never violated T_4, or

(ii) violated T_1 more recently.

But, is MFT_1 or MFT_2 the correct metanormative theory? MFT_1 is not. It is not always action-guiding when it should be (3), does not follow Dominance (5), and, even if no option dominates, fails to take relevant information into account when the most credible theory yields a

tie (8). It could be objected that Dominance is too demanding (6), but this objection seemingly fails (7). However, some revisions dealing with these objections so that we get MFT_2 are possible (4), (9). However, MFT_2 does not always take relevant information into account when the most credible theory yields a tie either (11). Although this objection might not be fatal, (like MFT_1) it also fails to handle different individuations of theories properly (12), and does not take into account that theories might be intertheoretically comparable, assuming this is possible (13), making MFT_2 implausible.

It could be objected that intertheoretic comparisons are always impossible. This will be discussed in the next section, where we will properly evaluate (1), (2), (10), (13) and (14). There we will treat "Maximize Expected Choice-Worthiness." Perhaps it does better.

3. Maximize Expected Choice-Worthiness (MEC)

We will apply and discuss Will MacAskill's (2014) metanormative theory, "Maximize Expected Choice-Worthiness" (MEC for short).[48] Briefly, MEC is pluralistic. Depending on the theories to which we give credence, we have to apply different methods to determine what we ought$_2$ to do according to MEC.

In §1 we will define some concepts, such as "choice-worthiness," and give an outline of §2–5, where we will treat the different methods of MEC. In §2 we will evaluate the arguments (1), (2), (10), (13) and (14), presented in the previous section. In §5 we will discuss MEC in general. We will end this section with a partial conclusion in §6.

§1. Concepts & Outline

We will begin by explaining what cardinal and merely ordinal (ordinal for short) theories are.

> *Cardinal*: A theory X is cardinal iff X provides information about how much rather we ought$_1$ to choose an option *x* than an option *y*, if we ought$_1$ to choose *x* rather than *y*.

Our theories $T_{1\text{-}4}$ are cardinal. Take T_1, according to which we ought$_1$ to choose Poverty rather than Climate, because Poverty has a greater expected increase in well-being, considering impartially only all actual humans than Climate. Suppose our research regarding the expected increase of well-being was in-depth. We might have concluded that the amount of expected increase in well-being of Poverty could be expressed as 2500, and of Climate as 100. In that case, we could say we ought$_1$ to choose Poverty twenty-five times rather than Climate according to T_1. If T_1 was an ordinal theory rather than a cardinal theory, we could not have made such a claim:

> *Ordinal*: A theory X is ordinal iff X provides no information about how much rather we ought$_1$ to choose an option *x* than an option *y*, if we ought$_1$ to choose *x* rather than *y*.

Ordinal theories give us only rankings. $T_{1\text{-}4}$ could be characterized as ordinal, especially if they are restated as deontic theories, since it is more common for deontic theories to be ordinal than for consequentialist theories.

[48] We will treat a slightly simplified version of MEC, which is sufficient for our purposes, leaving out, e.g., much technical terminology.

According to MacAskill, cardinal theories can either be intertheoretically comparable with some other cardinal theories, or be completely incomparable. All ordinal theories are completely incomparable. So, we will use the following abbreviations: we will say comparable theories instead of cardinal and comparable theories, incomparable theories instead of cardinal and incomparable theories, and ordinal theories instead of incomparable and ordinal theories.

MacAskill discerns the following combinations of types of theories to which we can give credence. Firstly, we can give credence only to comparable theories. In our case, $T_{1\text{-}4}$ seem to be such theories. If so, we ought$_2$ to choose, according to MEC, the option which maximizes excepted choice-worthiness. We can define the choice-worthiness of an option *x*, roughly, as follows:

> *Choice-Worthiness*: An option *x* is more choice-worthy than an option *y* according to a theory X iff *x* ought$_1$ to be chosen rather than *y* according to X.

The concept of expected choice-worthiness will be formally defined in §2, where we will treat the method Maximize Expected Choice-Worthiness (not to be confused with the metanormative theory of the same name, which, as noted above, we will refer to as MEC).

Secondly, it is possible that we are uncertain about only incomparable theories. It could be claimed that $T_{1\text{-}4}$ are incomparable. According to MEC we should then apply Variance Voting, which we will treat in §3.

Thirdly, it is possible to only have credence in ordinal theories. We might say that $T_{1\text{-}4}$, (characterized as deontic theories), are ordinal. According to MEC, we should apply the Borda Rule, which we will treat in §4**.**

Finally, we can be normatively uncertain because we give credence to at least two of the three types of theories mentioned above. We might give credence to $T_{1\text{-}4}$ characterized as comparable, ordinal ánd incomparable theories. Then we should use the Hybrid View, which we will treat in §5.

