What is Luck?

Kramer Thompson

Bachelor of Arts (Macquarie University)

Bachelor of Arts (Honours) (Australian National University)

Department of Philosophy

Faculty of Arts

Macquarie University

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Contents

Summary: The concept of luck plays an important role in philosophical projects in epistemology, ethics, and theory of action. But there is no generally accepted analysis of luck. The purpose of this thesis is to critically assess several popular accounts of luck. I focus on the probability, modal, control, and mixed accounts of luck. I first introduce the philosophical literature on luck and defend various extant accounts of luck from recent arguments by Steven Hales and Jennifer Lackey. I then argue that control accounts of luck fail in all their forms because they are incapable of producing plausible judgements in various cases. I go on to contend that the objective form of the probability account fails because it entails that no events in deterministic worlds are lucky, and that the subjective form fails because it gets cases wrong and cannot show how beings lacking relevant epistemic capacities can be the beneficiaries of luck. Finally, I argue that the standard modal account fails in cases where an event's luckiness is determined by a contrast with what does *not* happen. I propose a new modal account of luck which avoids this problem. I leave it open whether this modal account, or some suitable mixed account of luck, is preferable.

Statement of Originality

This work has not previously been submitted for a degree or diploma in any university. To the best of my knowledge and belief, the thesis contains no material previously published or written by another person except where due reference is made in the thesis itself.

Signed: _____   Date: 17/10/19
       Kramer Thompson

1. Introduction

The concept of luck plays an important role in philosophical projects in epistemology, ethics, and theory of action. Epistemologists are concerned with assessing how luck undermines knowledge and whether a theory of knowledge can be constructed which precludes this undermining.[1] Ethicists are concerned with determining the extent to which people's constitutions and actions are the product of luck due to how luck seems to undermine desert.[2] Philosophers concerned with theory of action are interested in how luck permeates agents' actions and characters and what effect this may have on free will and moral responsibility.[3] Because of their reliance upon the concept of luck, what the concept amounts to will significantly impact these projects.[4] But despite this, there is no generally accepted account of luck. The purpose of this essay is to assess the plausibility of the four most prominent accounts of luck: the probability, modal, control, and mixed accounts. The essay is structured as follows.

Sections 2 to 4 introduce the accounts of luck I will be discussing throughout. Section 2 presents the probability, modal, control, and mixed accounts of luck. Section 3 briefly discusses the significance condition on luck, which is a component in all four accounts. Section 4 argues that an event's significance, and thereby luckiness, is determined by the context in which it occurs,

Sections 5 to 9 fend off arguments against various accounts of luck. Section 5 discusses one of Steven Hales's recent arguments against all accounts of luck. Hales argues that no analysis

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[1] See Duncan Pritchard, *Epistemic Luck* (New York: Oxford University Press, 2005); "Anti-Luck Epistemology," *Synthese* 158, no. 3 (2007); "Anti-Luck Virtue Epistemology," *The Journal of Philosophy* 109, no. 3 (2012); "The Modal Account of Luck," *Metaphilosophy* 45, no. 4-5 (2014); Wayne D. Riggs, "What Are the "Chances" of Being Justified?," *The Monist* 81, no. 3 (1998); "Why Epistemologists Are So Down on Their Luck," *Synthese* 158, no. 3 (2007).

[2] See Joel Feinberg, "Problematic Responsibility in Law and Morals," *The Philosophical Review* 71, no. 3 (1962); Robert J. Hartman, *In Defense of Moral Luck* (Routledge, 2017); Carl Knight, "Luck Egalitarianism," *Philosophy Compass* 8, no. 10 (2013); Thomas Nagel, "Moral Luck," in *Mortal Questions* (New York: Cambridge University Publishing, 1979); Bernard Williams, "Moral Luck," in *Moral Luck* (Cambridge: Cambridge University Press, 1981).

It is contentious how important the concept of *luck* is to these ethical projects, as opposed to merely the distinction between chosen and unchosen events or states of affairs. But given that these projects rely on the vocabulary of luck, the analysis of luck is at least debatably relevant for these projects.

[3] See Neil Levy, *Hard Luck* (Oxford: Oxford University Press, 2011); Alfred Mele, *Free Will and Luck* (New York: Oxford University Press, 2006); "Luck and Free Will," *Metaphilosophy* 45, no. 4-5 (2014).

[4] For instance, suppose that agents are not responsible for the lucky outcomes of their actions. Different outcomes will be determined as lucky according to different accounts of luck, so which analysis of luck is correct impacts which outcomes agents are responsible for.

of luck can account for our differing *synchronic* versus *diachronic* judgements of events' luckiness. I argue that only the diachronic view matters because the diachronic, but not synchronic, view captures the luckiness of paradigmatically lucky events. Section 6 discusses Jennifer Lackey's influential argument against the modal account of luck. She contends that some events are modally robust but lucky, and this is impossible according to the modal account, so the modal account fails. I argue that Lackey is wrong because, upon close inspection, it becomes clear that the case she uses to motivate her argument does *not*, in fact, support her argument. Section 7 presents another recent argument from Hales, which claims that all accounts of luck implausibly deem events as lucky even when they have been produced skillfully by an agent. Section 8 discusses Patrick Beach's proposed solution to this problem and argues that Beach's solution is inadequate. Section 9 presents my proposed solution to the problem: allow that control is a scalar property, such that to the extent that an agent exercises control over an event, it is non-lucky for her.

Having rebutted arguments against various accounts of luck, Sections 10 to 12 argue that the control and probability accounts both fail, in all their forms. Section 10 argues that both the stock control account of luck and Wayne Riggs's amended control account fail because they produce implausible determinations of luckiness in various cases. Section 11 argues that the objective form of the probability account, which determines an event's luckiness according to its objective probability of occurring, fails because it entails that in deterministic worlds no events are lucky. Section 12 argues against epistemic probability accounts of luck, which hold that an event's luckiness for an agent is determined by the epistemic position of the agent prior to the event's occurrence. I argue that these accounts get cases wrong and cannot adequately account for agents without relevant epistemic capacities being lucky. Further, I show that what *prima facie* plausibility they have derives from their parasitism upon other factors which are more plausibly related to luck.

Sections 13 to 15 present problems for modal conditions on luck. Section 13 argues that the modal condition on luck, as generally conceived, is inadequate because it cannot handle cases

where events derive their luckiness from a contrast with what does *not* happen. Section 14 reintroduces Patrick Beach's account of luck and discusses how his account might be thought to solve this problem. I argue that although his account is a step in the right direction, it cannot deal with cases where an event's luckiness is determined by *multiple different* non-occurring events. Section 15 presents my own modal account of luck and argues that this account is superior to competing accounts. I show that this account also avoids the other counterexamples that I have discussed throughout the essay. Section 16 concludes.

2. Four Accounts of Luck

The philosophical literature on luck contains three basic accounts of luck, which I will call the *stock* accounts of luck: the control, probability, and modal accounts. Additionally, there are mixed modal and control accounts,[5] hybrid probability and control accounts,[6] and epistemic probability accounts, which determine an event's luckiness for an agent according to that agent's epistemic position regarding that event occurring.[7] The most popular accounts within the literature on luck are the control, modal, mixed, and (both forms of the) probability accounts. Because of this, I will focus on these accounts throughout this essay.

Before proceeding, I will make three notes. Firstly, I will here refer to events as "lucky" if they involve either good *or* bad luck. Whenever I need to discriminate between the valence of an event's luckiness, I will use the terms good-lucky to refer to events lucky in a good way and bad-lucky for events lucky in a bad way. Events that are not lucky at all are non-lucky.

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[5] Patrick Beach, "Defending Contrastive Luck," *Southwest Philosophy Review* 33, no. 2 (2017); E.J. Coffman, "Thinking About Luck," *Synthese* 158, no. 3 (2007); E. J. Coffman, "Strokes of Luck," *Metaphilosophy* 45, no. 4-5 (2014); *Luck: Its Nature and Significance for Human Knowledge and Agency* (Palgrave Macmillan, 2015); Neil Levy, "Luck and History-Sensitive Compatibilism," *The Philosophical Quarterly* 59, no. 235 (2009); *Hard Luck*; Rik Peels, "A Modal Solution to the Problem of Moral Luck," *American Philosophical Quarterly* 52, no. 1 (2015); "The Mixed Account of Luck," in *The Routledge Handbook of the Philosophy and Psychology of Luck*, ed. Ian M. Church and Robert J. Hartman (Routledge, 2019).

[6] Andrew Latus, "Constitutive Luck," *Metaphilosophy* 34, no. 4 (2003); Riggs, "What Are the "Chances" of Being Justified?."

[7] Asbjørn Steglich-Petersen, "Luck as an Epistemic Notion," *Synthese* 176, no. 3 (2010); "Does Luck Exclude Knowledge or Certainty?," ibid. (2018); Gregory Stoutenburg, "The Epistemic Analysis of Luck," *Episteme* 12, no. 3 (2015); "In Defense of an Epistemic Probability Account of Luck," *Synthese* (2018).

Secondly, it is generally accepted that the primary sorts of things that can be lucky are *events* and *states of affairs*. Additionally, it is generally accepted that events and states of affairs' luckiness is relative to the subjects affected; my death might be bad luck for me, but good luck for my nemesis.[8] For the purposes of this essay I assume both that events and states of affairs are the primary bearers of luck, and that their luckiness is relativised to agents. For brevity I will focus primarily on events rather than states of affairs, but there is a close relationship between events and states of affairs, so anything I say should be translatable in terms of states of affairs.[9]

Thirdly, most of the accounts of luck that I deal with in this essay provide insignificant insight on the apparent phenomenon of *constitutive luck*; luck in the characteristics that constitute who people are. This form of luck is of particular interest to ethicists who believe that agents ought not be held responsible for factors that are a matter of luck. The only account of luck that I discuss here that could plausibly capture the phenomenon of constitutive luck is the control account. But, as I will argue in Section 10, the control account fails as an analysis of luck *simpliciter*. Rather than address constitutive luck, I will discuss what may be called *lottery luck*: luck as a phenomenon that is exemplified by events such as winning the lottery.[10]

I will now turn to illustrating the stock accounts of luck. In doing so, I will rely upon the following two cases.

