The Sooner the Better: An Argument for Bias Toward the Earlier

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ABSTRACT: This paper argues that we should be prudentially and morally biased toward earlier events: other things equal, we should prefer for good events to occur earlier and disprefer for bad events to occur earlier. The argument contends that we should accord at least some credence—if only a small one—to a theoretical package featuring the growing block theory of time and that that package generates a presumptive bias toward earlier events. Rival theoretical packages are considered. Under reasonable allocations of credence to them, the presumptive bias escapes defeat. The argument has several corollaries: other things equal, we should be biased toward the past over the future, the further past over the nearer past, and the nearer future over the further future.

Keywords: time, rationality, the growing block theory, dominance reasoning, the sure thing principle

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0. Introduction

I will argue that we should be prudentially and morally biased toward the earlier: other things equal, we should prefer for good events to occur earlier and disprefer for bad events to occur earlier.

The argument will take an unusual form: it will appeal to a series of cases in which I interact with an oracle. Her testimony rationally compels me to adopt views about the metaphysics of time and the relationship between time and value. The series starts with a case in which my epistemic situation is very different from that of any agent in the actual world and in which it is clear that I should be biased toward the earlier. Subsequent cases put me in epistemic situations that are closer and closer to those of actual agents. Yet, I'll argue, none of them introduces factors that enable me to rationally escape bias toward the earlier. The series culminates in a case in which the Oracle falls silent. Since even here I find no rational escape from the bias and this situation is relevantly like our situation in the actual world, I conclude that we should be biased toward the earlier.

Some preliminaries. In contrast to other defenses of temporal biases and biases toward correlates of temporal features, my argument will not appeal to diminishing returns,[1] epistemic asymmetries between past and future,[2] causal asymmetries between past and future,[3] temporal asymmetries in affective structure,[4] greater uncertainty

[1] See, e.g., Broome (1994).
[2] See, e.g., Albert (2000).
[3] See, e.g., Latham et al. (2020).
[4] See Suhler & Calendar (2012).

attaching to more distant outcomes,[5] persons in the further future having less of what matters in our survival,[6] impact of temporal distribution of goods on narrative structure,[7] higher levels of well-being in the future and the prioritarian view that we have more reason to benefit those who are less well off,[8] temporal neutrality requiring excessive sacrifices from earlier moral patients,[9] or to the rationality of arbitrary preferences.[10] Instead, the argument will turn on a difference in plausibility between two hypotheses about time—the growing and shrinking block theories—that yield different predictions about how long events will exist, depending on how early they occur.[11]

For simplicity and to avoid entangling my argument in controversy about which (if any) other temporal biases can be rational, I will assume that the cases invoked in the argument do not feature anything that justifies temporal biases aside from the factors to which the argument appeals. Thus, for example, it is to be taken as read that the evidence does not assign lower probabilities of occurring to later events or to my existing at later times. Likewise, it's to be assumed that I am rationally indifferent

[5] See, e.g. Sidgwick (1907) and Rawls (1971).

[6] See Greene & Sullivan (2015), Miller (2015), Parfit (1984: 313), Williams (2014), and Żuradzki (2016).

[7] See Greene & Sullivan (2015) and Velleman (1991).

[8] See Parfit (1984: 484); cf. Nagel (1979: Ch. 8).

[9] See Arrow (1999).

[10] See Żuradzki (2016); cf. Arrow (1999) and Street (2009). For discussion of the normative status of temporal biases, see Brink (2011), Greaves (2017), Hare (2013), Sullivan (2018), and Żuradzki (2016).

[11] For good events, the argument can be seen as an opportunity cost argument according to which we should prefer for good events to occur earlier to avoid the potential opportunity costs their later occurrence would incur on certain theoretical packages. Parfit (1984: 483-4) considers a different kind of opportunity cost argument for a future discount rate, one that does not invoke different views of time. He contends (and I agree) that that argument is misleading insofar as it can be expressed in temporally neutral terms. In contrast, since my argument essentially relies on a difference in plausibility between two theories of time, it cannot be stated in temporally neutral terms.

concerning the time order of events except insofar as the considerations I reflect on in the cases rationally compel me to adopt temporally biased preferences.

The conclusion of the argument—that we should be biased toward the earlier, other things equal—is not, however, restricted to cases in which other rational temporal biases are absent. Instead, the 'other things equal' clause is to be read as restricting the conclusion to events that we should regard as equally valuable when bracketing value differences due to the plausibility asymmetry between the growing and shrinking block theories.[12] Without restriction, the conclusion would entail, for example, that we should prefer any earlier pleasure however slight over any later pleasure however great. That entailment is neither plausible nor suggested by the considerations in the argument. Hence the need for a restriction. However, since temporal biases are often thought to be associated with temporal discount rates, it is natural to wonder whether the argument plausibly extends to rationalize a bias toward the earlier in the form of a temporal discount rate that applies regardless of whether other things are equal. The answer is that, for reasons that will become clear, my argument does not come close to rationalizing such discounting; nor do I see how a plausible extension of the argument could do so.[13] In any event, I leave investigating extensions of the argument as a task for future research, one that I think would be best pursued after working through the argument in a relatively simple scenario where other things are equal.