§2. Maximize Expected Choice-Worthiness

Suppose we only give credence to at least two of $T_{1\text{-}4}$ as comparable. According to MEC, we $ought_2$ then to choose the option with the greatest expected choice-worthiness. The expected choice-worthiness of an option *x* can be calculated as follows:

$$EC(x) = \sum_{k=1}^{n} (C(X_{\mathrm{k}}))(NV_{\mathrm{k}}(x))$$

where EC(*x*) stands for the expected choice-worthiness of an option *x*, *n* represents the number of theories to which we give credence, $C(X_k)$ the credence assigned to a theory X_k, and $NV_k(x)$ the numerical value assigned to x by X_k. So, the expected choice-worthiness of an option *x* is the summation of, for all theories S has credence in, the credence S has in a theory multiplied by the numerical value assigned to *x* by that particular theory.

For example, let's determine the expected choice-worthiness of WAS. We will give each of $T_{1\text{-}4}$ a probability of 25%. We also need numerical values assigned to our options. We will assign an option which increases expected well-being (considering the relevant group for a theory) by an enormous amount a 1, a great amount a 0,6, and no amount a 0. So, we can rewrite our rankings:

T_1:Poverty=1>Climate=0~Factory-farming=0~WAS=0

T_2:Factory-farming=1>Poverty=0,6>Climate=0~WAS=0

T_3:Climate=1>Poverty=0,6>Factory-farming=0~WAS=0

T_4:Climate=1~Factory-farming=1~WAS=1>Poverty=0,6

We will use these in the application. The expected choice-worthiness of WAS is:

EC(WAS)=(0,25x0)+(0,25x0)+(0,25x0)+(0,25x1)=0,25

We can now define Maximize Expected Choice-Worthiness:

> *Maximize Expected Choice-Worthiness*: Iff a subject S has credence in comparable theories only, S $ought_2$ to choose an option *x* iff *x* has the greatest expected choice-worthiness.

Application of Maximize Expected Choice-Worthiness: According to Maximize Expected Choice-Worthiness, when $ought_2$ we to choose WAS? Maximize Expected Choice-

Worthiness is modelled after expected utility theory (for reasons mentioned in our discussion, see (16) and (17)), according to which we should choose the option with the greatest expected utility. This is determined as the expected choice-worthiness of an option, but rather than giving credence to different theories, we give credence to different outcomes of options coming about. Expected utility theory follows Dominance, meaning Maximize Expected Choice-Worthiness also follows Dominance. So, again, we can only give credence, besides to T_4, to T_1, and again Poverty is the only "contesting" option since we only $ought_1$ to choose Poverty according to T_1 (the Borda Rule, Variance Voting and the Hybrid View follow Dominance too, so the same applies).

We said that $NV_1(WAS)=0$, $NV_1(Poverty)=1$, $NV_4(WAS)=1$ and $NV_4(Poverty)=0,6$. In this case, we should, roughly, at least give $C(T_4)=72\%$, and at most $C(T_1)=28\%$. Consider:

$EC(WAS)=(0,28x0)+(0,72x1)\simeq 0,72$

$EC(Poverty)=(0,28x1)+(0,72x0,6)\simeq 0,716$

If we give $C(T_1)=29\%$ and $C(T_4)=71\%$:

$EC(WAS)=(0,29x0)+(0,71x1)\simeq 0,71$

$EC(Poverty)=(0,29x1)+(0,71x0,6)\simeq 0,716$

So, in our case, according to Maximize Expected Choice-Worthiness, we $ought_2$ to choose WAS iff

(a) we give 0% credence to T_2 and T_3, and

(b) at least, roughly, 72% to T_4, and therefore

(c) at most, roughly, 28% credence to T_1.

Should we endorse Maximize Expected Choice-Worthiness?

(15)–Argument for Maximize Expected Choice-Worthiness (MacAskill): For empirical uncertainty the consensus is that the default framework to make decisions under uncertainty, is expected utility theory, which, as shown above, is extremely similar to Maximize Expected Choice-Worthiness. We can distinguish between many proposition-types (e.g. a priori/a posteriori, necessary/contingent) "which could all feature into uncertainty over states of nature" (p. 35). It seems that "in all these cases, the nature of the propositions over which one is uncertain does not affect which decision-theory we should use," (p. 35) that is, we should

in all those cases use expected utility theory. To treat normative uncertainty differently from empirical uncertainty solely because the propositions are of a different nature is arbitrary. So, if there are no objections to treating empirical and normative uncertainty analogously, we should, meaning we should apply Maximize Expected Choice-Worthiness.

