

Morality in a branching universe

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Abstract

In most cases, we think that what settles what act it is right to perform is sensitive to what we take the facts about the world to be. But those facts include many controversial metaphysical claims about the world. I argue that depending on what metaphysical model we take to be correct, we will have very different views about what the right actions are. In particular, I argue that if a particular metaphysical model — the branching universe model — is correct, then many of our ethical intuitions are false. We need to think carefully about the relation between ethical and metaphysical intuitions, and ethical and metaphysical theories.

1. Introduction

In most cases, we think that what settles what acts it is right to perform, is sensitive to what we take the facts about the world to be.¹ If I think that the right act is the act that maximises utility (however I construe utility), then which act it is right to perform on any particular occasion will depend on what is believed to be true of the world at that time: it will depend on what I take the distribution of non-normative properties to be. So too if I am a deontologist and believe that killing under any circumstances is wrong, and I am trying to prevent such killing, then it is crucial to know how the world is. If I think the world is *this way*, then I must perform action x to attain the desired result, if I think it is *that way*, then I must perform action y.

In attempting to discover the non-normative facts about the world we do not only turn to the various physical and social sciences, but

¹ I do not mean to suggest here that the notion of rightness is a purely subjective one whereby I do the right act even if my beliefs about the world are culpably mistaken. So I take it that the right action is something along the lines of the action that the rational person would calculate if they knew the facts, or perhaps, the action that the rational person would perform in that epistemic context.

also to metaphysics and indeed often to speculative metaphysics. Do we live in a world where modal realism is true? Do we live in a world where the past and future are real? Do we live in a world where the future is open or closed? The answers to all of these questions involve speculative metaphysics, that is, metaphysics for which there is very little, if any, scientific evidence. Yet these answers may have significant ramifications for our ethical views. For different metaphysical pictures of the world, coupled with one's preferred ethical theory, will entail that different actions are right. So, for example, Robert Adams (1979, 195) and more recently Mark Heller 2003, have argued that if modal realism is true, then this would lead to moral indifference. Nothing we do could change the overall amount of good and bad that occur, since if I fail to do some dastardly deed, then there is some counterpart of mine who does the deed and vice versa. By *modus tollens*, Heller concludes that modal realism is false.²

In this paper I consider a different, though related metaphysical picture: the branching universe model, and consider the ethical consequences of accepting that model. I argue that there are significant tensions between some of our firm moral intuitions, and the metaphysics of the branching universe model. Of course, that we discover tensions between various intuitions when we attempt to systematise these intuitions is not news. So we might think that discovering two sets of inconsistent intuitions, although interesting if the intuitions are firm ones, is little more than an illustration of some sort of holism about belief. But while it might not be news that there will *exist* certain sets of intuitions that are inconsistent, it is surely news to discover what those inconsistent sets are. So while it might not be news that there will be some metaphysical beliefs that are inconsistent with some moral beliefs, enunciating the nature of this inconsistency given that we hold other beliefs fixed, is certainly worthwhile.

This is particularly so considering the nature of the inconsistency. For suppose we follow Heller in maintaining that if our firm moral intuitions conflict with speculative metaphysics, then this is good reason to reject the metaphysics. Then greater care should be paid by metaphysicians to the ethical ramifications of their theories: for these ramifications bare directly on whether we have reason to accept the metaphysics or not. In this case, consideration of the inconsistencies

² For a response to this type of argument see Lewis (1986, pp. 127–28).

between our moral intuitions and the branching model reveals that the branching model is false.

It is controversial, however, whether it is possible to argue from a moral claim to a metaphysical one. There are those who would reject the idea that any claim about the way we would like the world to be, could license a claim about the way the world is. If this is so, then it turns out that our ethical views are subject to massive revision subject to the pronouncements of speculative metaphysics. Thus we should conclude that what is the best action will depend directly on which metaphysical theory is true, and what actions it is right to perform will depend on which metaphysical theory we take to be true. Given that ignorance is not bliss in that we cannot be said to do the right action just by choosing to remain ignorant of the facts about the world, then knowing what the right action is on any occasion will be a tricky matter indeed. For it will require the investigation of metaphysical matters, and the forming of metaphysical beliefs and this is difficult indeed in areas where metaphysics is highly speculative.

Exactly how this worry plays itself out will depend on the details of the ethical theory in question. If it is not possible to know the metaphysical truths in question, then ethical theories that require only that we act in the way that the rational agent in our epistemic situation would act, can hold that we may not act wrongly even if the outcomes of our actions are bad. The outcomes might be bad because despite doing our best, we did not, and could not, know the relevant metaphysical facts. The worry here is that we might be causing massively bad outcomes without knowing it, and despite doing our best. Theories that hold that we act rightly just if, for instance, we maximize actual utility — not intended or likely utility — will hold that in these cases we act wrongly if we fail to maximize utility in virtue of not knowing the metaphysical facts.