[12] I invite anyone who takes some time biases to be rationally inescapable to adjust the details in the cases I present so that respecting those biases renders other things equal.

[13] This may seem to shield my argument from an objection, namely that temporal discounting produces lives that go worse overall—see Greene & Sullivan (2015) and Greene et al. (2021*c*). However, if my argument can be extended to rationalize temporal discounting, I think it will also explain why that form of temporal discounting would not result in lives going worse overall and thus be immune to the objection. So, regardless of whether my argument can be so extended, I take it to be immune to the objection.

The argument will be implicitly restricted to events that are of finite value if they exist for finite duration. I will bracket the issue of whether the argument can be extended to events that are of infinite value if they exist for finite duration. While interesting, this issue is not urgent. Given that the events we are in a position to influence are of finite value if they exist for finite duration, the urgent question is whether we should be biased toward the earlier with respect to them. I will also take for granted that our timeline is neither branching toward the past or future nor circular.

In presenting the argument, I will focus on an example (eating blueberries) that involves hedonic value for an agent. I focus on hedonic rather than non-hedonic value because I expect the argument to initially seem more plausible when applied to events that realize a kind of value that intuitively accrues if the event lasts for longer and I take hedonic value to be a prime candidate for such a value. I focus on value for an agent rather than any sort of impersonal value because I will in the first instance be concerned with the should of prudential rationality. For brevity, I will often leave implicit the agential relativization of evaluative expressions. However, for reasons given in §6, if the argument works at all, it extends to non-hedonic goods for agents as well as to impersonal moral goods—hence, my choice of example turns out to be inessential.

Finally, I will leave open exactly who the argument establishes should be biased toward the earlier. This question turns partly on tricky issues concerning what it takes for a philosophical consideration to be part of one's evidence and whether agents are prudentially and morally bound by non-obvious implications of their evidence or opinions. Thus, while I think the argument at least wields normative force for those

who think it through (consider yourself warned!), it may or may not reveal a prudential and moral constraint with far broader scope.

1. Day 1: Awakening in the Growing Block

On the dawn of the first day, I find myself being talked out of a dreamless sleep by the Oracle. "Up and at 'em, the day's a wasting", she says. "Think of the good stuff you could be doing this morning rather than being in a neutral state of dreamless sleep. In particular, you could be eating a bowl of blueberries." I groggily reply that the good stuff can wait, that I'll have a bowl of blueberries later in the day, and that in the future I'll let her know if I am facing an alarm clock shortage.

The Oracle agrees to let me go back to sleep if I wish. However, she counsels that I should reflect carefully on the facts about time and value in our world before deciding. Knowing that her track record of advice is impeccable, I begrudgingly decide to heed her counsel. So I ask her if, in the interest of time, she could apprise me of the relevant facts.

She happily obliges. To start, she lets me know that *the growing block theory* is true: what's present changes and only what's present or past exists. "Picture it like this," she says. "Reality is a block that continually grows with time's passage as present events are added to the block of past events."[14]

I find myself wondering aloud whether the past of the growing block is *dead*, i.e. such that past events exist in a way that deprives them of the (dis)value they had as present events. And if the past is dead, what killed it? Is the culprit that becoming past deprives events of concreteness? Or is the past dead because consciousness requires

[14] See Broad (1923), Tooley (1997), and Correia and Rosenkranz (2018).

causation, a relation that holds only on the edge of the block? Or…"[15] The Oracle interrupts: "Let me stop you there. The past is *live*, i.e. past events exist and realize value in just the way that present events do."

If not for my absolute trust in the Oracle's deliverances, I might have balked at the claim that the live growing block theory is true. For one, it threatens to render inappropriate the relief I feel toward the passing of pains.[16] For another, it inspires skepticism about which time the present is: it predicts that a given judgment about now being the objective present will be true only during its brief time on the edge of the block and false thereafter; such judgments would always be in danger of falsity and so never qualify as knowledge.[17]

Anticipating these concerns, the Oracle addresses them. "Look, the implications of the live growing block theory for relief might be a reason to doubt the theory. But this is just how reality is. If coming to terms with it requires an attitude adjustment, so be it. As for the skeptical concern, I remind you that this theory is not uniquely beset with epistemological problems. For instance, consider the *static block theory* on which there is no objective present: it renders our judgments about the objective present false. Or consider *presentism* on which only present events exist. It notoriously has difficulty accounting for facts about the past; *a fortiori* it has difficulty accounting for knowledge of the past. The same goes for the *shrinking block theory* on which future events exist and present events are subtracted from the stock of existing future events as time passes. Similarly, the dead growing block theory has difficulty accounting for facts about there

[15]See Forrest (2004) and Forbes (2016).