(16)–Argument for Maximize Expected Choice-Worthiness (MacAskill): There are many circumstances where we cannot easily know whether we are (ultimately) normatively or empirically uncertain.[49] If these uncertainties should be treated differently, much could hang on the discovery of the nature our uncertainty. We might have to go through great lengths to discover what the nature of our uncertainty is. Since that is implausible, the case for treating empirical and normative uncertainty analogously, therefore for Maximize Expected Choice-Worthiness, is strengthened.

(17)–Objection to Maximize Expected Choice-Worthiness (e.g. Gracely (1996) (see (1)); Gustafsson & Torpman (2014) (see (10), (14)); Hedden (2016))**:** To apply Maximize Expected Choice-Worthiness, we must make intertheoretic comparisons. To determine the expected choice-worthiness of an option *x*, we need for all theories the value assigned to *x*, expressed numerically. For the calculation of the expected choice-worthiness of *x* to make sense, these numerical assignments will have to be on the same scale, which requires intertheoretic comparisons.

Roughly, since MacAskill (like most), agrees that at least sometimes such comparisons cannot be made, he developed the different methods of MEC. But, according to the objectors, intertheoretic comparisons are always impossible, meaning Maximize Expected Choice-Worthiness is not (part of) the correct metanormative theory.

Although we cannot do justice to this debate, it seems we can say that, roughly, two kinds of objections to the possibility of ever making intertheoretic comparisons have been offered.

Firstly, one can show that it is impossible for two very similar theories (e.g. two versions of utilitarianism). One can then claim that since it is impossible for such similar theories, it is probably never possible.[50]

Secondly, one can show that all currently proposed methods for making the comparisons

[49] For examples, see Tarsney (2017).
[50] E.g., Gracely (1996); Hedden (2016).

fail, and then claim it seems likely no correct method exists, meaning intertheoretic comparisons are impossible.[51]

(18)–Response to (17): Both objections are of limited value if we want to conclude that intertheoretic comparisons are always impossible, since both rely on induction. Even though there are various similar theories for which comparisons are impossible, this does not imply that this is so for all theories. And, even though all proposed methods for making intertheoretic comparisons fail, this does not mean no correct method exists. Furthermore, since there are only a couple of developed methods, it is not surprising the correct method is not found (yet).

(19)–Response to (17):[52] Suppose X_1 and X_2 are the same, except that a variable *n* has a numerical value of two according to X_1 and five according to X_2. It seems intertheoretic comparisons between X_1 and X_2 rely only on the possibility of doing basic mathematics, since the only informational difference of the theories is of a mathematical nature. If so, there are infinitely many theories comparable to infinitely many other theories, since *n* can be assigned infinitely many values.

It could be objected we are talking about different versions of the same theory, not different theories. But, suppose *n* plays such an important role, that the theories prescribe different options in all possible situations. Whatever the correct method of individuating theories is, it seems if two theories always prescribe different options, these theories are not ultimately different versions of the same theory.

(20)–Response to (17): That intertheoretic comparisons are impossible might imply something few are willing to accept. To determine if a theory is correct, we seemingly (among other things) have to determine whether it considers options to be as good or bad as the correct theory considers them to be (assuming that there is a correct theory).

For example, a common objection to theories follows the following format: an option *x* is bad, but good according to a theory X, therefore X is false. For *x* to be bad, it must be bad according to the correct theory. So, we can rewrite the objection, if it works, as follows: *x* is

[51] E.g., Gustafsson & Torpman (2014); Hedden (2016).

[52] This argument resembles arguments given by MacAskill (2014) and Bykvist (2017) who give examples of sentences like "the importance of saving animals rather than humans is greater if impartialism is true than if speciecism is true" (Bykvist, p.5), then claim such sentences seem intuitively plausible, meaning it is plausible that intertheoretic comparisons are at least occasionally possible. What is (seemingly) novel about my argument, is that it is shown *how* the comparisons are made in the example: via a simple mathematical calculation.

bad according to the correct theory, but good according to X, therefore X is false (or not the correct theory). If such objections work, claims like "according to the correct theory *x* is worse than according to X" seem to be true.

However, such claims are intertheoretic comparisons. If these are impossible, we seemingly cannot argue that a theory is incorrect or correct (in some respects), which is unacceptable. Perhaps we should allow for intertheoretic comparisons to be possible only with the correct theory being one of the theories compared, but it is not intuitively obvious to (how) we should, especially since we do not know what the correct theory is.