Fair Lottery: The Powerbucks lottery is a fair lottery with a pool of $10,000,000. Smith buys a ticket for the Powerbucks lottery and when the lottery is drawn, all of his numbers come up. Smith is the sole winner and collects his $10,000,000.

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[8] Note that at least some philosophers think that there are some wrinkles to this. Joe Milburn has argued that although events are the primary lucky phenomena, only subject-*involving*, and not subject-*relative* events are lucky. See Joe Milburn, "Subject-Involving Luck," *Metaphilosophy* 45, no. 4-5 (2014). Duncan Pritchard has also denied that events' luckiness is relative to subjects because he denies that lucky events need be significant for any subject. See Duncan Pritchard, "Modal Accounts of Luck," in *The Routledge Handbook of the Philosophy and Psychology of Luck*, ed. Ian M. Church and Robert J. Hartman (Routledge, 2019). Fernando Broncano-Berrocal believes that although some events are relationally lucky, not all are. See Fernando Broncano-Berrocal, "Luck as Risk," ibid.

[9] For an elegant conception of the relationship between events and states of affairs (or situations) see Jesús Navarro, "Luck and Risk: How to Tell Them Apart," *Metaphilosophy* 50, no. 1-2 (2019). For Navarro, events are the transition between different situations, and the primary bearers of luckiness are not events, but situations.

[10] For more on constitutive luck see Steven D. Hales, "A Problem for Moral Luck," *Philosophical Studies* 172, no. 9 (2015); Susan L. Hurley, "Luck, Responsibility, and the 'Natural Lottery'," *The Journal of Political Philosophy* 10, no. 1 (2002); Latus, "Constitutive Luck."; Levy, "Luck and History-Sensitive Compatibilism."; *Hard Luck*.

Rigged Lottery: The Powerbucks lottery pool is $10,000,000. Smith buys a ticket

for the Powerbucks lottery and when the lottery is drawn, all of his numbers come

up. Smith is the sole winner and collects his $10,000,000. Prior to the lottery being

drawn, Smith rigged it so that he was guaranteed to win.

Any plausible account of luck should determine that Smith is lucky to win the lottery in *Fair Lottery* but not *Rigged Lottery*.

2.1. The Probability Account

The progenitor of the probability account of luck is Nicholas Rescher.[11] According to the probability account, an event's luckiness is a function of its significance and probability.

Stock Probability Account of Luck: An event, E, is lucky for an agent, A, to the

extent that E's occurrence is improbable and significant for A.[12]

The more significant or improbable an event is, the luckier it is. If an event is either totally insignificant or certainly probable, then it is not lucky at all. So an event cannot be lucky if it is merely improbable but not at all significant. The occurrence of an avalanche in a remote mountain range (with no humans or other sentient beings nearby) may be improbable, but this does not make it *lucky*.

In the case of *Fair Lottery*, Smith winning the lottery is apparently highly improbable (the odds of winning a typical lottery are roughly 1 in 14,000,000) and significant. So Smith is lucky to win the lottery in *Fair Lottery*. But in *Rigged Lottery*, the probability of Smith winning the lottery is 1 in 1 because he rigged the machine such that he was guaranteed to win. So although winning the lottery was equally significant in both cases, Smith was not lucky in *Rigged Lottery* because the probability of him winning was so high.

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[11] Nicholas Rescher, *Luck: The Brilliant Randomness of Everyday Life* (University of Pittsburgh Press, 2001); "The Machinations of Luck," *Metaphilosophy* 45, no. 4-5 (2014); "The Probability Account of Luck," in *The Routledge Handbook of the Philosophy and Psychology of Luck*, ed. Ian M. Church and Robert J. Hartman (Routledge, 2019).

[12] Paraphrased from *Luck: The Brilliant Randomness of Everyday Life*, 211.

2.2. The Modal Account

Duncan Pritchard developed the modal account of luck primarily in order to account for epistemic luck.[13] Here is a standard form of the modal account.

> *Stock Modal Account of Luck*: An event, E, is lucky for an agent, A, to the extent that E is significant for A and modally fragile, where an event is more modally fragile the fewer of the nearby possible worlds it occurs in, holding fixed the relevant initial conditions for this event.[14]

The nearness of worlds is determined by a similarity relation: the more similar one world is to another, the nearer they are. The nearest possible worlds to the actual world are those that are as similar to the actual world as possible while still being different. So an event that occurs in the actual world but would not occur if the world were just slightly different is modally fragile because it does not occur in many nearby worlds.[15]

According to the modal account, Smith is lucky in *Fair Lottery* but not in *Rigged Lottery*. It is significant for Smith that he wins the lottery in both cases, but only in *Fair Lottery* is his win modally fragile. This is because in *Fair Lottery*, if the world were just slightly different then different numbers would have been produced by the lottery machine, in which case Smith would not win the lottery. Thus there are *many* nearby worlds in which Smith does not win the lottery in *Fair Lottery*. But Smith's win in *Rigged Lottery* is not modally fragile because, presumably, Smith has ensured that he would win the lottery even if the world were somewhat different (otherwise it is not obvious how he could have guaranteed his win). There are thus only few, or perhaps no, nearby worlds in *Rigged Lottery* in which Smith does not win the lottery. Hence his win is modally robust and therefore non-lucky in this case.

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[13] Pritchard, *Epistemic Luck*; "Moral and Epistemic Luck," *Metaphilosophy* 37, no. 1 (2006); "Anti-Luck Epistemology."; "Anti-Luck Virtue Epistemology."; "The Modal Account of Luck."; "Modal Accounts of Luck."

[14] Note that although this presentation of the account differs slightly from Pritchard's explicit presentation of the modal account, this difference only serves to make it more obvious that luck is *scalar*: two events may both be lucky while one is luckier than the other.

[15] Very similar worlds will only differ from one another in trivial respects, such as an object (or its counterpart) being in a slightly different position.

The modal and probability accounts of luck seem to agree that "chance" plays a role in underpinning an event's luckiness, although they understand chance in different ways. I think that this is right. But because "chance" could plausibly refer to either modal fragility or objective probability, for the rest of this essay when I refer to an event's *chance* or *chanciness* I am referring to *either* its modal fragility *or* objective improbability *or* some other feature of the event that may suitably cash out its apparent chanciness. I do not equate chance with objective improbability or modal fragility in order to judge these views on their own merits.

2.3. The Control Account

Philosophers concerned with responsibility, desert, ethics, and political philosophy generally rely upon a conception of luck as precluding control, or merely as the inverse of control.[16] Here is a standard form of the control account:

> *Stock Control Account of Luck*: An event, E, is lucky for an agent, A, to the extent
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> that E is significant for A and beyond A's control.

According to the stock control account of luck, Smith is lucky in *Fair Lottery* to win the lottery because winning the lottery is significant for him and out of his control. And he is not lucky in *Rigged Lottery* because he controls his win by rigging the lottery.

2.4. The Mixed Account

Mixed accounts of luck incorporate both a control and a modal condition. Although there are several mixed accounts of luck, I will use Neil Levy's account of chancy luck to illustrate them.[17]

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[16] For instance, see Feinberg, "Problematic Responsibility in Law and Morals."; Hartman, *In Defense of Moral Luck*; Knight, "Luck Egalitarianism."; Nagel, "Moral Luck."; Williams, "Moral Luck." At least two philosophers concerned with epistemic luck have also advocated a control account. See John Greco, "Virtue, Luck and the Pyrrhonian Problematic," *Philosophical Studies* 130, no. 1 (2006); Wayne D. Riggs, "Luck, Knowledge, and Control," in *Epistemic Value*, ed. Adrian Haddock, Alan Millar, and Duncan Pritchard (Oxford University Press, 2009). For a sample of other philosophers who assume the control account of luck, see Hales, "A Problem for Moral Luck," 2386.

[17] For other mixed accounts see Beach, "Defending Contrastive Luck."; Coffman, "Thinking About Luck."; Coffman, *Luck: Its Nature and Significance for Human Knowledge and Agency*; Peels, "A Modal Solution to the Problem of Moral Luck."; "The Mixed Account of Luck."

Levy's Chancy Luck: An event or state of affairs occurring in the actual world is chancy lucky for an agent if (i) that event or state of affairs is significant for that agent; (ii) the agent lacks direct control over that event or state of affairs, and (iii) that event or state of affairs fails to occur in many nearby worlds; the proportion of nearby worlds that is large enough for the event to be chancy lucky is inverse to the significance of the event for the agent.

According to this account, Smith is lucky in *Fair Lottery* because his win was significant, out of his control, and modally fragile, but not in *Rigged Lottery* because in this case his win was both within his control and modally robust (for the reasons provided in the last two subsections).

3. The Significance Condition

The accounts of luck that I have described all state that an event is lucky only if it is significant. This is generally agreed upon by philosophers working on the concept of luck.[18] But I have not yet discussed what it is for an event to be significant. Although there is insufficient space here for a full discussion of significance, I will briefly discuss two of the most prominent conceptions of significance.

The most detailed examination of the significance condition comes from Nathan Ballantyne.[19] Here are Ballantyne's most developed forms of the *subjective* and *objective* significance conditions, respectively.[20]

Subjective Significance: Individual X is lucky with respect to event E only if (i) were there a (possibly distinct) individual X* capable of ascribing significance to

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[18] Notably, Duncan Pritchard initially accepted that lucky events must be significant, but later rejected this. See Pritchard, *Epistemic Luck*, 132; "The Modal Account of Luck," 603-06. This move has been critiqued by De Grefte in Job De Grefte, "Pritchard Versus Pritchard on Luck," ibid.50, no. 1-2 (2019): 4-6. Joe Milburn also denies that lucky events need be significant in Joe Milburn, "Subject-Involving Luck," ibid.45, no. 4-5 (2014).

[19] "Luck and Interests," *Synthese* 185, no. 3 (2012). See also Nathan Ballantyne, "Anti-Luck Epistemology, Pragmatic Encroachment, and True Belief," *Canadian Journal of Philosophy* 41, no. 4 (2011); Nathan Ballantyne and Samuel Kampa, "Luck and Significance," in *The Routledge Handbook of the Philosophy and Psychology of Luck*, ed. Ian M. Church and Robert J. Hartman (Routledge, 2019). E.J. Coffman has also briefly discussed significance in Coffman, "Thinking About Luck," 386-88.