Of course, we might prioritise neither ethical nor metaphysical beliefs, but rather, allow there to be negotiation between the two disciplines. What is interesting in that case lies in considering the sorts of intuitions that sit on the negotiating table. Specifically, it is surprising indeed to discover that one of the intuitions on the negotiating table when I consider different theories of time is whether or not I have a moral duty to procreate. If it should turn out, given my degree of credence in the branching universe model, that I should have some very low degree of credence that it is a moral duty to procreate, this would certainly be news.

So however we choose to resolve the tension between our ethical and metaphysical intuitions, the consequences are startling, as we will see when we consider in detail the case of the branching universe model.

2. The branching universe model

There are a number of versions of what we might call the branching universe model, but the best known and most comprehensive is that of Storrs McCall 1994. On this model, the universe is correctly described by four-dimensional Minkowski geometry: every event is located at some spatiotemporal location in the Minkowski co-ordinate system. The past is represented as a single four-dimensional trunk with the present sitting at the end of this trunk peering into an array of different branches, each representing a physically possible way the world could be, consistent with how it is at the present time. Since this model is causally indeterministic, each future branch represents a nomologically possible way the future could be, given the state of the present. This model shares with modal realism the claim that alternative possibilities are real, concrete 'places' not merely abstracta, but differs from modal realism in holding that these possibilities exist within the spatiotemporal confines of our universe. Thus, both the trunk and future branches are equally real, and each future branch is causally continuous with the trunk. So it is now the case that there exists, in the future, a number of real branches on which different events and objects are located: these possibilities all exist at the same time. McCall distinguishes the trunk from the future branches by labelling the trunk 'actual' and each future branch 'non-actual', but these terms are largely meaningless since the 'non-actual' future branches are perfectly real. All that sets apart the actual from the non-actual is that any event on an actual branch (the trunk) will, at every time *after* the event occurs (considered as now) exist at that location on the trunk. An event on a non-actual branch may exist at a location on a branch relative to one being now, and not exist on that branch relative to another time being now.

The branching universe model has much to recommend it. It allows us to combine the plausible doctrine of eternalism (the thesis that all times are equally real) with the thesis that the future is genuinely open with respect to different possibilities. For it is in no way

pre-determined which of the possible future branches will become actual, and thus it really is true to say that there are any number of different ways that tomorrow might be. Indeed, claims about how the future might be, and claims about how the past and present could have been, are made true by the existence of the relevant non-actual branch. Moreover, the model allows us to make sense of the idea that there is some objective fact in virtue of which it is now the present. To say that it is the present is not merely to make an indexical claim about the simultaneity of an utterance with a temporal location, it is to say that the utterance is made at a temporal location at which all past events are fixed, and all future events are branched. The model is thus often held to provide a coherent understanding of objective temporal flow that does not require recourse to a second temporal dimension in which to measure that flow.³

The phenomenon of temporal passage is represented by the ‘dropping off’ of those future branches that do not become actual. The idea is that the model does not require an additional time-axis either to order the moments of the history of the tree, or to measure the rate of temporal flow. For the model has its own internal time-axis that orders the moments of its own history: these moments are ordered by the succession of moments at which branches drop off the tree, and this defines the objective moment of the present. So too, there is no need for an extra time dimension in which to measure the flow of time. The flow of time is constituted by the falling of branches, and necessarily, one second’s worth of branches fall every second. If some branches are ‘further apart,’ then a greater amount of time as measured by the internal time axis of the model passes before those branches drop off.

3. Morality in a branching universe

3.1. *Considering future persons*

According to the branching model, all of the physically possible ways the world can be, given the way the world is now, are represented on

³ This criticism of objective passage theories was originally made by Smart 1949. Specific criticisms of the branching universe model can be found in Smart 1980 and Nerlich 1998. For a response to these criticisms, see McCall 1998.

some future branch. Thus, there is no branch in which tomorrow I sprout wings and fly, or in which I turn into a pig.⁴ But there are innumerable branches in which I do many different physically possible things. Of all these inconsistent possibilities, however, only one of them will become part of the present and then the past: the others will occur on branches that drop off. Thus there exist many persons on these future branches, only a small proportion of whom will become part of the present and the past, the remainder of whom will 'vanish' when the branch they are on drops off.