This concludes our discussion of Maximize Expected Choice-Worthiness. Before we continue to the next method of MEC, we will evaluate several arguments from the previous section. Against (1), (2) claimed intertheoretic comparisons are sometimes possible. We showed they are, so (1) fails. This also means that (10) and (14) fail, while (13) succeeds.

But, even if intertheoretic comparisons are occasionally possible, $T_{1\text{-}4}$ might be incomparable. We now turn to the method of MEC we should apply then.

§3. Variance Voting

If all theories to which we give credence are incomparable, we should apply Variance Voting. Seemingly, Variance Voting works as follows. We should determine the variance of each theory, which can be done for a theory X as follows:

$$V(X) = \frac{{x_1}^2 + {x_2}^2 + \cdots + {x_n}^2}{n} - \left(\frac{x_1 + x_2 + \cdots + x_n}{n}\right)^2$$

where *n* is the number of options in the ranking of X, and x_1, x_2, …, x_n are numerical values assigned to options by X. For example, let's determine the variance of T_1, which has the following weighted ranking:

T_1:Poverty=1>Climate=0~Factory-farming=0~WAS=0

Its variance is:

$V(T_1)=((1^2+0^2+0^2+0^2)/4)-(((1+0+0+0)/4)^2)\simeq 0{,}18$

If the variances are unequal, these should be normalized (equalized) by changing the values assigned to the options, thereby "stretching" or "contracting" the rankings.[53] Then we can determine the expected choice-worthiness of each option. We ought$_2$ to choose the option with the greatest. So:

> *Variance Voting*: Iff a subject S gives credence to incomparable theories only, S ought$_2$ to choose an option *x* iff *x* has the greatest expected choice-worthiness with the variance of all theories S has credence in normalized.

Application of Variance Voting: Variance Voting follows Dominance, meaning we cannot give any credence to T_2 or T_3. How much credence should we give to T_4 at least, and T_1 at most? We will first determine their variances. As noted above, $V(T_1)\simeq 0{,}18$. The variance of T_4 is:

$$V(T_4)=((1^2+1^2+1^2+0{,}6^2)/4)-(((1+1+1+0{,}6)/4)^2)=0{,}03$$

So, they should be normalized. The greater the distance between the values assigned to the options, the greater the variance. One way of getting equal variances is decreasing the value assigned to Poverty by T_1 (contracting its ranking). Since all other options are assigned a 0, the structure of T_1's ranking remains the same. If $NV_4(\text{Poverty})=0{,}4$, the variances are normalized:

$$V(T_1)=((0{,}4^2+0^2+0^2+0^2)/4)-(((0{,}4+0+0+0)/4)^2)=0{,}03$$

Now we can determine the expected choice-worthiness of WAS and Poverty. The expected choice-worthiness of WAS is greatest when we give, roughly, at least $C(T_4)=52\%$ and at most $C(T_1)=48$:

$$EC(\text{WAS})=(0{,}48x0)+(0{,}52x1)\simeq 0{,}52$$
$$EC(\text{Poverty})=(0{,}48x0{,}4)+(0{,}52x0{,}6)\simeq 0{,}502$$

If we give $C(T_4)=51\%$ and $C(T_1)=49\%$, the expected choice-worthiness of Poverty is greater:

$$EC(\text{WAS})=(0{,}49x0)+(0{,}51x1)\simeq 0{,}501$$
$$EC(\text{Poverty})=(0{,}49x0{,}4)+(0{,}51x0{,}6)\simeq 0{,}502$$

[53] As Tarsney (2017) puts it.

So, in our case, according to Variance Voting, we ought$_2$ to choose WAS iff

(a) we give 0% credence to T_2 and T_3, and

(b) at least, roughly, 52% to T_4, and

(c) at most, roughly, 48% credence to T_1.

Should we endorse Variance Voting?

(21)–Argument for Variance Voting (MacAskill): Variance Voting is the only method following the Principle of Equal Say, which is vital if we are considering incomparable theories. We can define it, roughly, as follows:[54]

> *Principle of Equal Say*: A metanormative theory gives all incomparable theories in which is given credence equal say iff equal weight is given to all theories when deciding what ought$_2$ to be done.

It is undesirable to have a method which is biased towards any of the theories in which we give credence, which happens if the Principle of Equal Say is violated. MacAskill's main argument showing Variance Voting is the only method following the Principle of Equal Say consists of two ways of making the rough principle formally precise. For both senses, he argues that Variance Voting is the only method which following the Principle of Equal Say. Since both are complex and not directly relevant to us, we will leave them out.

(22)–Response to (21) (Tarsney 2017): The Principle of Equal Say can be made precise in various ways, none of which is uniquely preferable to any other, meaning Variance Voting cannot be supported solely by appealing to the Principle of Equal Say.