[20] These correspond to Ballantyne's *L4* and *L6* respectively. The other forms of the significance condition he discusses fail in clear cases and hence will go unmentioned here.

E and (ii) were X* apprised of the properties of E in virtue of which E has a positive or negative effect on X, then X* would ascribe significance to E.[21]

Objective Significance: Individual X is lucky with respect to E only if (i) X has an interest N and (ii) E has some objectively positive or negative effect on N (in the sense that E is good for or bad for X).[22]

Put simply, Subjective Significance states that an event is significant for an agent if some suitably informed individual would ascribe that event as significant for that agent, whereas Objective Significance states that an event is significant for an agent if it has some objectively good or bad effect on that agent's interests, irrespective of whether that agent or anyone else does or would ascribe significance to it.

Although Ballantyne poses serious problems for Subjective Significance and ultimately endorses Objective Significance, it is immaterial for the purposes of this essay which of these accounts of significance (or perhaps some other account) is correct. Henceforth I will proceed with Objective Significance in mind, but what I say should be true according to Subjective Significance or other plausible conceptions of significance. My arguments only require that we understand a significant event as one that has some positive or negative effect on an individual.

With the background out of the way, I will now turn to dealing with arguments regarding the plausibility of extant accounts of luck. I will contend that recent arguments by Steven Hales and Jennifer Lackey against all accounts of luck and the modal account of luck, respectively, can be dissolved if we properly appreciate how an event's luckiness is determined by the context in which it occurs.

4. Luck in Context

The winning of a fair lottery in a case like *Fair Lottery* is a paradigmatic lucky event. But there is nothing *intrinsically* good about having a lot of money. Merely having money is not significant;

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[21] Ballantyne, "Luck and Interests," 325.
[22] Ibid., 331.

the good of money comes from the ability to spend it.[23] So in *Fair Lottery*, Smith must be lucky to win because he is now capable of spending money in other circumstances. That is, winning the lottery is only lucky because of the *context in which it occurs*, namely the context in which Smith can buy some champagne later that night, a Porsche the next day, a house a month down the track, and so on. To contrast with this, imagine the following case.

> *Marooned Winner*: The Powerbucks lottery is a fair lottery with a pool of $10,000,000. Smith is marooned on a desert island with no hope of ever being rescued. Smith has in his pocket his Powerbucks lottery ticket. Next to him is his portable radio, which announces that he is the sole winner of the Powerbucks lottery and that because Powerbucks has been unable to contact him regarding his win, the $10,000,000 has been automatically deposited into his bank account.

I think it is clear that Smith is *not* lucky to win the lottery in *Marooned Winner* because *he cannot spend the money*. That is, the context in which the same event occurs (Smith winning the lottery) determines whether the event is lucky or not.

But note that the luckiness of an event is not dependent upon *just any* context changes. In *Fair Lottery*, Smith would still be lucky to win the lottery irrespective of what happens in distant galaxies, whether bicycle riding is popular, whether he is tall or short, single or divorced, and so on. The contextual changes that can affect an event's luckiness for an agent are those that affect its significance for him. Such changes are those that alter the extent to which an event affects the agent positively or negatively. For Smith, the significance of winning the lottery is dependent upon how good it will be for him to have an additional $10,000,000. If he is unable to spend the money, like in *Marooned Winner*, then winning the lottery is *not* significant and hence not lucky for him. So an event's luckiness for an agent is partly determined by the circumstances of the agent at the time that the event occurs.

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[23] This is why money is a paradigmatic *instrumental* good; the sort of thing that is good because it contributes to the attainment of other goods.

Additionally, an event's luckiness for an agent is partly determined by its effect on *later events*.

> *Five Cents on the Ground*: Amanda is walking around the local shopping centre and looks down at her feet and notices five cents on the ground. She habitually picks up any money that she finds on the ground, so she picks up the five cents.

This appears to be a paradigmatically *non*-lucky event because finding five cents is so insignificant. But consider the following case.

> *Five Cents for a Movie*: Amanda is walking around her local shopping centre, on the way to the cinema to watch a movie. As she approaches the cinema she looks down at her feet and notices five cents on the ground. She habitually picks up any money that she finds on the ground, so she picks up the five cents. When she is purchasing her movie ticket, she scrounges around in her wallet searching for the money to pay for it. She only has *just* enough to pay for her ticket. Without finding that five cents, she would not have had enough to pay for the ticket and would have had to return home.

It is clear to me that in this case, it was very lucky for Amanda to find the five cents on the ground. But *Five Cents on the Ground* and *Five Cents for a Movie* are identical with respect to the event of finding the five cents. They differ in that finding the five cents has a large positive impact on Amanda in *Five Cents for a Movie*, whereas this impact is absent in *Five Cents on the Ground*. Because finding five cents is not typically especially lucky, it does not appear especially lucky in *Five Cents on the Ground* for Amanda to find the five cents. But because of the context in which Amanda finds the five cents in *Five Cents for a Movie* – that she will soon rely upon this five cents to pay for her ticket – it is clear that in this case it is good luck for Amanda to find the five cents. Thus an event's luckiness is partly determined by the effect it has on future events. In this case, a typically insignificant and non-lucky event turns out to be a good-lucky one due to its impact on later events.

4.1. The Relevance of Context

The purpose of considering these cases is to demonstrate that whether an event is lucky is determined by the broad context in which it occurs.[24] *Marooned Winner* showed that an event's luckiness for an agent depends partly on the agent's position at the time of the event's occurrence, and *Five Cents for a Movie* showed that an event's luckiness for an agent depends partly on what occurs *after* that event has occurred. There could also be cases where an event affects an agent positively in some future circumstances, but negatively in others, such that these additional factors must be accounted for to determine the event's luckiness. I argue that the significance condition on luck should thus be understood as follows.

> *Contextualised Significance*: The significance of an event, E, for an agent, A, depends on how E affects A's entire life both at the time of E's occurrence and in the future.[25]

If I am right that an event's significance and luckiness partly depend upon its future effects, then sometimes we will not be in a good epistemic position to determine whether an event is good-lucky, bad-lucky, or not lucky at all. The event *will* be one of these, but we may not be able to determine which. Of course, we will often have a good idea whether an event is good-, bad-, or non-lucky, but unless we know the full consequences of the event, we will not know with certainty how lucky it is. Before responding to Hales's and Lackey's arguments, I must now clarify two things that I am *not* doing: epistemic contextualism or relativising luck.

Firstly, there is a theoretical program in epistemology called epistemic contextualism which holds, roughly, that what is expressed by a knowledge attribution – and therefore in some

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[24] Four other philosophers have noted that an event's significance is determined by context, yet none of them has developed the idea in detail. See Beach, "Defending Contrastive Luck."; Julia Driver, "Luck and Fortune in Moral Evaluation," in *Contrastivism in Philosophy*, ed. Martijn Blaauw (Routledge, 2013), 159, 64; Steven D. Hales, "Synchronic and Diachronic Luck," in *Temporal Points of View*, ed. M. Vázquez Campos and A.M. Liz Gutiérrez (Springer, 2015), 623; "Why Every Theory of Luck Is Wrong," *Noûs* 50, no. 3 (2016); Rescher, *Luck: The Brilliant Randomness of Everyday Life*, 80-84; "The Machinations of Luck," 622-23..

[25] This may be conceived as a constraint on how significance is understood, rather than a fully fleshed out conception of it. Because of this, it is not in conflict with Ballantyne's principles and is consistent with both of those presented here.

cases whether the attribution is known – depends upon the context in which the knowledge attribution is made.[26] According to epistemic contextualism, varying which contextual factors are salient varies the epistemic status of knowledge attributions made within that context. It might be thought that because luck is relevant to epistemology, and I am arguing that an event's luckiness depends on the context in which it occurs, that I am intending the concept of luck to be contextual in a similar way. But I am not doing this. Although I believe that an event's luckiness is determined by the context in which it occurs, I do not believe that what is being expressed by attributions of luck varies depending on the context of attribution or what contextual factors are made salient. I believe that facts about agents and events determine luckiness.

Secondly, it might be thought that I am claiming that events may only be *relatively* lucky, such that if event A results in both events B and C, A might be good-lucky relative to B but bad-lucky or non-lucky relative to C. But I am not claiming this. I believe that events are lucky *simpliciter*, and that an event's luckiness *simpliciter* is determined by the context in which it occurs. Further, there are not multiple equally good contexts. The only context that matters for determining an event's luckiness is the broadest context in which that event occurs. To illustrate this, consider the following case.

> *Winner Killed*: The Powerbucks lottery is a fair lottery with a pool of $10,000,000.
> Prior to the lottery being drawn, two thieves planned to murder the winner and steal
> the winnings. Smith buys a ticket for the Powerbucks lottery and when the lottery
> is drawn, all of his numbers come up. Smith is the sole winner and collects his
> $10,000,000. After Smith collects his money, he is murdered by the thieves, who
> steal the money.

The winning of the lottery is *not* good-lucky for Smith relative to him attaining the money and bad-lucky for him relative to him being killed. Winning the lottery *just is bad luck for Smith*

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[26] For an overview see Rysiew "Epistemic Contextualism," in *The Stanford Encyclopedia of Philosophy*, ed. Edward N. Zalta (2016).

because it results in such a bad thing happening to him. The badness of him being killed and having his money stolen more than outweighs the goodness of attaining the money. The only context that matters is the context which specifies how the event in question (winning the lottery) *fully* affects Smith's life.[27] I will now argue that appreciating this property of luck serves to undermine a recent argument by Steven Hales against all accounts of luck.

5. Hales and Synchronic and Diachronic Luck

In a recent paper, Steven Hales has presented three arguments which he believes each demonstrate that all accounts of luck fail. These arguments involve cases of *lucky necessities*, *skillful luck*, and *synchronic and diachronic luck*. I will not discuss his cases of lucky necessities in this essay, and I will discuss his cases of skillful luck in Section 7. Here I will focus on his arguments regarding synchronic and diachronic luck.[28]

5.1. Hales's Argument

Hales has contended that we have different judgements about whether an event is lucky depending on whether we consider it *synchronically* or *diachronically*, which he defines as follows.

> *Synchronic View*: A synchronic view of an event assesses that event without considering the time at which it occurs or which events occur before and after it.[29]
>
> *Diachronic View*: A diachronic view of an event assesses that event while considering the time at which it occurs and which events occur before and after it.[30]

The case he uses to illustrate these two views is the following, which I present here verbatim.