[16] See Prior (1959).

[17] See Bourne (2002), Braddon-Mitchell (2004), and Zimmerman (2011). Cf. Merricks (2006).

having been events with the kind of reality that present events now have; *a fortiori*, it has difficulty accounting for knowledge of those facts."[18, 19]

With my worries allayed, the Oracle continues.[20] "The other fact about time that you need to take into account is that time is finite: it will only ever have existed for finite duration." I take this news of the coming end of the (temporal) world with natural piety, finding solace in my taste for desert landscapes and suspicions of infinities outside the mathematical realm.

Turning to facts about time and value, the Oracle adds that the following thesis is true:

> *Amplification*: If two (dis)valuable events differ in how long they will have (ultimately) existed but are otherwise relevantly similar,[21] then the event that will have existed for longer will have greater (dis)value.

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[18] See Heathwood (2005).

[19] What about the *moving spotlight theory*, i.e. the view that the same events exist at all times but there is, as it were, a moving spotlight that confers a privileged status—that of being live—to some events and changes which events it shines privilege upon as time passes. For simplicity, I will not discuss this view in the main text. But what I say in the main text can be extended to the moving spotlight view by construing versions of it as honorary versions of the views that I do discuss in the main text when they agree about which events are live: that is, we can understand the version of the moving spotlight theory on which the light shines only on present events as a version of presentism, the version on which the light shines only on present and past events as a version of the live growing block theory, and the version on which the light shines only on present and future events as a version of the live shrinking block theory.

[20] Had I voiced the concern that the growing block theory is incompatible with the special theory of relativity and therefore empirically untenable (Putnam, 1967; Sider, 2001), the Oracle would have directed me to Zimmerman (2011) to see why this worry is misplaced.

[21] Here and throughout, 'otherwise relevantly similar' means that the events do not have features aside from how long they will have lasted that make them differ in (dis)value. N.B. this allows for cases in which two events are relevantly similar as a result of different factors making value contributions that cancel one another—e.g. a past moderate pleasure and a future mild pleasure could be relevantly similar as a result of a rational bias toward the future that would render them equally valuable, if not for how long they will have lasted. However, since (recall) we are assuming such factors absent, we will not need to consider them in applications of Amplification that follow.

Upon hearing this, I think to myself: finally, some sensible facts! For it stands to reason that more of a good thing will tend to be better and that more of a bad thing will tend to be worse.

My thoughts now return to my decision: shall I eat the blueberries sooner or later? I confirm with the Oracle that I would have subjectively indistinguishable experiences on the two occasions and receive identical nutritional benefits. More generally, *modulo* considerations of the sort the Oracle has just brought to my attention, my two options are identical in all relevant respects. I am now in a position to tell which option is better. For the earlier I eat the blueberries, the earlier a good event will be entered into the growing block. And since time is finite, if I eat the blueberries earlier, that event will be in the block for longer. (Indeed, for any length of time I delay, the blueberry eating event will ultimately exist for that much less time.) But since other things are relevantly equal between the earlier and later blueberry eatings, Amplification entails that the earlier blueberry eating would be of more value than would the later blueberry eating.

Being partial to the better, I recognize that I should opt to eat the blueberries at once. So I spring from my bed, make haste for the fridge, and satisfy this preference. Afterward, I thank the Oracle for awakening me from my slumber.

2. Day 2: Amplifying Expectations

Unbeknownst to me, after I went to sleep on the night of the first day, the Oracle wiped my memories from that day. The Oracle again raises me at dawn and persuades me to reflect on my choice regarding when to eat blueberries.

As before, the Oracle informs me that the live growing block theory is true and that time is finite. However, today she provides me with no guidance concerning Amplification. Lacking her guidance, I find myself initially doubting Amplification. For I notice that the growing block theory yields two sorts of duration. First, there's how long it takes for an event to occur, i.e. how long the event will have been on the edge of the block. Second, there's how long the event will have existed, whether on the edge or in the block. While Amplification appeals only to the latter, my pre-theoretical intuitions that link duration and value do not draw this distinction. Thus, I cannot help but wonder whether Amplification enjoys intuitive support and (lacking any other ground for believing it) whether it is to be believed.