Plausibly, regardless of our metaphysical views, most of us will hold that we have some duties with respect to future persons.⁵ It is usually held that we have a duty not to harm future persons, however exactly we understand that claim. Generally though, while we might think that we have a duty not to beget children who will suffer lives that are beyond the threshold of decency, we do not think that we have a duty to beget children who would have fulfilling lives.⁶ The idea is that abstaining from creating such children is not to harm them in any way, since they are merely possible and do not exist. Thus, we might conclude, future persons do not have a right to existence, though whatever future persons will exist do have certain rights to have a decent life.

What is interesting about the branching universe model, however, is that it turns on its head many of the assumptions we make when we are considering our duties to future persons. Consider the duty to procreate. For the majority who would argue that we have no such duty, their contention rests on the fact that failing to procreate does no harm, since merely possible persons cannot be harmed. If the branching universe model is correct, however, then every possible future person exists; they just do not exist now. If at time t_1 a woman — call her Molly — is considering whether to conceive a child, then given the branching universe model, there exist many future branches in which Molly bears a child, each corresponding to a particular

⁴ At least this is so according to McCall. It is not clear whether this is so or not, since quantum mechanics seems to countenance extremely strange phenomena as physically possible albeit very unlikely. Nothing I say hangs on this matter though.

⁵ Though not everyone agrees. See for example De George 1981.

⁶ Though see Hare 1975 and 1997 for an argument that we do have a duty to beget children who would have fulfilling lives.

moment of conception. All of these children exist, and if Molly chooses not to conceive a child at t_1 , then all of them will vanish as they fail to become actual. So it is not simply that if Molly chooses not to procreate, certain persons will not come into existence, rather, it is that if she chooses not to procreate, certain persons who already exist, will cease to exist. So does Molly have a duty to procreate?

To answer this question we should first notice that if Molly fails to procreate, she has at best caused the future persons to cease to exist in the sense of causation by omission: she has omitted to procreate. There are those who hold that cases of causation by omission, such as failing to save a life, are not morally wrong in the same way that causing someone to die — murdering them — is morally wrong.⁷ If it is not wrong to stand and watch a child drown, then certainly it cannot be wrong for Molly to fail to conceive a child. I would argue, however, that those who find the former wrong ought also to find the latter wrong within the context of the branching universe theory.

Perhaps, however, bare existence is not sufficient for persons to be morally considerable. Perhaps, as an internal matter to moral theory, ethical theorists might hold that only actual persons are morally considerable. Then if ours is a branching universe, then while perhaps Molly should refrain from conceiving a disabled child, since that child will be actual and will suffer harm, she does not have any duty to procreate since abstaining from procreating does not cause any harm to any actual persons.

As a bare moral intuition, the claim that only actual persons are morally considerable seems plausible. But exactly what does it take to be considered actual, or, to put it another way, what it is about the actual that makes them, but not the non-actual, morally considerable? No doubt the sort of pre-theoretical intuitions we have about what constitutes 'the actual', are something of a hodgepodge. So let us call the ethically salient notions of the actual and non-actual, the notions according to which the former and not the latter are morally considerably, the *Actual* and the *Non-actual*. Then, I would argue, what it is to be Actual has, roughly, two necessary components. First, some person P is actual only if that person exists: if P is real. Second, some

⁷ Though for a defence of the claim that omission can be harmful and thus wrong see Feinberg 1984 especially chapter 4.

person P is actual relative to some other person P*, just if P and P* are causally connected in some way.

This ethical conception of the Actual undergirds many of our intuitions about to whom we owe moral duties. After all, it makes sense that we should be obliged to consider the rights of only those persons who are real, and upon whose lives who are able to have causal impact. So, for instance, this explains why we do not have duties to merely possible persons, where we conceive of such persons as mere abstracta. We do not have any such duties because such persons are not real. Similarly, it explains why, if David Lewis 1986 is right and there exist other concrete possible worlds, we do not owe duties to our real modal counterparts in such worlds. For, although those persons exist, relative to our world they are not Actual, since there are no causal relations that hold between their world and our world.

Now, McCall calls the future persons that exist in the branching universe model 'non-actual', to distinguish them from the persons that exist in the present and the past. But notice that although these future persons are non-actual in McCall's sense, they are Actual in our sense. For these persons are real: they are not mere abstracta, they are ontologically on a par with persons that exist in the past and the present. So too these future persons are causally connected with past and present persons. Unlike non-actual modally real worlds, these future branches are not causally isolated from the actual world. Now, it might be objected that perhaps only those future branches that become part of the trunk are causally connected to that trunk: they become causally connected only when they become actual. But that does not seem appealing. First, it is part of the model that such branches are causally continuous, and that makes good sense: each future branch represents a different causal story about the world in the future — they represent different nomological possibilities given the way the world is in the present. Moreover, there is no intrinsic change to branches as they change from being future to present: from being non-actual to actual. So if there is no causation on future branches, then it is difficult to see how there would magically get to be causation on those branches when they become actual.