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[27] Note that my conception of lucky events contrasts a recent proposal by Jesús Navarro in Navarro, "Luck and Risk: How to Tell Them Apart."

[28] For responses to all three of Hales's arguments see Beach, "Defending Contrastive Luck." I believe that Beach's responses to lucky necessities and skillful luck are basically correct, but that his response to synchronic and diachronic luck does not get to the heart of Hales's argument. I will discuss Beach's solution to cases of skillful luck in Section 8.

[29] Hales, "Why Every Theory of Luck Is Wrong," 502.

[30] Ibid.

Slot Machine: Suppose you are playing an old-fashioned mechanical slot machine (new ones are digital, computer-controlled, and randomized). Pull the lever, and three reels spin around independently of each other, each with the same probability to land on a lemon, cherry, apple, lime, grape, watermelon, etc. A common setup is to have 16 different images per reel. The reels do not stop all at once; the one on the furthest left stops first, then the middle reel, then the one on the right. You pull the lever. The first reel lands on a cherry. That's not luck; you don't care. It is irrelevant what the first symbol is. Then the second reel also stops on a cherry. You're still not feeling too lucky, because there's no payout for two cherries. But now you are certainly crossing your fingers for the third reel, hoping for a visit from Lady Luck. When it stops, it too lands on a cherry. Jackpot! You were very lucky that the 3rd reel came up cherry.

Hales notes that if these events are understood synchronically, *none of them* is any luckier than any other. This is because, ignoring the order in which each reel lands on a cherry, it is obvious that each is *equally* necessary to produce the jackpot. But if these events are understood diachronically, it appears that while the first cherry was not lucky, and the second only a little lucky, the third was extremely lucky. Hales also contends that this problem cannot be dissolved by appealing to significance because although the third cherry may appear more diachronically significant, there is nothing more significant about any of the cherries when considered synchronically. That is, ignoring the position in the series in which they occur, all the cherries are *equally* significant. According to Hales, no account of luck – or significance – can account for our differing judgements depending on which perspective we take, and thus all accounts of luck are severely flawed. I will now argue that Hales is wrong. I will show that a correctly understood diachronic view is the one that matters, and that such a view can easily be accommodated by accounts of luck.

5.2. Diachronic and Synchronic Disagreement

The diachronic and synchronic views may legitimately produce different determinations of significance and luckiness in certain cases. Suppose that if A occurs before B then E will occur, but if A occurs after B then F will occur instead. In any case like this, the temporal position at which an event occurs may affect its significance, and thus synchronic and diachronic judgements of events' significance and luckiness will vary. But this is not what is occurring in *Slot Machine* because, as Hales says, which position in the series is occupied by each event of the different reels landing on cherry has no impact on the resulting jackpot. So why, in *Slot Machine*, do our judgements of these events' luckiness differ when viewing them synchronically versus diachronically?

I contend that the judgements of the synchronic and diachronic views vary in this case due to how Hales presents *Slot Machine*. He staggers the delivery of contextual information such that when the first reel lands on cherry it is unclear whether the second and third will too; when the second lands on cherry it is unclear that the third will and; only when the third reel lands on cherry do we finally know that we have won the jackpot. The earlier cherries *appear* less significant because it is not until the third reel has landed on cherry that we have sufficient contextual information to appreciate their significance.

But I argued in Section 4 that an event's significance is determined by the *broadest context* in which it occurs. This involves appreciating what comes both before *and* after the event in question. If a diachronic judgement of an event's significance involves this sort of broad contextualisation – as I have argued it should – then it becomes clear that each of the cherries is equally lucky because without *any* of them, we would not win the jackpot. This, I believe, is intuitively obvious even when we are aware of the order in which each reel lands on cherry. For instance, if I know that the second and third reel will land on cherry, but I do not know what the first reel will land, it strikes me as obvious that the first reel landing on cherry is just as lucky as the third reel landing on cherry in the *Slot Machine* case. Another way to imagine this is as follows.

Videotaped Slot Machine: I am playing a slot machine, but I am unable to observe which fruit each reel lands on. I pull the lever and several minutes after the reels have landed, I am presented with video recordings of each of the reels landing however they do. I watch these recordings in a random order such that I have no idea whether the first recording I watch is a recording of the first, second, or third reel's landing, and similarly for the second and third recordings that I watch. All the reels landed on cherry, as is depicted in the video recordings.

From my perspective it will appear that the events I am witnessing are progressively luckier; the events depicted in the third recording appear luckier than the events depicted in the second and first. But this is not to do with the order in which these events *actually occurred*; it is to do with my limited, but progressively improving, information regarding my chances of winning the jackpot.[31]

If I am right, then Hales has not presented *Slot Machine* in a way that is conducive to taking the correct diachronic view of the events. The diachronic view should consider events in the light of both what has come before them *and* what is to come after them. Once we view the events in *Slot Machine* in this way, the diachronic and synchronic views produce the same judgement: each reel landing on cherry is equally lucky. There is no discrepancy between the diachronic and synchronic views in *Slot Machine* because the temporal position of each of these events does not impact how they contribute to the jackpot occurring. This is just as it should be.

5.3. Which View Matters?

But as I noted, in cases where the temporal position of events *does* affect how those events impact the relevant agent(s) or future events, the synchronic and diachronic views will legitimately produce different determinations of luckiness. According to Hales, this is a problem. His argument

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[31] An alternative reading of this is that an event's luckiness is determined by the epistemic position of the agent(s) affected. On this reading, the luckiness of each reel landing on cherry *is* determined by how well informed I am regarding the context in which each reel lands on cherry. I will argue against such accounts of luck in Section 12.

runs as follows.[32] Diachronic and synchronic judgements sometimes (legitimately) differ. So for any account of luck to provide determinate judgements of events' luckiness, it must operate using either a synchronic or diachronic perspective. But there is no logical or metaphysical privilege bestowed to either the synchronic or diachronic point of view. Because neither of these perspectives is privileged over the other, there is no principled way to arbitrate between which perspective should be taken. Thus no account of luck can make principled determinations of events' luckiness.

However, I argued in Section 4 that even paradigmatically lucky events can only be understood as such when contextualised. Winning a lottery is only lucky because the lottery winner is able to spend that money in *other circumstances*. Agents like Smith in *Marooned Winner*, who are unable to spend the winnings, are not lucky if they win the lottery. And agents such as Amanda in *Five Cents for a Movie* are lucky to find five cents because of how useful it is in the *future*. Thus, because even our simplest and clearest judgements of luck rely upon a diachronic contextualisation of events, the diachronic perspective is superior to the synchronic. That is, an event's significance – and thereby luckiness – for an agent is determined by how it affects that agent's life broadly.

And again, it is *not* merely that the diachronic and synchronic views both make sense of an event in different ways. The diachronic view properly makes sense of an event's luckiness whereas the synchronic one does not. In *Winner Killed*, where thieves kill Smith to rob him of his lottery winnings, Smith is not good-lucky to win the lottery synchronically but bad-lucky diachronically. He is bad-lucky *simpliciter* because he is bad-lucky diachronically. It is the diachronic view that matters, not the synchronic view.

Therefore, although there is no *logical* or *metaphysical* priority of diachronic over synchronic judgements about events' luckiness, it is highly plausible that the diachronic judgements are the ones that matter. Thus Hales is wrong. The distinction between these two views

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[32] Hales, "Synchronic and Diachronic Luck."

poses no problem for accounts of luck. With these arguments from Hales dealt with, I will now engage a problem for the modal account of luck posed by Jennifer Lackey.

6. Lackey and Modally Robust Lucky Actions

In a popular paper, Jennifer Lackey has argued that both the modal and control accounts of luck fail.[33] I will here focus on her arguments against the modal account. This is a highly influential argument in the literature on luck, and many philosophers motivate their accounts of luck on the grounds that they do not fall prey to this argument (unlike the modal account).[34] She argues against the modal account by presenting the case of *Buried Treasure*, paraphrased as follows:

> *Buried Treasure*: Sophie intends to bury a chest filled with her treasures at a location she has a deep connection to. She only has such a deep connection to one place, so she buries her treasure at that spot. One month later, Vincent intends to plant a rose bush at a location he has a deep connection to. Vincent only has a deep connection to the same location that Sophie does, although for independent reasons. Because of this, Vincent digs up the ground to plant the rose bush at the same place Sophie buried her treasure. While digging, he discovers Sophie's buried treasure.[35]

Lackey argues that Vincent digging up the treasure is a paradigmatic lucky event, but that it is not modally fragile because Vincent has deep, robust personal reasons for digging there. Vincent (and thus the world) would have to be *very* different for him not to dig there. Similarly, Sophie would have to be very different for her to have buried her treasure anywhere else. Thus in any nearby possible worlds, Sophie would bury her treasure there and Vincent would dig it up

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[33] Jennifer Lackey, "What Luck Is Not," *Australasian Journal of Philosophy* 86, no. 2 (2008). Also see Lackey "Pritchard's Epistemic Luck," *The Philosophical Quarterly* 56, no. 223 (2006).

[34] For instance, see Fernando Broncano-Berrocal, "Luck as Risk and the Lack of Control Account of Luck," *Metaphilosophy* 46, no. 1 (2015); Coffman, *Luck: Its Nature and Significance for Human Knowledge and Agency*; Rachel McKinnon, "Getting Luck Properly under Control," *Metaphilosophy* 44, no. 4 (2013); "You Make Your Own Luck," ibid.45, no. 4-5 (2014); Steglich-Petersen, "Luck as an Epistemic Notion."; "Does Luck Exclude Knowledge or Certainty?," ibid. (2018); Stoutenburg, "The Epistemic Analysis of Luck."; Isaac Wilhelm, "A Statistical Analysis of Luck," *Synthese* (2018).

[35] Paraphrased from Lackey, "What Luck Is Not," 261.

there. So this is a lucky event which is not modally fragile, and therefore the modal account of luck fails.