My doubt is somewhat lessened by the following thought: on the live growing block theory, events on the edge of the block and events in the block exist in the same manner. Given that longer existence at one of these locations amplifies value, we should take longer existence at the other location to do so as well. So even if the deliverance of pre-theoretical intuition is merely that occurring for longer amplifies value, it still (indirectly) gives me reason to think that having existed for longer amplifies value as well, i.e. it still gives me reason to accept Amplification.

Lessened though my doubt is, I remain unconvinced of Amplification on the live growing block theory. Even so, I notice that the light of reason still shines more favorably upon earlier blueberry consumption. For I retain a non-zero credence in Amplification. And I find it much more plausible than:

> *Attenuation*: If two (dis)valuable events differ in how long they will have (ultimately) existed but are otherwise relevantly similar, then the event that will have existed for longer will have less (dis)value.

The reason for this is that whereas Amplification enjoys at least some (perhaps indirect) intuitive support Attenuation enjoys none. The live alternative to Amplification is instead the durational neutrality hypothesis that how long an event will have existed has no bearing on its value. This asymmetry extends to versions of Amplification and their Attenuative counterparts: for many specific hypotheses about how much an event's (dis)value is attenuated by duration, I regard it is more likely that that event's (dis)value is amplified by that much; and there is no specific hypothesis about how much an event's (dis)value is attenuated by duration such that I regard that hypothesis as more probable than the hypothesis that the event's (dis)value is amplified by that much. All this leads me to believe that I should, other things equal, accord greater expected (dis)value to whichever (dis)valuable events I rationally believe will have ultimately existed for longer.

With this belief in hand, I reason: the earlier I eat the blueberries, the earlier that good event will be entered into the live growing block. And since time is finite, if I eat the blueberries earlier, that event will be in the block for longer. While this may make no difference to the event's value, it does amplify its expected value, given that other things are equal, which they are. Therefore, I should prefer to eat blueberries earlier. Upon drawing this conclusion, I again bolt for the fridge.

3. Day 3: Alive or Dead

After I went to sleep on Day 2, the Oracle wiped my memories using the same procedure as before. When she informs my decision on this occasion, she is even less generous than she was on the previous day: rather than telling me that the *live* growing block

theory is true and that time is finite, she merely tells me that the growing block theory is true and that time is finite.

Yet even with this meager guidance, I find myself rationally compelled to favor earlier eating. For I reason: the earlier I eat the blueberries, the earlier that good event will be entered into the growing block. And since time is finite, if I eat the blueberries earlier, that event will be in the block for longer. Now, I assign a non-zero credence to both the live growing block theory and to the dead growing block theory. If the latter theory is correct, the blueberry eating will cease to accrue value when it enters the block. In that case, the two blueberry eatings will have the same expected value. On the other hand, if the live growing block theory is correct, then the earlier blueberry eating will have greater expected value than the later blueberry eating. Overall, the expected value of the blueberry eatings will just be the sum of their respective expected values on the live and dead growing block theories, weighted by my respective credences in those two theories. And since the earlier and later eatings have the same expected value on the dead growing block theory and the earlier eating has greater expected value than the later eating on the live growing block theory, the earlier eating will have greater expected value overall, meaning I should prefer it. Again, I find myself dragged out of bed by sheer force of philosophical argument.

4. Day 4: Beyond the Growing Block

When I awaken with my memories wiped on Day 4, I am confronted with my usual choice. The Oracle proves even less informative today: she merely tells me that time is finite and suggests that I reflect on the implications of my views on time and its relationship with value.

I start by taking stock of my views on time. Given the ongoing debate about time among my epistemic peers and superiors, I am in no position to be certain about the truth or falsity of any of the going views. So I accord each of them at least a small credence. Thus, I allot at least a small credence to the live and dead growing block theories, as well as to presentism and the static block theory. Moreover, I also reserve at least a small credence for the shrinking block theory on which (recall) future events exist and present events are subtracted from the stock of existing future events as time passes. Like the growing block theory, the shrinking block theory comes in a live version and a dead version. On the live version, future events exist in just the way present events exist. On the dead version, present and future events exist in different ways, with the latter existing in a manner that deprives them of the (dis)value they will have as present events. Naturally, I accord the live and dead shrinking block theories each at least a small credence as well. And since time is a well-theorized but not exhaustively-theorized subject matter, I reserve a small credence for exotic theories of time, theories that depart from those I have considered and hence from standard theories. Yet there is a limit to my sympathies for exotic theories: I maintain that the theories I have considered are not so far from the truth or so poorly justified that taking into account reasonable credences in exotic theories of time would affect whether I

should eat blueberries sooner rather than later.[22] Being mindful that undue delays may come at a cost, I thus resolve to set aside exotic theories of time.