The Principle of Equal Say can be made precise by any "top-down normalization" method (roughly, normalization methods such that theories are normalized following a general, content-independent principle). Variance Voting is a top-down normalization method. A great variety of such methods can be constructed by varying, firstly, the set of options considered when the theories are normalized (e.g. all options in the situation, or all options we might face in the future), and secondly, "the feature of the value assignments to be equalized" (p. 220) (the standard deviation of each theory's value assignment, or the range). Neither lists of examples is exhaustive. Many top-down normalization methods are not obviously false.

[54] The Principle of Equal Say originates from Lockhart (2000).

Each can be used to make the Principle of Equal Say precise in some way, and it is unclear why Variance Voting should be preferred.

(23)–Objection to Variance Voting (Tarsney): If we apply Variance Voting in some situations, adding an option has a decisive impact on which of two other options we ought$_2$ to choose, which is at least strange. Consider, before normalization:

X_1:*x*=100>*y*=95>*z*-*f*=0>*g*=–10,000

X_2:*y*=100>*x*=95>*z*-*g*=0

The variance of X_1 is at this point much greater than that of X_2, since X_1 assigns an extreme value to *g*. If the variances of X_1 and X_2 are normalized, we are supposed to give greater weight to X_2's "preference for *y* over *x*," (p. 222) than X_1's "preference to *x* over *y*." But, it is at least weird that this is because X_1 and X_2 assign different values to *g*. If *g* could not have been chosen, this would not have been the case.

This concludes our discussion of Variance Voting. It could also be objected that Variance Voting cannot account for all incomparable theories in the broadest sense of the term, since some theories do not have a variance since they have an ordinal structure. So, we will need another method.

§4. The Borda Rule

If we only give credence to ordinal theories, we ought$_2$ to choose, according to MEC, the option with the greatest Credence-Weighted Borda Score (CWBS for short), which can be calculated for an option *x* as follows:[55]

$$CWBS(x) = \sum_{k=1}^{n} (C(X_k))(BS(x)|X_k)$$

where *n* is the number of theories in which we give credence, $C(X_k)$ the credence given to a theory X_k, and $BS(x)|X_k$ the Borda Score of an option *x* for X_k. The Borda Score of *x* for X can be determined by taking, according to X, the number of options which ought$_1$ not to be chosen compared to *x*, and subtracting from this the number of options which ought$_1$ to be

[55] See also MacAskill 2016.

chosen rather than *x*. So, the CWBS is the summation of, for all theories in which we have credence, the credence given to a theory multiplied by the Borda Score of the option in question according to that particular theory.

For example, let's determine the CWBS of WAS. We will begin by calculating the Borda Score of WAS for T_1. Consider:

T_1:Poverty>Climate~Factory-farming~WAS

So, the Borda Score of WAS is:

BS(WAS)=0–1=–1

0 since there are no options we $ought_1$ not to choose compared to WAS. 1 is subtracted from this since there is one option we $ought_1$ to choose rather than WAS, Poverty. The Borda Score of WAS for T_2, T_3 and T_4 are –2, –2 and 1.

If we give 25% credence to all theories, the CWBS of WAS is:

CWBS(WAS)=(0,25x–1)+(0,25x–2)+(0,25x–2)+(0,25x1)=–1

We should choose the option with the greatest CWBS. We can now define the Borda Rule:

> *The Borda Rule*: Iff a subject S has credence in ordinal theories only, S $ought_2$ to choose an option *x* iff *x* has the greatest CWBS.

Application of the Borda Rule: Since the Borda Rule follows Dominance, we can again only give credence to T_1 besides T_4. The Borda Score of WAS for T_1 is –1, and for T_4 it is 1. The Borda Score of Poverty for T_1 is 3 and for T_4 it is –3. So, we can determine the CWBS for both options. It turns out, we have to give at least 51% credence to T_4, and at most 49% credence to T_1:

CWBS(WAS)=(0,49x–1)+(0,51x1)=0,02
CWBS(Poverty)=(0,49x3)+(0,51x–3)=–0,06

And:

CWBS(WAS)=(0,50x–1)+(0,50x1)=0
CWBS(Poverty)=(0,50x3)+(0,50x–3)=0

So, in our case, according to the Borda Rule we ought$_2$ to choose WAS iff[56]

(a) we give 0% credence to T_2 and T_4, and

(b) give at least, roughly, 51% credence to T_4, and therefore

(c) at most, roughly, 49% credence to T_1.

Should we endorse the Borda Rule?