But not all philosophers accept Lackey's argument. In a response to Lackey, Neil Levy has argued that although Vincent is lucky, he is not lucky to dig up the treasure. Instead, he is *fortunate* to dig up the treasure, where an event is fortunate if it is not lucky itself but involves luck in its proximate causes. Vincent is lucky that he develops the deep personal connection that he has to that location, but he is not lucky *to dig up the treasure*. To motivate this thought, he presents the case of *Buried Treasure**, which specifies that Vincent finding the buried treasure was intentionally orchestrated by his great-uncle.

> *Buried Treasure**: Unbeknownst to Vincent, Sophie buried the treasure in the spot at which he found it because Vincent's eccentric great-uncle wanted him to have the riches (perhaps Sophie was unaware of the plan; perhaps Vincent's great-uncle is a neuroscientist with the power to implant in Sophie a love of roses, knowing it will lead her to bury her treasure in the one spot where he knows Vincent will dig). In that case, it will seem to Vincent very lucky that there was treasure in the precise spot at which he dug, but luck had nothing to do with it; his finding the treasure was planned.

Vincent is not lucky to find the treasure in *Buried Treasure** because his finding it was determined by his great-uncle's interventions. Similarly, Levy's argument goes, Vincent is not lucky to find the treasure in *Buried Treasure* because his finding it was determined by his and Sophie's personal connections to that location. Further, if Vincent were apprised of his great-uncle's orchestration in *Buried Treasure**, he would no longer believe that his finding the treasure was lucky. Because *Buried Treasure** is analogous to *Buried Treasure*, Levy contends that

Vincent would not – or at least should not – believe himself to be lucky in *Buried Treasure* when apprised of these details.[36]

Although I find Levy's argument fairly plausible, not everyone does.[37] For instance, E.J. Coffman argues that *Buried Treasure* and *Buried Treasure** are insufficiently analogous to support Levy's argument.[38] I do not agree with Coffman. I believe that these cases are sufficiently analogous, and that Vincent is lucky at an earlier time, not when he finds the treasure. But I can also see how the analogy with *Buried Treasure** may not convince everyone. So to argue against the plausibility of *Buried Treasure* as a counterexample to the modal account of luck, I will now demonstrate that *Buried Treasure* is structurally analogous to a lottery case in which it is intuitively obvious that although the agent is lucky, he is not lucky at the time he receives the payoff. Because this is such an intuitively clear case, it should greatly bolster the position that Vincent is not lucky when he digs up the treasure.

6.1. Why Vincent is Not Lucky to Find the Treasure

Here is the case that I will be relying on.

> *Finding the Ticket*: The Powerbucks lottery pool is $10,000,000. Mr. Powerbucks has rigged the lottery such that the ticket in his possession is guaranteed to win. But Mr. Powerbucks accidentally drops his ticket and walks away without noticing. Smith, having no idea about Mr. Powerbucks or the rigging of the lottery, finds Mr. Powerbucks's ticket and keeps it. When the Powerbucks lottery is drawn, all of the numbers on Mr. Powerbucks's – now Smith's – ticket come up. Smith is the sole winner and collects his $10,000,000.

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[36] For another attempt at explaining away the supposed problem illustrated by *Buried Treasure* see Pritchard, "Modal Accounts of Luck."

[37] Coffman, *Luck: Its Nature and Significance for Human Knowledge and Agency*, 5-7; Stoutenburg, "The Epistemic Analysis of Luck," 322-23.

[38] Coffman, *Luck: Its Nature and Significance for Human Knowledge and Agency*, 5-7.

Smith is clearly lucky. But he is not lucky to win the lottery; he is lucky to have found the ticket. The reason for this is simple: Smith won a rigged lottery.[39] Winning a rigged lottery is a clearly *non-lucky* event. But although Smith is not lucky *to win the lottery*, he is lucky *to have found the ticket* (by hypothesis, in most nearby worlds Smith would not have noticed the ticket on the ground and would have walked past it).

My aim now is to demonstrate that *Finding the Ticket* is structurally analogous to *Buried Treasure* by elucidating five similarities between the two cases. I will argue that Vincent, like Smith, is lucky, but that the lucky event occurs prior to the moment of payoff. The moment of payoff for Vincent is when he digs up the treasure, while the moment of payoff for Smith is when the lottery is drawn.

6.1.1. The First Similarity

The first similarity is that, by hypothesis, it is modally fragile that Vincent developed the deep connection that he has with the location he digs up. Similarly, by hypothesis, it was modally fragile that Smith found Mr. Powerbucks's ticket. The obvious concern here is that these stipulations need not be true; it need not be true that these events were modally fragile. But I believe that they *do* need to be true for Lackey's case to get off the ground. If Vincent's development of his connection with that location were not modally fragile then this would undermine the intuition that Lackey relies on for her case to seem effective. If the world would have to have been very different for Vincent not to have formed a deep connection with that location, then he would appear *destined* or *fated* to develop this connection, and he would thus not appear lucky to dig up the treasure. Because of this, it is legitimate to posit that both Vincent developing the connection and Smith

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[39] It might be thought that Smith was not lucky to win a *rigged* lottery; he was lucky to win a fair lottery, but this lottery win occurred at the moment he found the ticket (perhaps various different people may have seen Mr Powerbucks's ticket, but Smith was first). This may be a legitimate interpretation of the case (although I am sceptical), but even so it has no bearing on my argument. I aim to show that the lucky event is not the event of the lottery machine spitting out its numbers, but the event of Smith finding the ticket. Whether the latter event is describable as 'winning the lottery' is immaterial. What matters is that I show that the obvious 'payout' event (analogous to Vincent digging up the treasure) is not lucky.

finding the ticket are modally fragile (because *Finding the Ticket* is intended to be analogous to *Buried Treasure*).

6.1.2. The Second Similarity

The second similarity is that Vincent digging up the treasure is the result of the prior significant and modally fragile event of developing his deep connection to the spot he digs up, just like Smith winning the lottery is the result of the prior significant and modally fragile event of him finding the ticket.

6.1.3. The Third Similarity

The third similarity is that Vincent developing a deep connection with that location is imbued with significance by a later event – him digging up the treasure – just like Smith finding the ticket is imbued with significance due to the later event of his lottery win. Perhaps Vincent having the deep connection is intrinsically significant for him, unlike Smith finding the lottery ticket. But even if that is true, Vincent's development of this deep connection is imbued with *additional* significance because it results in him digging up the treasure.

6.1.4. The Fourth Similarity

The fourth similarity is that neither agent is in an epistemic position to know or have justification (or warrant, etc.) that the former event will result in a later payoff. Vincent has no idea that he is about to dig up treasure, either at the time of his forming the connection with that location or at any time up until he digs up the treasure. Similarly, Smith has no idea that he will win the lottery, either at the time of his picking up the ticket or any time up until he wins.

6.1.5. The Fifth Similarity

The fifth similarity is that Vincent's development of this deep connection was *uncontrolled*. Vincent may have developed this connection with no control at all if, say, his parents died in a car crash at the location in question. Analogously, the winning lottery ticket may have fallen into Smith's pocket. Or perhaps Vincent intentionally developed his connection with that location. If

he did this, then he had control over developing this connection, but he had no control over *developing a connection with a location that will result in digging up the treasure*. This is because he lacks sufficient epistemic insight regarding the relationship between developing this connection and his digging up the treasure. Analogously, if Smith intentionally picked up the lottery ticket, he did this with control, but he did not have control over *picking up a winning lottery ticket*. To have control over these sorts of events, the agents involved must have some good epistemic access regarding the fact that what they will do will lead to the payoff events.[40]

Again, it may be wondered why it could not be the case that Vincent *does* have control over whether he develops a connection with a location that results in his digging up treasure. And again, positing that he has such control undermines the intuition Lackey relies on. If he knows that developing this connection will result in him digging up treasure, he no longer appears lucky to dig up the treasure.

6.1.6. The Upshot

I have argued that Smith is not lucky to win the lottery given that the lottery was rigged. Instead, he was lucky *to find the rigged lottery ticket*. Given that the lottery is rigged, Smith finding the rigged ticket is equivalent to him finding a cheque for $10,000,000 that can only be cashed at the time the lottery is drawn. Cashing a cheque is not lucky, and winning a rigged lottery is not lucky.[41] I have argued here that this is analogous to Vincent finding the treasure in *Buried Treasure*. Although digging up the treasure is *not* lucky – because it is equivalent to winning a rigged lottery – Vincent is lucky to have formed a deep connection with the location of the buried treasure because forming this connection results in him digging up the treasure.

But if this is right, why does it *appear* that Vincent is lucky to dig up the treasure? Consider that it is easy to present an excerpt of *Finding the Ticket* such that Smith appears lucky to win the lottery.

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[40] For more on this see Levy, *Hard Luck*, 110-32.
[41] This claim contrasts Coffman's most recent account of luck. See Coffman, "Strokes of Luck."; *Luck: Its Nature and Significance for Human Knowledge and Agency*.

Excerpt: The Powerbucks lottery pool is $10,000,000. Smith has a ticket for the Powerbucks lottery and when the lottery is drawn, all of his numbers come up. Smith is the sole winner and collects his $10,000,000.

Smith certainly *appears* lucky given this description of what occurs. But notice that *Excerpt* is consistent with Smith *rigging the lottery himself*, which would certainly entail that his win is not lucky. This illustrates that without including sufficient information about the precursors of seemingly lucky events, it is difficult, if not impossible, to know whether the events really are lucky. This, I suspect, is what occurred in Lackey's presentation of *Buried Treasure*. Given sufficient details about how Vincent formed his relationship with that location, it becomes clearer that he is not lucky *to dig up the treasure*, but only lucky *to have formed such a relationship with that location*.[42] I hope to have shown that it is plausible that this is true. If I have succeeded in this, then Lackey's primary counterexample to the modal account of luck fails. This undermines the motivation that many philosophers provide for developing new accounts of luck.

I will now turn to defending the control, modal, and mixed accounts of luck from another of Hales's arguments: that all accounts of luck implausibly determine that certain events are lucky for agents, even if agents skillfully cause those events to occur.

7. Hales and Skillful Luck

I will here illustrate Hales's problem of skillful luck by using Neil Levy's mixed account of luck. I focus on Levy's account here for two reasons: Hales directly engages Levy's account in his presentation of this problem[43] and Levy's account of luck incorporates both a control and a modal condition so using it allows me to demonstrate how cases of skillful luck are putatively problematic for both modal and control accounts as well. But note that everything I say here regarding mixed

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[42] Note that although I have argued that an event's luckiness for an agent is determined by how it affects that agent's entire life, I do not believe that the agent's life must end before an event becomes lucky for her. An event may be lucky for an agent *now* due to the effect that it *will have in the future*.