So although there is a metaphysical distinction to be made between actual and non-actual persons in McCall's sense, this does not correspond to the sort of distinction that the ethical theorists might make between the Actual and the Non-actual. This former distinction does not appear to mark out a morally salient difference between the two

classes of person, and thus does not provide a basis upon which to hold that the actual but not the non-actual are morally considerable. If that is so, then if it is wrong to fail to prevent a person from ceasing to exist, then it would seem that procreation is a moral duty, since failing to procreate results in children on future branches ceasing to exist. Thus, a biological imperative becomes an ethical imperative.

3.2 *Ways of ceasing to exist*

So far, I have argued that the non-actual future persons of the branching universe model are morally considerable, and thus that if it is wrong to fail to save a drowning child, then so too it is wrong to allow a future person to cease to exist. All of this is a bit swift though. For given the branching universe model, it turns out that there are a number of ways in which one can cease to exist. Consider the following two scenarios. Suppose that Molly is deciding whether to conceive a child. Call that future child Sally. Now suppose that Molly is also deciding whether to save her friend Jimmy from drowning. Let us suppose that today at t_2 Mary abstains from conceiving Sally, and also allows Jimmy to drown. Then the following claims seem to be true:

- (1) Yesterday at t_1 Jimmy existed, but as a result of Molly's action, he no longer exists.
- (2) Yesterday at t_1 Sally existed, but as a result of Molly's action she no longer exists.

Given the branching universe model there are three ways to evaluate these claims, each of which tracks a different way of disambiguating what it is to cease to exist. Let us begin by introducing the idea of taking a 'snapshot' of the universe at a time, where a snapshot of a universe at some time t is a snapshot of the universe at which time t is the branching point — the objective present. So at different times these snapshots will include different future branches — earlier times will include more future branches than later times, when some branches will have dropped off. Now consider the snapshot of the universe as it is when t_2 is the branching point (snapshot B below). Then we go back one day along the trunk of the tree to t_1 , and see whether Jimmy or Sally exists at that point — that is, whether there is some temporal part of Jimmy or Sally at t_1 . Then we will say that Sally and Jimmy cease to exist just if, in that snapshot, there is some temporal part of Sally or Jimmy that exists at t_1 , but there is no tem-

poral part of Sally or Jimmy that exists at t_2 .⁸ Call this way of ceasing to exist, CE1. Specifically, ceasing to exist in this sense amounts to the following:

- CE1 A person P ceases to exist just if (i) there is some snapshot S of the universe at a time t where t is the first branching point and (ii) in S, there are no temporal parts of P that exist at t , and (iii) in S there is some time t -minus that is past relative to t , such that P has temporal parts that exist at t -minus.

The second way to explicate what it is to cease to exist is to consider the snapshot of the universe at the time when yesterday at t_1 was the first branching point. Then we ask ourselves whether Sally or Jimmy exist in that snapshot — that is, whether it is tenselessly true when t_1 is the objective present, that Sally and Jimmy exist. Then we compare that snapshot to the snapshot of the universe at which t_2 is the first branching point, and again we ask ourselves whether in that snapshot, it is tenselessly true that Sally and Jimmy exist. If Sally and Jimmy tenselessly exist when t_1 is the branching point, but do not tenselessly exist when t_2 is the branching point, then they have ceased to exist. Call this sense of ceasing to exist CE2. Specifically, ceasing to exist in this sense amounts to the following:

- CE2 A person P ceases to exist just if (i) there is some snapshot S of the universe at a time t where t is the first branching point and (ii) there is some snapshot S* of the universe at a time t^* where t^* is the first branching point and (iii) it is tenselessly true that P exists in S and (iv) it is tenselessly true that P does not exist in S*.

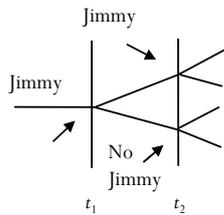
Finally, there is a third sense in which a person could cease to exist. This third sense is the sense in which we begin by considering the snapshot at which t_1 is the first branching point, and ask ourselves whether in that snapshot either Jimmy or Sally have temporal parts that exist at t_2 . Then we consider the snapshot at which t_2 is the first branching point, and ask ourselves whether either Jimmy or Sally have temporal parts that exist at t_2 . If either Jimmy or Sally exist at t_2

⁸ Another way to explicate this would be to say that Sally or Jimmy cease to exist in this sense just if when t_1 is the branching point, Jimmy and Sally exist at t_1 , and when t_2 is the branching point, Sally and Jimmy do not exist at t_2 .

in the first snapshot, but do not exist at t_2 in the second snapshot, then they have ceased to exist. Call this sense of ceasing to exist CE3:

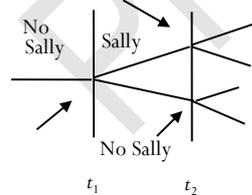
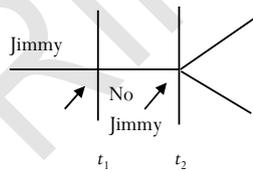
- CE3 A person P ceases to exist just if (i) there is some snapshot S of the universe at a time t where t is the first branching point and (ii) in S there is some time t -plus that is future relative to t , at which there is some temporal part of P that exists, and (iii) there is some snapshot S* of the universe at a time t -plus where t -plus is the first branching point and (iv) in S* no temporal part of P exists at time t -plus.