(24)–Objection to the Borda Rule (Tarsney): The assignment of Borda Score is arbitrary, so the Borda Rule does not work. Consider:

X_1:WAS>Poverty>Climate

X_1 is ordinal. According to it, Poverty is better than Climate, period. It is supposed we cannot express numerically how much worse Climate is than Poverty. However, we have BS_1(Poverty)=0 and BS_1(Climate)=–2. But, as we saw, there is nothing about X_1 itself that can justify such assignments. In that case, they are arbitrary.

This seems fatal. So, we can already conclude our discussion of the Borda Rule. Suppose we give credence ordinal, comparable ánd incomparable theories. According to MEC, we should apply the Hybrid View, which we will treat next.

§5. The Hybrid View

Suppose we possibly give credence to any of $T_{1\text{-}4}$ characterized as comparable, ordinal and incomparable. We should apply the Hybrid View, which seemingly works as follows.

For all comparable theories, the combined variance should be determined. This is determined like the variance of a single theory, except that we will use all values assigned to all options by all comparable theories, rather than the values of all options according to a single theory. For all incomparable theories, the variances should be determined individually. The same applies to all ordinal theories, for which the Borda Scores of all options, according to the ordinal theory in question, should be used. (We will use the application to give concrete examples).

Then we can determine the expected choice-worthiness of all options. We ought$_2$ to choose the option with the greatest. So:

[56] Perhaps we ought$_2$ to choose WAS in the event of a tie, but MacAskill remains silent on that point.

The Hybrid View: Iff a subject S has credence in theories such that at least two are of a different type (if the types are comparable, incomparable or ordinal), S ought$_2$ to choose an option *x* iff *x* has the greatest expected choice-worthiness when the combined variance of all comparable theories, variances of all ordinal and all incomparable theories are normalized.

Application of the Hybrid View: The Hybrid View follows Dominance. Again, we can only give credence to T_1 and T_4. Again, the only contesting option is Poverty. We will say we give credence to T_1 and T_4 as comparable (CT_1&CT_4), incomparable (IT_1&IT_4) and ordinal (OT_1&OT_4). The combined variance of CT_1 and CT_4 is:

$V(CT_1\&CT_4)=((1^2+1^2+1^2+1^2+0{,}6^2+0^2+0^2+0^2)/8)-(((1+1+1+1+0{,}6+0+0+0)/4)^2)=0{,}3425$

The variances of IT_1 and IT_4 are:

$V(IT_1)=((1^2+0^2+0^2+0^2)/4)-(((1+0+0+0)/4)^2)\simeq 0{,}18$

$V(IT_4)=((1^2+1^2+1^2+0{,}6^2)/4)-(((1+1+1+0{,}6)/4)^2)\simeq 0{,}03$

The Borda Scores of OT_1 are -1 for WAS, Climate and Factory, and 3 for Poverty. The Borda Scores of OT_4 are 1 for WAS, Climate and Factory, and –3 for Poverty. So:

$V(OT_1)=((3^2-1^2-1^2-1^2)/4)-(((3-1-1-1)/4)^2)\simeq -2{,}25$

$V(OT_4)=((1^2+1^2+1^2-3^2)/4)-(((1+1+1-3)/4)^2)\simeq -1{,}5$

Since the variances are unequal, we have to normalize them. Suppose we leave the ranking of IT_1 as it is, meaning all variances should be, roughly, 0,18. The ranking of OT_1 is similar in structure to IT_1, since for both there is one favoured option with the highest value, and three less favoured options with equally lower values. If we decrease the value assigned to Poverty by OT_1 from 3 to 1, and increase the values assigned to WAS, Factory-farming and Climate from –1 to 0 (thereby contracting the ranking), the variance of OT_1 is, roughly, normalized:

$V_n(OT_1)=((1^2+0^2+0^2+0^2)/4)-(((1+0+0+0)/4)^2)\simeq 0{,}18$

The rankings of IT_4 and OT_4 are, compared to each other also similar in structure. If for IT_4 we decrease the values of WAS, Factory-farming, and Climate from 1 to 0,999, and the value of Poverty from 0,6 to 0 (thereby stretching the ranking), and assign to the new ranking of

OT_4 the same values to the same options (contracting its ranking), we get, roughly, normalized variances:

$V_n(IT_4)=((0{,}999^2+0{,}999^2+0{,}999^2+0^2)/4)-(((0{,}999+0{,}999+0{,}999+0)/4)^2)\simeq 0{,}18$

$V_n(OT_4)=((0{,}999^2+0{,}999^2+0{,}999^2+0^2)/4)-(((0{,}999+0{,}999+0{,}999+0)/4)^2)\simeq 0{,}18$