[43] Hales, "Why Every Theory of Luck Is Wrong," 499.

accounts of luck should apply equally well to Rik Peels's mixed account as it does to Levy's because these accounts are very similar.[44]

Hales contends that all accounts of luck fail to provide plausible determinations in cases of *skillful luck* such as the following.

> *Ty Cobb*: Ty Cobb is one of the best hitters in the history of baseball, and one of the first four players to be elected to the Baseball Hall of Fame. Cobb still holds the major league record for the best career batting average, batting .366.[45]

According to Levy's mixed account of luck, whether Ty Cobb is lucky to hit any individual ball depends on whether he had direct control over hitting the ball, and whether hitting the ball was modally fragile. Levy states that an agent has direct control over some event's occurrence if "he can bring about [that event's] occurrence by virtue of performing some basic action which (as he knows) will bring about [that event's] occurrence (the probability of his basic action having the intended effect need not be 100 per cent, but it should be high)".[46] Presumably the probability of Ty Cobb hitting a ball is not high enough to class him as having direct control over his hitting (and if it is, imagine that Ty had a somewhat lower batting average while remaining an excellent hitter). And given that he only hits approximately one in three balls, presumably each hit is sufficiently modally fragile (if not, again imagine that each hit is sufficiently modally fragile while it remains true that Cobb is a great hitter). So he is lucky, according to Levy's account of luck, to hit each ball. But, Hales argues, intuitively Ty is not lucky to hit the ball; him hitting the ball is at least largely due to his amazing skill as a hitter. This suggests that Levy's account fails, as it is insufficiently attentive to how agents' use of their skill precludes luck.

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[44] I do not believe that the same can be said for Coffman's mixed account of luck because he incorporates an "intentional action" condition rather than a control condition, and it is not obvious that intentional action can be scalar in the way I will advocate we should understand control. For discussions of intentional action and luck see Alfred Mele, "Recent Work on Intentional Action," *American Philosophical Quarterly* 29, no. 3 (1992); Alfred R. Mele and Paul K. Moser, "Intentional Action," *Noûs* 28, no. 1 (1994).

[45] Paraphrased from Steven D. Hales, "Why Every Theory of Luck Is Wrong," ibid.50, no. 3 (2016): 498.

[46] Levy, *Hard Luck*, 19.

Because Levy's account incorporates both a modal and control condition, this shows that control and modal accounts of luck *also* determine Ty Cobb to be lucky to hit each ball unless they spell out their control and modal conditions differently. So control, modal, and mixed accounts of luck must all demonstrate that they can provide plausible determinations of luck in cases such as *Ty Cobb*. In a recent paper, Patrick Beach has argued that his form of the mixed account of luck can do just this. It is to his account of luck that I now turn.

8. Beach's Control Condition

Patrick Beach has proposed a solution to Hales's problem of skillful luck, among others.[47] These solutions make use of his mixed account of luck, which is as follows.

> *Beach's Contrastive Luck*: An event, E, is lucky for a subject, S, if and only if (i) E is counterfactually significant to S (in contrast to how S might have been otherwise), (ii) E is sufficiently out of S's luck-canceling control, and (iii) relative to some initial event, E∗, in a large enough proportion of worlds that are relevantly similar to the actual world, E does not occur and some different event, E′, occurs instead.[48]

For the purposes of this section, clauses (i) and (iii) are irrelevant (although I will return to them in Section 14), so consider only clause (ii), which states that an event is lucky only if it is sufficiently outside of the agent's luck-canceling control. Beach defines luck-canceling control as follows.

> *Luck-Canceling Control*: An agent, S, has luck-canceling control over an event, E, if and only if: (i) S desires that E obtain, (ii) S tracks whether E has obtained, and (iii) if E has not obtained, then S causes it to obtain because S (a) desires it to

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[47] Beach, "Defending Contrastive Luck."
[48] Ibid., 108.

obtain, (b) tracks that it has not obtained, (c) forms a plan to cause it to obtain, and (d) executes that plan such that E obtains.[49]

Beach states that the amount of control an agent has over some event is scalar because agents can have more or less approximately perfect desiring, tracking, or planning of an event's occurrence.[50] This allows him to maintain that an event is more or less lucky depending on the *extent to which* an agent has luck-canceling control over its occurrence.[51] So Beach responds to Hales's case of *Ty Cobb* by contending that Ty is *partly* lucky to hit each ball because he displays *some* luck-canceling control over hitting each ball, but not full luck-canceling control.[52] Further, although each hit of the ball is partly a matter of luck for Ty, his *having such a good batting average* is not lucky because given his skill at the game, his attaining such a good batting average is highly modally robust.[53]

I think that Beach's general response to Hales's *Ty Cobb* case, and other cases of skillful luck, is correct. But the success of Beach's response is not dependent upon Beach's specific account of control. It seems plausible that mixed and control accounts of luck could incorporate a scalar conception of control and respond to *Ty Cobb* in a similar way. In fact, I believe that Beach's proposed accounts of luck and control are false because his account of control suffers from technical problems and fails to capture the fact that agents can *have* control without *exercising* it, and his account of luck gets cases wrong. After illustrating these problems, I will present my own scalar account of control to deal with Hales's argument.

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[49] Ibid., 109.
[50] Ibid.
[51] For an alternative form of this approach, see McKinnon, "Getting Luck Properly under Control."
[52] Beach does not explicate which of the conditions of luck-canceling control Ty Cobb fails to fully satisfy, but presumably it is conditions (iii)(c) or (iii)(d).
[53] Beach, "Defending Contrastive Luck," 116-18.

8.1. Tweaking Beach's Account

I will now elucidate the technical problems with Beach's account of control. I believe that considering these problems demonstrates how cumbersome Beach's account is, and on this basis demotivates it.

Firstly, Beach's control condition assumes that action is motivated by desire, rather than some other state (such as belief). If it turns out that other states *can* motivate action, then sometimes agents may cause some event to occur due to them having one of these other states (for instance, a belief). But according to Beach's account, this is not an instance of agents having luck-canceling control over an event because only actions motivated by desires count. But surely whether an agent has luck-canceling control over an event does not depend on whether desires alone or desires and, say, beliefs may motivate action. If this is right, then clauses (i) and (iii)(a) of Beach's luck-canceling control are overly restrictive.

Secondly, and more importantly, note that clause (iii) only comes into effect if an event *does not occur*. For any event that *does* occur, only clauses (i) and (ii) are relevant. This is severely problematic because this results in Beach's account of luck-canceling control determining that agents have control over events such as their winning a fair lottery. In *Fair Lottery*, Smith both desires that he will win the lottery and tracks whether he wins, and his winning *does occur*. So he satisfies clauses (i) and (ii), and clause (iii) is not relevant because the event does occur. So according to Beach, Smith has luck-canceling control over his winning of the lottery and thus his winning is not lucky. But clearly Smith lacks control over winning the lottery and his winning *is* lucky.

Beach is aware of this, however, and states that if an event occurs then an agent has luck-canceling control over it if he would satisfy conditions (iii)(a-d) *were that event not to occur*.[54] But now, incorporating this additional clause of Beach's account of luck-canceling control, the account has become severely bloated.

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[54] Ibid., 124., endnote 5

Luck-Canceling Control (Amended): An agent, S, has luck-canceling control over an event, E, if and only if: (i) S desires that E obtain, (ii) S tracks whether E has obtained, (iii) if E has not obtained, then S causes it to obtain because S (a) desires it to obtain, (b) tracks that it has not obtained, (c) forms a plan to cause it to obtain, and (d) executes that plan such that E obtains, and (iv) if E has obtained, then if S notices that E no longer obtains he will cause it to obtain because he (a-d).

A simpler and more elegant account of control, which I will propose in Section 9, would be preferable to Beach's account of control given how complex it is.

8.2. Misdiagnosing Cases

Not only is Beach's account of control bloated, it gets cases wrong. Take this case of Coffman's.

Winning Button Lottery: The Powerbucks lottery pool is $10,000,000. Smith has been given a ticket to the Powerbucks lottery. Smith has also been put in a position where he can press a button which guarantees that he wins the lottery. Smith chooses not to press the button because doing so would be cheating, and Smith believes cheating to be wrong. Despite this, Smith wins the lottery legitimately.[55]

Intuitively, Smith is in control of winning the lottery because had he chosen to press the button, this would have guaranteed his win.[56] If this is correct, then Beach's account of control is wrong. Smith (i) desires to win the lottery and (ii) tracks whether he wins, but he *does not* (iii) cause his win to obtain. But he does have control over winning the lottery. Therefore Beach's account of control fails.

Additionally, even if Beach's account of control captured that Smith has control over winning the lottery, his account of luck would now determine that Smith is *non-lucky* to win the

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[55] Adapted from Coffman, *Luck: Its Nature and Significance for Human Knowledge and Agency*, 28.

[56] Coffman's original example states that there is *no chance* that Smith would press the button due to how he is constituted. But if by "no chance" Coffman means "psychologically impossible" then I lose the intuition that Smith has control over winning the lottery. If Coffman means something else – such as that his choosing this way was modally robust – then I retain the intuition that he has control. Still, I have the intuition that Smith has control even without these complications, and hence have omitted them here.

lottery precisely because he has control over it. But, intuitively, Smith *is* lucky to win the lottery despite having control over it. It appears that although Smith *has control* over whether he wins the lottery, he does not *exercise* this control, and this is a relevant distinction. This same problem afflicts both Levy's account and Peels's early (but not later) account of luck, because these accounts also determine as non-lucky events over which agents have control. The best mixed account of luck should thus maintain that events are not lucky for agents if the agents *exercise* their control over causing those events to occur, rather than merely *having* control over them.

9. My Proposed Solutions

I will here present an amended conception of control which both produces plausible determinations in cases of skillful luck such as *Ty Cobb* and avoids the problems facing Beach's account. This conception of control is as follows.

> *Control*: An agent, A, has control over some event, E, to the extent that: (1) A can
> try to make E occur and (2) if A were to try to make E occur then E would occur
> in more nearby possible worlds than if A did not try to make E occur.