To clarify this a little, we will represent each of these cases in a pair of diagrams.



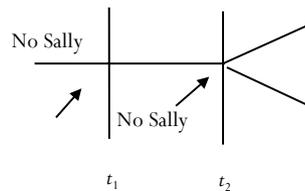
Snapshot A: when t_1 is the branching point.

Snapshot B: when t_2 is the branching point.



Snapshot C: when t_1 is the branching point.

Snapshot D: when t_2 is the branching point.



So let us consider in the light of our first disambiguation, claim (1) that as a result of Molly's actions, Jimmy has ceased to exist. Analysing (1) in terms of CE1, the claim turns out to be true. For in snapshot B we can see that there is some temporal part of Jimmy that

exists at t_1 , and that there is no temporal part of Jimmy that exists at t_2 . So when Molly refrains from saving Jimmy, she brings it about that he ceases to exist in this sense. When we ask whether Molly brings it about that Sally ceases to exist in this same sense, however, we find that she does not. For it is not the case that in snapshot D there is some temporal part of Sally that exists at t_1 , and no temporal part of Sally that exists at t_2 . So in this sense of ceasing to exist, Sally does come to cease to exist. So on the first CE1 disambiguation of ceasing to exist, Molly's refraining from her twin actions brings it about that Jimmy but not Sally ceases to exist.

Now consider claims (1) and (2) in the light of the second disambiguation: CE2. If we analyse ceasing to exist in terms of CE2, then we will say that Jimmy ceases to exist just if in snapshot A it is tenselessly true that he exists, and in snapshot B it is tenselessly true that he does not exist. So claim (1) turns out to be false on the CE2 reading, since it is tenselessly true that Jimmy exists in both snapshot A and B. In this sense then, Molly's failing to prevent Jimmy from drowning does not result in his ceasing to exist. Claim (2), however, comes out as true on this reading of ceasing to exist. For it is tenselessly true that Sally exists in snapshot C, and it is tenselessly true that Sally does not exist in snapshot D. So in this sense Molly's actions in failing to conceive Sally result in her ceasing to exist.

Finally, consider our two claims given the third disambiguation of ceasing to exist, CE3. On this analysis, claim (1) turns out to be true, since in snapshot A there is a temporal part of Jimmy that exists at t_2 , and in snapshot B there is no temporal part of Jimmy that exists at t_2 . So too, claim (2) turns out to be true, since in snapshot C there is a temporal part of Sally that exists at t_2 , and in snapshot D there is no temporal part of Sally that exists at t_2 . So in this sense of ceasing to exist both of Molly's actions in failing to save Jimmy or to conceive Sally result in each ceasing to exist.

So when I said that because Molly's actions in failing to save Jimmy and failing to conceive Sally result in Sally and Jimmy ceasing to exist, these actions are both wrong, I was a little premature. For the proponent of the branching universe model can argue that there is a difference between allowing Jimmy to drown, and failing to conceive Sally, as is reflected in the different analyses of CE1 and CE2. So, it might be argued, there is really no problem here, for we can hold that allowing someone to cease to exist in the CE1 sense is wrong, and thus it is wrong to allow Jimmy to drown, but allowing

someone to cease to exist in the CE2 or CE3 sense is not wrong, and thus it is not wrong to fail to conceive Sally.

That there is a distinction to be made between the Jimmy and Sally cases, however, does not show that in one case Molly acts wrongly and in the other she does not act wrongly. For we may suppose that for many, there is a fairly robust intuition that other things being equal it is wrong to fail to prevent someone from ceasing to exist.⁹ So we may suppose that on *any* reasonable analysis of what it is to cease to exist, all things being equal it is wrong to fail to prevent someone from ceasing to exist. That there are multiple ways of disambiguating this notion within the context of the branching universe model simply means that there are multiple ways of ceasing to exist, and thus multiple ways in which one can act wrongly in failing to prevent such cessation. For, at least *prima facie*, anything that counts as failing to prevent cessation of existence should count as being wrong.