I then notice that, conditional on the finitude of time, some views (such as presentism and the static block theory) predict that differences in timing do not engender differences in duration. As a result, these views assign equal expected values to earlier and later events that are otherwise on a par, and hence to earlier and later blueberry eating. The sole exceptions among the views of time under consideration are the growing and shrinking block theories. While the dead versions of these theories allow that when an event occurs makes a difference as to how long it will exist, they sever any link between these durational differences and value. Thus, they too assign equal expected value to earlier and later blueberry eating. Not so with the live versions of these theories. Just as the live growing block theory amplifies the expected value of earlier events, so too does the live shrinking block theory amplify the expected value of later events. In both cases, the reason is the same: they predict that events will exist longer depending on their time order; the plausibility advantage of amplification

[22] One motivation for this assumption is that it is hard to see how to reject it for theories of time without lapsing into a general skepticism about seeking guidance from our best theories in incompletely theorized domains. Another is that for any given exotic theory of time that rationalizes a bias toward the later, there will be a temporal mirror of that theory that rationalizes a bias toward the earlier and vice versa. These biases will tend to cancel each other and so not to outweigh any bias jointly rationalized by standard theories of time, unless (1) there is a powerful motivation for an exotic theory of time, (2) that motivation results in that theory's being much more credible than its mirror, and (3) that theory rationalizes a bias not jointly rationalized by standard theories. However: it seems doubtful that exotic theories will enjoy powerful motivations. If they do, symmetry considerations suggest that those motivations will not result in those theories being much more credible than their mirrors. And if some exotic theories are much more credible than their mirrors, it seems more likely that these theories would be jointly biased in the same direction as standard theories than that they would exhibit a contrary bias.

hypotheses over their attenuative counterparts then kicks in to ensure that those events get a boost in expected (dis)value.

Given the symmetry between the live growing and shrinking block theories, some might be tempted by the following thought: the biasing implications of the growing and shrinking block theories cancel each other out; on the remaining theories, time lacks any feature that affects the value of events depending on whether they occur earlier or later; therefore, I should be temporally neutral concerning time order rather than biased toward the earlier.

Fortunately, I recognize that succumbing to this temptation would be a mistake, as the bias imposed by the growing block theory outweighs the bias imposed by the shrinking block theory. This would be so even if the two theories were equally plausible, as some contemporary cosmological models maintain that the past is orders of magnitude shorter than the future.[23] These models provide reason to think that the boost in expected duration and hence value assigned to earlier events by the live growing block theory will tend to exceed the boost assigned to later events by the live shrinking block theory even if the two theories are equally plausible.

Moreover, while the live growing and shrinking block theories are in an obvious sense related by symmetry, they are not equally plausible. This is reflected in the fact that, in contrast to the growing block theory, the shrinking block theory—whether in its live or dead incarnation—is generally not regarded as a live option in philosophy of

[23] I owe this observation to a reviewer.

time.[24] But I do not simply rest my comparative plausibility judgment on this sociological observation. Instead, I arrive at it by reflecting on the motivations and difficulties for these views. I start by noting that insofar as the live growing block theory loses plausibility points by jeopardizing my ability to know which time is the objective present, so too does the shrinking block theory: both theories deem my judgments affirming that now is the objective present to be true only during their short time on the edge and false during their much longer but subjectively indistinguishable time in the block.

Next, I observe that the growing block theory is motivated by the intuition that the future is open in a way that the past is not. The live growing block theory also enjoys this motivation, and has the further virtue of providing a straightforward account of truthmakers for past facts—a desideratum that presentism notoriously struggles to satisfy. I notice that, in contrast, the shrinking block theory is not motivated by these considerations, as it renders the future maximally determinate and is in much the same position as presentism when it comes to supplying past facts with truthmakers.

I turn to consider whether the live shrinking block theory might instead be motivated by temporal mirrors of these motivations for the live growing block theory. As regards the first motivation, I find that the live shrinking block is not motivated by its temporal mirror: since I do not pre-theoretically take the past to be open in a way the future is not, the shrinking block theory scores no plausibility points by making this so.

[24] But see Casati & Torrengo (2011), who argue that the shrinking block theory is motivated by its ability to secure facts about the future. For reasons given below, I think this strategy for motivating the shrinking block theory fails. Their attempt does, however, jeopardize one of the shrinking block theory's distinctive predictions, namely that there is no defense of the theory to be found in history!

As regards the second motivation, the issue is more subtle. Perhaps I am pre-theoretically committed to *some* future facts (e.g. that the sun will rise tomorrow) and the shrinking block theory can account for them. But any such commitment is rather limited.[25] Certainly, I am not pre-theoretically committed to a maximally determinate set of facts about the future—after all, I pre-theoretically allow for its openness. Yet such a set is what the live shrinking block theory delivers. In contrast, the live growing block theory avoids this sort of inelegance, as I am pre-theoretically committed to the maximally determinate set of facts about the past that it delivers. Moreover, the shrinking block theory presumably requires an account of a maximally determinate past that applies even though the past does not exist. But we would expect such an account to also provide the resources to secure the wanted future facts without appealing to existing future events—this threatens to deprive the posited future block of a non-redundant explanatory role in explaining those facts.