According to (1), an agent only has control over some event if he *can try* to make that event occur. Although I do not wish to analyse the meanings of "can" and "try", I will make two suggestions for what clause (1) requires.

Firstly, an agent *can* try to make an event occur only if it is not psychologically impossible for him to try to make that event occur. For instance, if in *Winning Button Lottery* Smith would be overcome with anxiety at the thought of pressing the button, such that nothing could motivate him to press the button, he cannot try to push the button. Also, an agent can (try to) perform some action *more easily* if it is psychologically easier for him to do so. That is, if an agent requires only weak motivating reasons for him to perform some action, then he can perform that action more easily than if he required strong motivating reasons to perform it.[57]

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[57] For more on this see John Martin Fischer and Mark Ravizza, *Responsibility and Control: An Essay on Moral Responsibility* (Cambridge: Cambridge University Press, 1998), 82-84.

Secondly, an agent can only try to make an event occur if he has some sort of epistemic access to how he could make that event occur. Take this case from Levy.

> *Medical Emergency*: Zamir is a man from a remote village in a poverty-stricken country who finds himself in a Western hotel room during a medical emergency. Zamir would like to call for help, but he is unaware that he can do so by operating the telephone. Instead, he runs all the way to reception to get help. In the time it took Zamir to run to reception, the person died from the medical emergency.[58]

Zamir does not have control over saving the person from the medical emergency in time because he has no epistemic access to *how* he could save the person in time.[59]

What is most relevant here, however, is clause (2), which states that an agent's control over some event occurring depends on how sensitive that event would be to the agent's action if the agent were to try to make the event occur. If some event – such as the sun rising – occurs in the actual world and nearby worlds irrespective of whether the agent tries to make it occur, the agent lacks control over that event. Similarly, if some event – such as the sun exploding – does not occur in the actual world or nearby worlds irrespective of whether the agent tries to make it occur, the agent lacks control over the event.

But Smith does have control over winning the lottery in *Winning Button Lottery* because (1) he knows what he could do to ensure that he won the lottery and is psychologically able to do this and (2) in almost all nearby worlds in which he presses the button, he wins the lottery. But note that although Smith *has* control over this event, he does not *exercise* this control; he does not do whatever it is (in this case, push a button) that will increase the amount of nearby worlds in which the event in question (winning the lottery) occurs. With my account of control now specified, I will demonstrate how control, modal, and mixed accounts of luck can respond to Hales's *Ty Cobb* case.

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[58] Paraphrased from Levy, *Hard Luck*, 113.
[59] For more on control and epistemic access see ibid., 110-54. See also Alfred R. Mele, *Autonomous Agents: From Self-Control to Autonomy* (Oxford University Press, 1995), 180-82.

9.1. Control Accounts

I believe that the control account of luck should be conceived as follows.

Control Account of Luck (Amended): An event, E, is lucky for an agent, A, to the

extent that E is significant for A and A did not exercise control in causing E.

According to this conception of the control account, as well as my proposed conception of control, in the case of *Ty Cobb*, Ty is partly lucky to hit each ball. He is non-lucky to the extent that he exercises control over hitting the ball, and lucky to the extent that he does not exercise control over hitting the ball. If he swings the bat such that he hits the ball successfully in the actual world and all nearby worlds, then his hitting it is not a matter of luck *at all*.[60] If he takes a swing such that he hits the ball successfully in the actual world but *no* nearby worlds, then he is incredibly lucky. And, as Beach argued, Ty is not lucky to have such a good batting average. He has a lot of control over having such a good batting average due to his immense skill at baseball. In my view, this is a plausible resolution to the case.[61]

In *Winning Button Lottery*, Smith is lucky to win the lottery because although he *has* control over whether he wins the lottery, he does not *exercise* this control, so the luckiness of him winning the lottery is not diminished. Again, I take this to be plausible. If I am right, then these cases do not condemn the control account of luck.

9.2. Modal Accounts

I believe that modal accounts of luck require little to no modification in order to produce plausible determinations in cases of skillful luck. Recall my presentation of the modal account.

Stock Modal Account of Luck: An event, E, is lucky for an agent, A, to the extent

that E is significant for A and modally fragile, where an event is more modally

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[60] But perhaps he is lucky to be in a situation where he can hit the ball with such control. For instance, perhaps he is lucky that the pitcher tripped on his shoelace right as he threw the ball.

[61] But note that I think that control accounts of luck fail for reasons I will provide in Section 10.

fragile the fewer of the nearby possible worlds it occurs in, holding fixed the relevant initial conditions for this event.

On perhaps the most plausible conception of the modal account, it requires that *the entire history of the world up until the time some event occurs* must be held fixed in order to determine whether that event is lucky. In *Ty Cobb*, the event in question is Ty hitting a ball. So Ty trying to hit the ball is held fixed. To the extent that his hitting the ball is modally robust, hitting it is not lucky, but to the extent that it is modally fragile it is lucky. If Ty were not so skillful then the modal robustness of his hitting the ball would be lower, and thus he would be luckier to hit it. The more skill he uses when he tries to hit the ball, the more modally robust his hit is and the less lucky it is. Similarly, in *Winning Button Lottery*, the modal account holds fixed that Smith does not push the button. Given this, Smith's win is highly modally fragile and significant and therefore lucky. So although there is no control condition explicitly contained within the modal account, the modal account can implicitly consider an agent's skill and control by including these factors within the conditions of the world which it holds fixed.

Note that the modal account *will* face problems if it entails that luckiness is a binary property, such that an event is either fully non-lucky or fully lucky depending on whether it passes some threshold (of modal fragility or significance). The problem with this is that events which are just barely on either side of the threshold will implausibly differ greatly in their luckiness (from not lucky at all to fully lucky). But as I have presented the modal account here – and as I believe is the most charitable construal of the standard modal account – an event's luckiness is scalar: the more modally fragile or significant the event, the luckier it is.[62]

9.3. Mixed Accounts

I have just shown that cases of skillful luck are *partly* lucky according to control and modal accounts. Because mixed accounts of luck incorporate both a modal and control condition, they

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[62] That said, I believe that this form of the modal account fails. I will argue why that is in Sections 13 to 15.

will produce the same determinations as long as they understand modal fragility and control in the ways I have argued. In *Ty Cobb*, Ty hitting each ball is partly within his control and somewhat modally fragile, so it is partly lucky according to a mixed account of luck that accepts my proposed conceptions of control and modal fragility.[63] Similarly, in *Winning Button Lottery* Smith does not exercise his control and his win is modally fragile, so appropriately formulated mixed accounts of luck produce the correct answer here as well.

I will return to discussing how I believe that a mixed account of luck should be formulated in Section 15. It is not until then that I will be able to adequately explicate and motivate the account I endorse. For now, I turn to arguing that control accounts of luck fail, despite being resistant to the problems I have discussed so far. They fail because they simply get cases wrong.

10. The Control Accounts

In this section I will argue that the control accounts of luck fail in all their forms, starting with the stock control account.

10.1. The Stock Control Account

Recall the stock control account of luck.

> *Stock Control Account of Luck*: An event, E, is lucky for an agent, A, to the extent
>
> that E is significant for A and beyond A's control.

I believe that this account fails because it produces implausible determinations of luckiness in various cases. For instance, it determines that intuitively non-lucky events are lucky, such as the sun rising.[64] No one controls whether the sun rises, and the sun rising is very significant for us. Thus each sunrise is lucky for us, according to the stock control account. But intuitively the sun

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[63] Levy has elsewhere suggested that control is a scalar concept, so his account (and presumably Peels's) is amenable to scalar modification Levy, *Hard Luck*, 199. and in personal communication.

[64] Latus, "Constitutive Luck," 467.

rising is *not* lucky. Hence the stock control account of luck gets it wrong. The stock control account is overly permissive; not every significant and uncontrolled event is a lucky one.[65]

10.2. Riggs's Control Account

However, in response to counterexamples such as this, Wayne Riggs has produced an amended control account of luck, which I believe nevertheless fails. Riggs's proposed account of luck[66] states:

> *Riggs's Control Account of Luck*: An event, E, is lucky for an agent, A, if: (i) E is (too far) out of A's control, and (ii) A did not successfully exploit E (prior to its occurrence) for some purpose.[67]

Riggs intends his exploitation condition to solve the problems faced by the stock account of luck. According to Riggs, to exploit an event is to take it into account and plan a course of action on the assumption that this event will occur, and for that course of action to succeed due to this event having been taken into account.[68] This results in the sun rising *not* being lucky for us because we all exploit the sun rising. That is, we all take into account that the sun rises and plan courses of action on this basis (such as what time to wake up and go to sleep), and these courses of action succeed due to the sun actually rising. So the sun rising is non-lucky according to Riggs's control account of luck. However, I will now argue that Riggs's account fails in other cases.

10.3. Why Riggs's Account Fails

Riggs's account of luck is vulnerable to counterexamples involving events that are uncontrolled and unexploited but are intuitively non-lucky. Here is one such example, drawn from Coffman:

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[65] The same result occurs for the amended control account that I discussed in Section 9.1.

[66] To which can be added a supplementary significance condition.

[67] Paraphrased from Riggs, "Luck, Knowledge, and Control," 219. Riggs also defends this account in "The Lack of Control Account of Luck," in *The Routledge Handbook of the Philosophy and Psychology of Luck*, ed. Ian M. Church and Robert J. Hartman (Routledge, 2019)..

[68] "Luck, Knowledge, and Control," 218.

Underground Facility: Katelyn lives and works in an underground facility that is, unbeknownst to her, solar-powered. This morning's sunrise was good for Katelyn (it kept her facility running), not intentionally brought about by her, and not successfully exploited by her for some purpose: having been underground for so long, Katelyn has become totally oblivious to sunrises, and so she doesn't plan any courses of action assuming that the sun will rise.[69]

According to Riggs's control account, the sun rising is lucky for Katelyn because it is uncontrolled, unexploited, and significant for her. But intuitively, the sun rising is *not* lucky for Katelyn. So Riggs's account gets it wrong.