Thus, we might argue, there is an ethically salient sense of ceasing to exist that is captured by CE3, such that if someone ceases to exist in this sense, then other things being equal, this is bad. Then to the extent that Molly's actions result in both Jimmy and Sally ceasing to exist in this sense, her actions are wrong. In fact, this seems plausible. For surely CE3 does capture some intuitive sense of ceasing to exist, and a sense that is morally salient. After all, in sense CE3, if t_1 is the objective present, then at some future time t_2 there exists a temporal part of Sally and Jimmy: if we could look into the future at t_1 , we could see both Jimmy and Sally going about their lives. When t_2 is the objective present, however, there exists no temporal part of either Sally or Jimmy at t_2 . The persons that did exist at t_2 no longer exist at t_2 . And surely this is morally salient.

None of this is to say, at this point, that failing to save Jimmy is as bad as failing to conceive of Sally. For it might be that although all things considered, ceasing to exist in senses CE1, CE2 and CE3 is bad, it may not be equally bad in each case. It is possible that ceasing to exist in sense CE1 is worse than ceasing to exist in senses CE2 and CE3, and thus that although it would be wrong of Molly to fail to conceive Sally, it would not be as wrong as it would be for her to fail to save Jimmy. I will not specifically argue that failing to exist in

⁹ Although of course one might think it is not wrong to allow someone who is terminally ill and in pain to cease to exist.

senses CE1 and CE2 are equally bad, and indeed such an argument is not required for the conclusion that procreation is a moral duty. However, since it is open to a proponent of the branching universe model to argue that ceasing to exist is bad in and only in the CE1 sense, I do want to consider some of the ethically salient differences between the CE1 and CE2 senses of ceasing to exist.

Suppose the following argument was mounted. Our firm ethical intuitions reveal that failing to save a person from drowning is wrong. Our firm ethical intuitions also reveal that failing to conceive a child is not wrong. This distinction tracks the distinction between ceasing to exist in the CE1 and CE2 or CE3 sense. So our ethical intuitions provide reason to think that ceasing to exist in the CE1 sense is bad, in a way that ceasing to exist in the CE2 or CE3 sense is not.

It is true that in general many of us have the intuition that it is wrong to allow a person to drown, in a way that we do not have the intuition that it is a moral duty to procreate. But no doubt that is due in large part to the fact that we conceptualise abstaining from procreation in the context of a metaphysics other than the branching universe metaphysics, where failing to procreate amounts to failing to bring into existence some *merely* possible person. In such a case failing to procreate does not harm any person, since there does not exist any person to harm. It is not at all clear that we have any such intuition to fall back on when we consider that Sally exists all right, and that failing to conceive her will, in some sense, terminate her existence.

So it would be wrong to attempt to fall back on a general intuition about procreation duties in worlds other than branching universes, in order to argue that ceasing to exist in the CE1 sense is objectionable in a way that ceasing to exist in the CE2 or CE3 sense is not.

Perhaps though, there are other reasons to think that ceasing to exist is only bad in the CE1 sense. For we might think that ceasing to exist is bad precisely because there are current desires and life projects that will be thwarted, and because such cessation will result in grief and loss for those who remain after. We cannot say of Sally, however, that her life projects would be frustrated if she were to cease to exist, for if she ceases to exist, there will simply be no life projects to frustrate. So too Sally's parents and friends will not grieve for her cessation of existence. These are valid observations. First, though, notice that presumably it is not necessary that there be grief over the cessation of existence of some person P, for it to be bad that P ceased to exist. If Jimmy had been an orphaned child with no

friends or family, that would not make the fact that Molly failed to save him from drowning any more excusable. Second, it is not clear that it is somehow worse to have life projects that are frustrated, than to effectively have all of one's life projects terminated.

To see this, suppose that one could travel back in time and change the past. Though this is almost universally considered to be logically impossible,¹⁰ nevertheless the existence of much science fiction suggests that many are able to conceive of such a circumstance. So suppose that I could travel back in time and change the past such that some particular person P who did exist and lived a full life, is prevented from coming into existence: perhaps I go back in time and prevent P's conception. In the world post time-travel change, P does not exist, and never existed. My causing P to cease to exist does not result in P having any frustrated desires, however, since my causing P to cease to exist results in P never having had any desires. If this were possible, would it be wrong for me to change the past such that P never existed? Surely it would. Surely P would be no happier to learn that someone was going to make it the case that he never existed, than that someone was about to murder him and thus thwart his future plans.