These motivational differences lead me to regard the live growing block theory as more plausible than the live shrinking block theory.[26] True, I am unsure how much weight to place on these motivational asymmetries. Still, I reason that so long as the weight should not be zero, it generates a presumption in favor of the live growing block theory over its shrinking counterpart.

[25] Cf. Casati & Torrengo (2011).

[26] As does the following empirical motivation for favoring growing block theories over shrinking block theories: collapse interpretations of quantum mechanics, such as GRW, have asymmetrical laws that straightforwardly generate the future given the past but do not straightforwardly generate the past given the future (Albert, 2000: 162). N.B. This is not to say that these theories render past states *entirely* nomologically independent of future states (Kutach, 2011, fn1).

At this point, the Oracle chimes in: "might this presumption be defeated by the live shrinking block theory's ability to vindicate bias toward the future?"[27] My initial reply is that I regard that bias as irrational and so deny that the shrinking block theory is motivated by its ability to vindicate that bias.[28]

Recognizing that this reply courts controversy, I decide to seek a less tendentious response. Upon further reflection, I arrive at the following. Even if I am wrong about the irrationality of bias toward the future, that bias would still fail to motivate the shrinking block theory. For the bias toward the future rationalized by the shrinking block theory differs from the bias toward the future that people tend to exhibit: the theory motivates systematically discounting past outcomes relative to future ones irrespective of the magnitude of the outcomes' (dis)value, whether they are one's own, positive, hedonic, or earlier by default. Yet future bias in actual subjects is sensitive to all these factors.[29] And whereas the live shrinking block theory rationalizes bias toward the further future, people's future bias is, when skewed, usually not skewed toward the further future. Since the widespread phenomenon of future bias is not plausibly explained by the truth of the live shrinking block theory (even if it is true) or by widespread commitment to it (there is no such commitment), these mismatches are unsurprising. The moral to be drawn from them is that the shrinking block theory's initial promise to vindicate our future bias shrinks to nothing on inspection.

Having found motivations for the live growing block theory but not the live shrinking block theory, I settle upon the view that the former is more plausible. I

[27]This bias encompasses "thank-goodness that's over" attitudes of the sort alluded to in §1.

[28]See Greene & Sullivan (2015) and Sullivan (2018: Chs. 5-7).

[29]See Grace & McLean (2005), Greene et al. (2021*a*), and Loewenstein (1988). Hare (2013) offers a variation of this objection that focuses on hedonic value and on existence rather than duration.

pairwise extend this verdict to the versions of these theories that claim a given event will have existed for the same duration and so amplify its (dis)value by the same amount. Thus, conditional on time being finite and the truth of one or the other of these theories, I assign expected value in an early-biased manner. And since the other theories of time under consideration yield time-neutral value assignments, this leaves me with an overall expected value assignment that is biased toward the earlier, and hence toward eating blueberries earlier.

With mild annoyance that the Oracle did not do more to expedite the process of arriving at this time-sensitive conclusion, I head for the kitchen at once.

5. Day 5: Finitude Lost

On the final day, the Oracle is most reticent. After wiping my memory and confronting me with my usual decision, she merely suggests that I make it in light of reflection on time and value.

I begin today's meditation on my choice with a disjunction: time is either finite (i.e. of finite duration) or infinite (i.e. of infinite duration). I see no way of conclusively establishing either disjunct. So I allot some credence to each hypothesis and set myself the task of determining what each implies about my decision, the hope being that their deliverances will jointly settle what approach to blueberry eating I should adopt.

I first suppose that time is finite. Unknowingly, I repeat the reasoning from Day 4 and conclude that if time is finite, then I should prefer the earlier eating, as it has more expected value.

Next, I suppose that time is infinite. I recognize that in order to figure out what follows, I'll need to deal with two issues. First, there are different ways in which time

could be infinite: it could be that the past and future are infinite, that the past is infinite while the future is finite, or that the future is infinite while the past is finite. I resolve to tackle this issue by considering each case.

Second, there is a question as to whether timing differences induce (expected) value differences, supposing my blueberry eating will have existed for infinite duration. The answer that initially comes to mind is "no": if the event will have existed for infinite duration, then when it occurs makes no difference to its value. For even if its value accrues or diminishes over time, when it occurs will not affect how long it will have existed; so its value will accrue or diminish to the same amount irrespective of its timing.