Finally, we will need to normalize the combined variance of CT_1 and CT_4. Let's not alter any 0's. If we assign all options currently assigned a 1, a 0,93, and Poverty, which is assigned a 0,6 by CT_4, a 0,558, the structure remains the same (since 0,93 is 93% of 1, and 0,588 is 93% of 0,6). With this contracted ranking, the variance is, roughly, normalized:

$V_n(CT_1\&CT_4)=((0{,}93^2+0{,}93^2+0{,}93^2+0{,}93^2+0{,}558^2+0^2+0^2+0^2)/8)-$
$(((0{,}93+0{,}93+0{,}93+0{,}93+0{,}558+0+0+0)/4)^2)\simeq 0{,}18$

Now we can determine the expected choice-worthiness of WAS and Poverty:

$EC(WAS)=(C(CT_1)x0)+(C(CT_4)x0{,}93)+(C(IT_1)x0)+(C(IT_4)x0{,}999)+(C(OT_1)x0)+(C(OT_4)x0{,}999)$
$EC(Poverty)=(C(CT_1)x0{,}93)+(C(CT_4)x0{,}558)+(C(IT_1)x1)+(C(IT_4)x0)+(C(OT_1)x1)+(C(OT_4)x0)$

Unsurprisingly, all versions of T_4 favour WAS over Poverty, and those of T_1 Poverty over WAS. But, things are not equal: if we give equal credence (roughly, 16,7%) to all theories, the expected choice-worthiness of WAS is 48,8, and the expected choice-worthiness of Poverty is, roughly, 58,13:

$EC(WAS)=(0{,}167x0)+(0{,}167x0{,}93)+(0{,}167x0)+(0{,}167x0{,}999)+(0{,}167x0)+(0{,}167x0{,}999)=48{,}8$
$EC(Poverty)=(0{,}167x0{,}93)+(0{,}167x0{,}558)+(0{,}167x1)+(0{,}167x0)+(0{,}167x1)+(0{,}167x0)\simeq 58{,}13$

So, WAS has the greatest expected choice-worthiness only in certain situations where all or some of CT_4, IT_4 and OT_4 are given higher credences than all or some of CT_1, IT_1, and OT_1. There are many ways to make this precise (give relatively high credence only to CT_4, and lower only to CT_1; or lower also to IT_1; or higher to both CT_4 and OT_4, etc.). Working all this out, however, would be tedious. This also seems unnecessary, since you, dear reader, certainly have the tools, at this point, to determine, depending on the credences you give to the theories, whether in your case the expected choice-worthiness of WAS is greatest or not. This concludes our application of the Hybrid View.

How plausible is the Hybrid View? Since (22), (23) and (24) apply to the Hybrid View, it

does not look too promising. How plausible is MEC? Note that the objections to the Hybrid View also apply to MEC, as well as:

(25)–Objection to MEC (Tarsney): MEC is incomplete. Comparable, incomparable and ordinal theories are not the only kinds of theories. For example, there are theories that classify options solely as permissible or impermissible, without any sort of ranking. To such theories, and many others,[57] MEC cannot be applied. However, it is supposed to be a general metanormative theory, meaning it is supposed to be able to take all kinds of theories into account (MacAskill acknowledges some exceptions, but Tarsney argues that there are significantly more).

This concludes our last discussion.

§6. Partial Conclusion

When ought$_2$ we to choose WAS according to MEC? Whether we give credence to any of $T_{1\text{-}4}$ as comparable, incomparable or ordinal, since all methods of MEC follow Dominance, we cannot give any credence to T_2 or T_3.

If we only give credence to T_1 and T_4 as comparable, we should apply Maximize Expected Choice-Worthiness. Roughly, we should then give at least 72% credence to T_4, and at most 28% credence to T_1. If we only give credence to T_1 and T_4 as incomparable, we should apply Variance Voting, according to which we, roughly, ought$_2$ to choose WAS if we give at least 52% credence to T_4 and at most 48% credence to T_1. If we only give credence to T_1 and T_4 as ordinal, we ought$_2$ to choose WAS if we give, roughly, at least 51% credence to T_4 and at most 49% credence to T_1. If we give credence to $T_{1\text{-}4}$ as comparable, incomparable ánd ordinal, we should apply the Hybrid View. According to the Hybrid View we ought$_2$ to choose WAS, roughly, in certain circumstances where we give relatively high credence to some or all of T_4 as comparable, incomparable or ordinal, and relatively low credence to some or all of T_1 as comparable, incomparable or ordinal.