Or consider another example which does not rely on the logical impossibility of changing the past. Suppose that there exist many four-dimensional non-branching universes. Suppose further that there is a red button that will momentarily appear at some time t_2 in our universe, such that if someone presses that button, it will cause it to be the case that the entire four-dimensional structure of universe U ceases to exist. Now suppose that we know such a button will appear, and at t_1 we are pondering whether it would be right to press it or not. If the button is pressed at t_2 , then at t_1 it will be tenselessly true that U does not exist. If the button is not pressed at t_2 , then at t_1 it will be tenselessly true that U does exist. So would it be right to press the button at t_2 , knowing that if we do so, we make it the case that U and all of its inhabitants, do not exist? Should we feel better about pressing the button, knowing that if we press it there will be no desires or life projects to be frustrated? I think not.

¹⁰ Though for an argument that it is possible to change the past in this way, see Goddu 2003.

What both of these two cases have in common is that intuitively they seem to make more sense if we think of them in terms of some fifth dimension.¹¹

For in each case there is a tendency to want to say that prior to the time travel, and prior to the pressing of the button, person P and universe U tenselessly exist, and after changing the past and pressing the button, it is tenselessly true that person P and universe U do not exist. In both cases, this only makes sense if there is some dimension in which to measure these different states of affairs: in the universe case it requires that there is some dimension that exists outside of the four-dimensional universes, and allows us to compare the times at which events occur within different universes. This would allow us to conceive of a situation in which there exist persons in universe U, who sit around worrying that someone in our universe might press the button. Just like Sally, these people know that if the button is pressed, it is not simply that they will have no futures — as in Jimmy’s case — but rather, it is that they will no pasts either. In the fifth dimension, the sentence ‘U exists’ will go from being tenselessly true, to being tenselessly false. It is difficult to see though, why any particular person in U should think that it is any more permissible for Molly to press the button and thus cause him or her to cease to exist, than it is for her to hold Jimmy’s head under water until he drowns.

I do not say that such considerations show that ceasing to exist in sense CE2 is of equal badness as ceasing to exist in sense CE1. Perhaps it is less bad; perhaps it is worse. I do not know. I only maintain that ceasing to exist in sense CE2 is, all things considered, bad. We have a general intuition that all things considered it is wrong to fail to prevent someone from ceasing to exist. That there are multiple ways of accomplishing this in a branching universe means that there are multiple ways of failing to do one’s duty regarding persons. Although failing to save Jimmy from drowning and failing to conceive Sally results in them ‘ceasing to exist’ in multiple and different senses, both actions are nevertheless wrong. So if we live in a branching universe, then Molly does have a duty to procreate.

What all of this tells us is that either the correct action to perform on any occasion is radically dependent on the metaphysics we adopt

¹¹ For instance, a fifth temporal dimension or, in the case of the multiple universes, some dimension in which the four-dimensional universes are ‘located.’

— if we live in a branching universe then procreation is a duty — or we must conclude that our firm ethical intuitions, such as the intuition that we do not have a duty to procreate, serves as a guide to which metaphysics is correct and thus as a reason to reject metaphysical models such as the branching universe model, or, finally, some combination of the two. Perhaps we ought to conclude that this shows that there must be a dialogue between our ethical and metaphysical theories such that negotiation between the two occurs. Then it is noteworthy that when considering the branching universe model, one of the things on the negotiating table is procreation duties.

3.3 *Am I non-actual?*

It has been argued that models such as the growing block universe model, which incorporate the idea of an objective present with a rejection of presentism (the view that only the present is real), are subject to epistemological problems.¹² For suppose I inhabit a growing block universe, and I am wondering whether it is now the present. Since ‘the present’ is no mere indexical, it is a genuine question whether or not it is now the present. What I do know is that there exists some volume of space-time filled with events, and that most of these events will be in the objective past: for no future events yet exist, and the present is a narrow moving instantaneous sliver of ‘nowness.’ Given that there are considerably more locations in space-time that exist in the objective past, I should conclude that probably the location I call ‘now’ is also in the past.

It seems that there might be some way around this. What marks the objective present as such is that it sits on the abyss of nothingness: the absence of the future. Where those who are in the present look back and see events that are fixed and immutable, they look into the future and see only possibilities: the future appears undetermined. So it might be thought that if I was located in the objective past, events that occur earlier than my temporal location, and events that occur later than my temporal location, would appear equally fixed and determined. Looking forward and looking back would appear symmetrical. Thus, I can know I am in the present if the future appears to be open.