Initially taking this answer on board, I reason as follows: if the past and future are both infinite, then earlier and later blueberry eating will have existed for the same duration on any theory of time and so will have the same value. If only the past is infinite, then eating earlier rather than later will have more expected duration and hence value on the growing block theory. And if only the future is infinite, eating later rather than earlier will have more expected duration and hence value on the shrinking block theory. At this point, I review the virtues and vices of the two theories, deem the growing block theory more plausible, and infer that the expected value associated with the former bias exceeds that of the expected value associated with the latter—meaning

that eating earlier is to be preferred if it will be of finite duration, even if time is infinite.[30]

Admittedly, it is unclear whether this difference in value results in earlier eating being better in expectation conditional on time being infinite: perhaps when we account for cases in which the blueberry eating exists for infinite duration earlier and later blueberry eating have the same overall (infinite) expected value. Or perhaps there is a residual advantage and eating earlier is better even conditional on time being infinite.

Rather than try to resolve this issue, I appeal to *Dominance*: given a choice between two outcomes, one of which—in expectation, according to my evidence—is not worse and may be better, I should prefer it.[31] (For expositional ease, I'll often suppress the indexing of value to expectation and evidence.) Dominance dictates that I should eat blueberries earlier if time is infinite, as doing so may be better and it is not worse. It also implies that I should prefer to eat blueberries earlier, as time may be finite, in

[30] I undertake this reasoning only after noticing that countervailing asymmetries that would cancel the effect of this plausibility asymmetry are absent: I find the finite future and finite past hypotheses similarly plausible; I take the plausibility advantage of the growing block theory to extend to its live versions over their shrinking counterparts; ampliative hypotheses remain more plausible than their attenuative counterparts; if anything, cosmological models strengthen the bias toward the earlier by rendering the expected duration of a finite future longer than that of a finite past; and my sympathies for exotic theories remain too limited for them to make a directional difference.

[31] My applications of Dominance can be understood as applications of:

> *The Countable Sure Thing Principle*. Let A and B be options, and let $\mathscr{E}$ be a regular partition. If $A \preceq_E B$ for every $E \in \mathscr{E}$, then $A \preceq B$. If furthermore $A \prec_E B$ for some $E \in \mathscr{E}$, then $A \prec B$. (Russell & Isaacs, 2021).

That principle is so named because it is a generalization of Savage's (1954: 21-2) sure-thing principle. I will apply the principle in cases where it is not a sure thing that the option recommended by the principle is best. To avoid confusion on this score, I forgo the "sure thing" label in favor of "Dominance", which has also been applied to formulations of Savage's principle (e.g. in Jeffrey (1982)), and request that readers not confuse it with other dominance principles. For motivations for Dominance, see Briggs (2015) and Russell & Isaacs (2021). Thanks to a reviewer for comments that prompted this footnote.

which case eating earlier is better, and, regardless of whether time is finite, eating earlier is not worse.

Upon drawing these conclusions, I relinquish my covers. However, as I roll out of bed I recall that there are plausible-seeming proposals on offer for comparing the values of worlds that involve goods at infinitely many locations. I also remember that some such proposal had better work, lest we fall prey to the problem of infinitary paralysis, i.e. the problem of avoiding the result that we cannot make the world better or worse if it contains infinite goods.[32] This leads me to wonder if any of these proposals can be applied to my decision. Upon inspection, I find that some of them can be. For example, one simple suggestion is that if two outcomes contain the same locations and one outcome is better at some locations and worse at none, then it is better *simpliciter*.[33] This *Pareto principle* accounts for the fact that an infinite world with a mild pain at each location would be better than a world containing the same locations and a severe pain at each of them. A related proposal is that in evaluating value in worlds with infinitely many locations we should resort to non-standard analysis, which uses pairwise comparisons of elements of hyperreal numbers to yield non-trivial rankings of sums of finite and infinite quantities.[34] On each proposal, even if the blueberry eating will have existed for infinite duration, it'd be better for me to eat earlier (later) if this would result in blueberry eating existing at all the same times it would have existed at if I'd eaten later (earlier) and more times besides. However, given the technical difficulties surrounding axiology in infinite worlds and debate surrounding these and related

[32] See Bostrom (2011).

[33] See Vallentyne & Kagan (1997).

[34] See Bostrom (2011) and Chen & Rubio (2020).

proposals, I stop short of being fully confident of this: I reserve some credence for the hypothesis that existing for infinite duration would make earlier and later blueberry eating equally good even if one's duration would be a proper subset of the other's.