How plausible are the methods of MEC? All follow Dominance, a good sign. Moreover, we have not seen any of the objections against MFT in our discussions. So, we can conclude that MEC deals with the problems of MFT. Maximize Expected Choice-Worthiness seems

[57] See also Hedden (2016) for examples.

correct. We should seemingly apply it whenever possible (15), (16). It is objected that it can never be applied since intertheoretic comparisons are impossible (17), but it is shown they occasionally are (18)–(20). All theories seem to be comparable to at least one other theory, the correct theory (which itself is comparable to all theories) (20), contrary to what most, including MacAskill, claim. (So, Gracely's argument for MFT_1 (1), fails. It's response (2), succeeds. Gustafsson & Torpman's argument for MFT_2 (10) fails, as well as their response (14), to an objection (13), which succeeded). Since Maximize Expected Choice-Worthiness cannot always be applied, we need other methods. Fortunately, MEC is pluralistic.

Variance Voting seems incorrect. Although there is a convincing reason why we are supposed to accept it (21), this can be used to support many methods, meaning preferring Variance Voting to any other is arbitrary (22). Furthermore, sometimes adding an option has a decisive impact on which of two other options we $ought_2$ to choose, which is at least strange (23). The Borda Rule too is unpersuasive, since the assignment of Borda Scores seems arbitrary (24).

Since the Hybrid View consists of the previous methods, objections to these (22)–(24), also apply to the Hybrid View, meaning it is unconvincing. These objections apply to MEC as well. Moreover, MEC cannot account for all theories, so it is incomplete (25). This does not seem fatal: new methods can be added. Moreover, the existing ones could be changed, meaning the objections to its methods are not fatal for MEC itself.

Conclusion

Should we intervene to relieve or prevent WAS? We framed this question as a decision under normative uncertainty. Besides WAS we had three options (helping humans living in poverty, helping animals living in factory farms, trying to prevent the worst possible outcomes of climate change). We possibly gave credence to four theories focused on maximizing the expected increase in well-being (where T_1 considered only actual humans, T_2 actual humans and animals, T_3 actual and possible humans, T_4 actual and possible humans and animals).

We applied two metanormative theories to our case. This is seemingly the first time metanormative theories are applied to a case such as ours, that is, to the question of whether we ought to intervene to relieve or prevent WAS. Firstly, we applied two versions of MFT. According to MFT_1 we should give most credence to T_4. According to MFT_2 we should give, roughly, no credence to T_2 or T_3, and most to T_4, or equal to T_4 and T_1, assuming we violated T_1 more recently if we ever violated T_4. As we have seen, both seemingly fail. Partly, this is due to a new argument: MFT_2 does not always take information provided by the second most credible theory into account when the most credible theory yields a tie (11).

Secondly, we applied the methods of MEC. Hopefully, our applications made these complex methods more intelligible (especially Variance Voting and the Hybrid View). According to each, we should give no credence to T_2 or T_4, and, roughly, more credence to T_4 than T_1. However, most methods seemingly failed. MEC itself turned out to be incomplete. Despite this, we can tentatively conclude that MEC is more promising than MFT, because it seemingly deals with the problems of MFT, and has as a method the promising Maximize Expected Choice-Worthiness (according to which we should have at least $C(T_4)=72\%$ and at most $C(T_1)=28\%$).

Partly, we could conclude that we should accept Maximize Expected Choice-Worthiness because of two new arguments. We gave a new example of a meaningful intertheoretic comparison (19), and showed that the denial of the possibility of making such comparisons implies that proper evaluation of theories is impossible, which is unacceptable (20). Since the correct theory is comparable to all other theories, we have shown that each theory is comparable to at least one other theory (contrary to what most seemingly believe).

But, for Maximize Expected Choice-Worthiness to be applicable to our case, at least T_1 and T_4 must be comparable. Are they? Although our arguments showed that all theories are comparable in certain circumstances, this is not enough to show that comparisons between T_4 and T_1 are possible. To properly apply Maximize Expected Choice-Worthiness, not just to our case, it seems important to determine under precisely what circumstances theories are comparable or incomparable. The most promising path, chosen by most who try to answer this question, seems to be developing a method for making intertheoretic comparisons.[58] All methods developed so far seem to fail, meaning further investigation is required. Perhaps, although this is speculative, the correct method is pluralistic (like MEC), since the correct theory is comparable to all other theories, making it seem that various sorts of comparisons are possible, each possibly requiring its own method.

Suppose T_1 and T_4 are not comparable. Then what? We have not found a convincing method to determine what we $ought_2$ to do in such circumstances yet (although, as MacAskill showed, there might be several). However, we are onto some, rough, properties the correct method seemingly must have, namely, Dominance and the Principle of Equal Say. Further investigation is required to determine what method has these (and maybe more) properties.

[58] See, e.g., MacAskill (2014); Tarsney (2017).

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