Even if we suppose this is true, however, there is still a problem for the branching universe model. We might be able to know that we are

¹² See, for example, Dainton 2001 and Braddon-Mitchell 2004.

not in the objective past, for if that was the case, the future would not appear to be open: there would be no genuine possibilities. We know, however, that there exist persons on future non-actual branches. Moreover, each of these branches is causally isolated from the others. So if I exist on one of these future branches, the only branch I could see would be my own. But from my perspective on this branch the future would appear open. For my branch, like all of the others, itself branches. These branches represent the physically possible ways the world could be, given that my branch is actual. So the future appears open. What do I see when I look back to temporal locations that are earlier than my location on the branch? Well I see only my own branch: a solitary trunk. From my perspective then, I see events that appear fixed and determined, and thus events that appear to be in the objective past. So from my perspective, it looks as though I am in the objective present. Thus, whether I am located in the objective present or the objective future, it will appear to me that I am located in the present. If we now suppose that there will be at least as much future as there has been past, (we assume the world is not coming to an end any time soon) then it follows that there are many more locations in space-time that exist in the future than exist in the past or the present. So I should conclude that 'now,' the location that I am at, is probably in the objective future. So I should think that I am not actual. Moreover, since most of the future branches will not become actual, but instead will vanish when the objective now reaches them, I should think that I am probably on a branch that will *never* be actual, and thus that I will probably disappear. That is, it will probably become the case that it will be tenseslessly true that I do not exist.

So it turns out that if I live in a branching universe, I should believe that I, and the other individuals around me, are not actual, and will probably never be actual. Given this, do I have any moral duties at all? Should I give money to the starving in Africa, given that at any moment the moving now may come and obliterate me? The probability is that whatever actions I undertake, the consequence of these actions will never become actual. So why not trade in any long-term benefits for short-term gains? Why not sit around and eat chocolate all day? Why not destroy the environment for short-term benefit, given that the destruction will almost certainly not become actual?

One can imagine a response to an argument like this that takes the form of a dilemma. On the one hand, suppose it was true that if one were non-actual, there would be no reason to act in one way rather

than another. Then in deciding what act to do, the only factor that can make any difference is whether I am actual. Given that there is some possibility that I am actual I should choose to act as though I am actual, for only if this is so does it make any difference what I do. But if I act on the presupposition that I am actual, then I should act morally. On the other hand, if I have reason to act one way rather than another even if I am not actual then I have reason to act morally even if I am not actual. If I have reason to eat chocolate given that I am non-actual, it is because eating chocolate is pleasant. But if pleasure matters even though I am non-actual, then the pleasure of my branch-mates also matters. Thus my branch-mates are worthy of moral consideration even though none of us are actual. So whichever horn of the dilemma one chooses, one should conclude that one ought to act morally.

Perhaps this is a successful response, and the epistemological problem of not knowing whether one is actual, does not have any ethical implications. Or at least, perhaps it ought not have any ethical implications: given human psychology, it may well be that those in the grip of the belief that they are non-actual, act other than they would if they believed they were actual. Nevertheless, if the branching universe model is believed to be true, then these are matters that we ought to pursue more thoroughly.

4. Conclusion

What do we learn from considering the branching universe model? We discover that if this model is an accurate picture of the world, then many of our moral intuitions turns out to be mistaken. The question then, is whether we would be right to move from the claim that our ethical intuitions are more firmly held than any speculative metaphysical theory, to the claim that any metaphysical theory that conflicts with these intuitions must be false. I do not know the answer to this question. Perhaps we have good grounds to claim that whatever metaphysical merits the branching universe model may have, it must be false given the way it conflicts with our moral intuitions. Or perhaps we have merely discovered that if the branching universe model is true, then many of our moral intuitions are simply false.

If the former is the case, then metaphysical theories must be measured against our moral intuitions, and pronouncements on their truth or falsity made accordingly. This opens a Pandora's box of

questions: What percentage of moral intuitions need a metaphysical theory preserve in order for us to consider it true? What should we say in cases where strongly held moral intuitions vary between cultures? If ethical intuitions can settle some metaphysical matters when the metaphysics is speculative, how far into the realm of the 'is' can the 'ought' take us? If the latter is the case, then it turns out that our ethical views are subject to massive revision subject to the pronouncements of speculative metaphysics. Those who hold the branching universe model to be true ought to take procreation to be a moral duty. Those who hold other metaphysical models will doubtless be committed to other moral views. Knowing what the right action is to perform on any occasion then, will be like standing on the shifting sands of the speculations of metaphysicians. Any moral certainty we might have thought we had is gone.

Or perhaps we have discovered that we should privilege neither ethical nor metaphysical beliefs, but should instead negotiate between these two inconsistent set of intuitions. This in turn raises its own questions of how we weight different intuitions, and how we engage in trade-offs between inconsistent intuitions. But what is especially surprising in this case is not that there are such trade-offs to be made, but rather, the nature of these trade-offs. It is not surprising that different metaphysical theories involve different intuition trade-offs, and similarly for moral theories. It is more surprising that a speculative theory about the nature of time should involve trading-off intuitions about moral duties to procreate. Perhaps this is just what we should have expected given belief holism, but I am still surprised.¹³

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