I now factor this complication into my Dominance reasoning as follows. As before, eating earlier is better (in expectation) if time is finite or if my eating will have finite duration even though time is infinite. Thus, eating earlier is better if the eating will be of finite duration. And, as we have seen, eating earlier is not worse if time is infinite and eating blueberries has the same value regardless of its timing if it exists for infinite duration. But what if timing can make the event better even though it will have existed for infinite duration? Well, then on the shrinking block theory, eating later will be better if the past is infinite; and on the growing block theory, eating earlier will be better if the future is infinite. Perhaps these biases cancel. But, if not, then conditional on my blueberry eating being of infinite duration, eating earlier is better—owing yet again to a plausibility advantage of the growing block theory.[35] Thus, while eating earlier is better if my blueberry eating will have existed for finite duration, it may be better and is not worse if it will have existed for infinite duration. Therefore, since my blueberry eating will either be of finite or infinite duration, eating earlier may be better and it is not worse. Through another application of Dominance, I conclude that I should prefer to eat blueberries sooner rather than later. I then rush to devour them.

6. Conclusion

The reasoning I engaged in on the final day generalizes, implying that I should (dis)prefer earlier goods (bads) when other things are equal. It might be thought that the

[35] And, again, to the absence of countervailing asymmetries that would fully offset this advantage—see fn30.

reasoning only generalizes to other goods (bads) involving *hedonic* (dis)value, since it is only hedonic value that is generally amplified over time. While it is true that I have focused on an example involving hedonic value, I reply that the argument already contains the materials needed to generalize beyond hedonic goods. Even if we think it unlikely that non-hedonic goods—e.g., desire satisfaction—accrue more value with longer existence—so long as we should think that they may accrue value and assume that they do not lose value, we can extend the argument to them via yet another application of Dominance.

Before the final day I was compelled to adopt a bias toward the earlier by reasoning that relied on contentious theses that I was able to rationally believe only on strength of the Oracle's testimony. My reasoning on the final day dispensed with those theses and instead relied on the following:

- We should be more confident in the live growing block theory than in the live shrinking block theory—likewise for versions of these theories on which a given event will have existed for the same duration.
- We should be more confident in some versions of Amplification than the corresponding versions of Attenuation; and there is no version of Attenuation that we should be more confident in than the corresponding version of Amplification.
- Unlike the live shrinking block theory and the live growing block theory, (other) standard theories of time do not lead to value differences depending on how long an event will have existed.[36]
- Taking into account exotic theories of time would not affect whether we should be biased toward the earlier.

[36] At least given that we adopt the suggestion from fn19, namely that we understand the live growing block and live shrinking block theories liberally to encompass versions of the moving spotlight theory that agree with them about which events are live.

- If an event is better in expectation conditional on its having existed for finite duration, then it is not worse in expectation conditional on its having existed for infinite duration.
- Dominance: given a choice between two outcomes, one of which—in expectation, according to my evidence—is not worse and may be better, I should prefer it.

If the argument establishes that we should be biased toward the earlier, then it has several important corollaries. One is that it establishes that we should be biased toward the further past. Another is that we should be biased toward the past over the future. Insofar as these biases are alien to typical human temporal preferences, these corollaries render the argument revisionary.[37] Third, the argument provides a novel rational basis for the much discussed bias toward the nearer future.[38] Finally, I have focused on events that are in the first instance valuable for the agent making the decision. Given that what's better for agents is also morally better at least in a respect, the argument also rationalizes a moral bias toward the earlier. All this suggests that we need to systematically revise our preferences and behaviors to bring them in line with the bias

[37] Some recent experimental results suggest that the argument may not be revisionary in the way or to the degree that one might have expected: in an experiment conducted by Greene et al. (2021*b*), roughly one third of participants exhibited bias toward the further past over the nearer past and roughly one third exhibited bias toward the nearer future over the further future. However, the experiment also revealed extreme variability in individual temporal preferences with little to no correlation between past vs. future directed time biases (or lack thereof). This suggests that the argument's recommendations would be revisionary for most individuals, though perhaps not for everyone.

[38] See, e.g. Parfit (1984). For two recent arguments against bias toward the future, see Sullivan (2018: Chs. 2, 3). One of these arguments—the live-saving argument—assumes that preferring a lesser present good to a greater future good commits one to tradeoffs that would make one's life go worse overall (*ibid*: Ch. 2, Section 2). My argument shows how such tradeoffs can be avoided: a lesser present good might make one's life go better than it would with a greater future good, since the former might accrue more value during its longer time in the block. The other argument—the arbitrariness argument—assumes that relative distance from the present is arbitrary and that rational preferences are insensitive to arbitrary differences (*ibid*: Ch. 3, Section 1). My argument identifies a non-arbitrary basis for sensitivity to distance from the present that Sullivan's argument does not address, namely the plausibility asymmetry between the growing and shrinking block theories.

toward the earlier demanded by prudence and morality. If so, then the sooner we do this, the better.

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