But Riggs has a potential response here. Whether it is true that Katelyn has not exploited the sun rising is determined by our conception of exploitation. If exploitation of an event requires *explicit* planning of courses of action on the basis of that event, then Katelyn does not exploit the sun rising because she makes no plans referring to the sun rising; she is not even aware that the sun rises. But if exploitation of an event is conceived of as an *implicit* planning of courses of action on the basis of this event occurring, then perhaps Katelyn does exploit the sun rising. After all, although Katelyn has become oblivious to sunrises and does not explicitly plan any courses of action assuming that the sun will rise, perhaps she would alter her plans if she discovered that the sun was not rising one day.

Riggs has, in fact, made use of this kind of strategy, presumably to deal with cases such as *Underground Facility*. In a recent paper, Riggs has argued that exploitation may be understood in terms of an unconscious awareness of how some event supports our goals.[70] But I will now argue that no matter how exploitation is conceptualised, it will fail in certain cases.

Although Riggs's proposed solution may provide the right answer in *Underground Facility* as the case is presented, the case can be modified slightly such that Riggs's solution is inadequate. Suppose that Katelyn was born in the underground facility and has no idea whatsoever that the sun

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[69] Coffman, *Luck: Its Nature and Significance for Human Knowledge and Agency*, 10.
[70] Riggs, "The Lack of Control Account of Luck," 133.

exists, let alone that it rises each day. It is thus implausible that she even *implicitly* exploits the sun rising. If this is true, then she neither controls nor exploits the sun rising, and it is thus lucky for her according to Riggs's account. But, intuitively, it is not lucky for her, so Riggs's account gets it wrong.

Finally, Riggs may suggest that an event is exploited by an agent, and therefore non-lucky, if she relies upon that event to satisfy some goal, irrespective of her implicit or explicit awareness of her reliance. But this solution gets cases such as the following wrong.

> *Bridge Escape*: Billy is being hunted by a vicious predator. If he does not escape the predator, it will kill him. His only option of escape involves passing over a wobbly bridge. Billy knows that passing over the bridge is his only means of escape, and that the bridge must remain stable for him to escape over it. If the bridge breaks while Billy is on it, he will fall to his death. The bridge does remain stable, and Billy escapes over it, losing the predator.

Suppose that prior to Billy escaping over the bridge there was an extremely good chance that the bridge would break while Billy was on it.[71] According to Riggs's account of luck (with or without the above suggested amendments) Billy is *not* lucky that the bridge remained stable because Billy exploited the bridge remaining stable. That is, Billy planned to use the bridge remaining stable in a certain way to perform certain actions, and he did perform those actions because of the bridge remaining stable. Thus, the bridge remaining stable is not lucky according to Riggs's account. But intuitively the bridge remaining stable is very lucky for Billy. Therefore Riggs's account gets it wrong.

Riggs could attempt to avoid this by claiming that an event cannot be exploited if its occurrence is sufficiently chancy, and thus that Billy did not exploit the bridge remaining stable, and therefore the bridge remaining stable was lucky for him. But this is an uncompelling solution

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[71] It may be that there is a very high probability that the bridge would break, or that the bridge not breaking is modally fragile, or both.

to the problem. Spelling out the exploitation condition within a "control" account of luck in terms of chanciness suggests that something *other* than control – such as modal fragility or objective improbability – is what matters.[72]

I have argued here that Riggs's account classes intuitively non-lucky events as lucky (such as the sun rising in *Underground Facility*) and intuitively lucky events as non-lucky (such as the bridge remaining stable in *Bridge Escape*). His account is thus both overly permissive and overly exclusive. Therefore, I contend that Riggs's account of luck fails.[73] If I am right, then both the stock control account and Riggs's amended control account of luck fail. It appears that control accounts do not capture some important element of luck.

11. The (Objective) Stock Probability Account

It may be thought that the probability accounts of luck capture this element better than control accounts. In the next two sections I will discuss both the objective and subjective versions of the probability account of luck and argue that they both fail, starting with the objective version. Recall the stock probability account of luck.

> *Stock Probability Account of Luck*: An event, E, is lucky for an agent, A, to the
>
> extent that E's occurrence is improbable and significant for A.

Nicholas Rescher initially proposed this account, and although it is inaccurate to class his account as an *objective* probability account, I will use his simple presentation of the account to argue why an objective probability account of luck is implausible.[74] This is important because endorsing such

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[72] In saying this, I do not intend to discredit mixed accounts of luck. Perhaps lack of control is a *necessary* condition on luck. But if a control account is cashed out in terms of modal fragility or probability, this suggests that modal fragility or probability is (part of) what matters for luck.

[73] Something similar can be said for Fernando Broncano-Berrocal's control account, which he presents in Broncano-Berrocal, "Luck as Risk and the Lack of Control Account of Luck." He holds that uncontrolled events are lucky, but that events such as the sun rising are not lucky because agents monitor whether these events occur and use the information gathered from this monitoring to initiate, stop, and continue actions that contribute to the achievement of their goals. But this results in events such as winning the lottery being non-lucky, because agents monitor the lottery result in just this way.

[74] Rescher seems to conceive of an event's luckiness for an agent as determined by how practically feasible a prediction of that event's occurrence is for that agent. So his account is best understood as a form of epistemic probability account. Still, I use it to illustrate the objective probability account here for ease of explication. See Rescher, *Luck: The Brilliant Randomness of Everyday Life*, 26.

an account is an open possibility, and seems to be a tempting choice for some philosophers with whom I have discussed the metaphysics of luck.

I stated earlier that according to the stock probability account, Smith is lucky to win the lottery in *Fair Lottery* because his winning had a probability of roughly 1 in 14,000,000 of occurring. But that is not the case if we are dealing with an *objective* probability account and the world is deterministic.

Suppose that the world is deterministic, such that Smith's winning the lottery was determined by the state of the universe a short period after the Big Bang in conjunction with the natural laws. Given this supposition, the objective probability account states that the probability of Smith winning the lottery is 1.[75] In a deterministic world where Smith wins the lottery, there is no objective probability that Smith will not win the lottery. Therefore, according to the objective probability account, Smith is not lucky to win the lottery. In fact, the objective probability account entails that *no events are lucky* in deterministic worlds because every event which occurs has an objective probability of occurring of 1. The only events which do not have an objective probability of 1 are those which do not occur (which have an objective probability of 0).[76] Accepting the objective probability account of luck is thus tantamount to denying that anything is lucky in deterministic worlds.

Some philosophers may be tempted to grant that the objective probability account is correct and that nothing in deterministic worlds is lucky. Part of the motivation for this may be that the intuition that lottery winners are lucky to win the lottery is greatly diminished when considering

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[75] There is some contention regarding whether this is true. Some philosophers argue that events in deterministic worlds are best conceived as having non-trivial objective probabilities. For an overview see Toby Handfield and Alastair Wilson, "Chance and Context," in *Chance and Temporal Asymmetry*, ed. Alastair Wilson (Oxford University Press, 2014). The proposal here seems to be that objective probability should be somehow underpinned by the epistemic position of the agents who are attempting to make determinations of the probability of some event. If this is correct, then this conception of objective probability seems to support an epistemic probability account of luck. I will argue in Section 12 that these accounts fail. Because of this, even on this conception of objective probability, the probability account of luck fails.

[76] Even in indeterministic worlds, the objective probability account's determinations may greatly diverge from our own because the objective probability of events may greatly diverge from our intuitions about their chanciness.

that their win was determined. I grant that this is the case. But there are other cases that suggest that determinism is compatible with luck.

> *Bad Baseball Player*: Jennifer is a terrible baseball player. She is hitting the final ball of the game, and the outcome of the game is riding on how well she hits the ball. As the ball is thrown at her, she closes her eyes and swings the bat as hard as she can. She hits the ball well and her team wins the game.

I have the intuition that Jennifer is lucky to hit the ball, even if the world is deterministic. In cases such as this, I do not think that whether the world is deterministic affects my judgement of the event's luckiness at all. Therefore, I contend that because the objective probability account entails that nothing that occurs in deterministic worlds is lucky, it is overly exclusive. Some events are lucky, despite being objectively probabilistically certain to occur.

12. (Subjective) Epistemic Probability Accounts

Several philosophers have recently proposed probability accounts of luck which determine an event's luckiness for an agent according to the agent's epistemic position regarding that event's occurrence. I will here focus on the accounts proposed by Asbjørn Steglich-Petersen and Gregory Stoutenburg because they are the most clearly presented.[77] According to these accounts, if an agent is in a good epistemic position regarding whether an event will occur, then that event's occurrence cannot be lucky for him; if he is in a bad epistemic position regarding its occurrence, then it may be bad for him (depending on the event's significance). These accounts are as follows:

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[77] Rachel McKinnon has presented what seems to be a hybrid control and epistemic probability account in McKinnon, "Getting Luck Properly under Control."; "You Make Your Own Luck," ibid.45, no. 4-5 (2014); "Luck and Norms," in *The Routledge Handbook of the Philosophy and Psychology of Luck*, ed. Ian M. Church and Robert J. Hartman (Routledge, 2019). Unfortunately, she is unclear about what determines the epistemic position relevant to events' luckiness – the agent, some reasonably informed observer, general agreement, objective probability, or what. Because of this, although much of what I say here against epistemic probability accounts may apply to her proposed account of luck, it is impossible to know without her clarifying her position.

Similarly, Laura Ekstrom has proposed what seems to be a hybrid control and epistemic probability account in Laura W. Ekstrom, "The Luck Objection to Libertarianism," ibid. However, her epistemic condition (what she calls Risk) is very broad and hence will not be dealt with here. My arguments against epistemic probability accounts are problematic for at least some parts of Ekstrom's account.

Additionally, Julia Driver discusses epistemic probability accounts of luck in Driver, "Luck and Fortune in Moral Evaluation," 161-65.

Steglich-Petersen's Probability Account of Luck: An event, E, is lucky for an agent,

A, at time *t* if, just before *t*, A was not in a position to know that E would occur at

t.[78]

Stoutenburg's Probability Account of Luck: An event, E, is lucky to some degree

for an agent, A, if and only if immediately prior to E occurring, A's evidence did

not guarantee that E would occur.[79]

I will discuss both of these accounts together. I argue that both accounts fail for two reasons. Firstly, they provide the wrong determinations of luck in various cases. Secondly, they cannot account for lucky events occurring to beings who lack relevant epistemic capacities. After I present these arguments, I will attempt to demotivate epistemic probability accounts further by demonstrating that what *prima facie* plausibility they have is due to their parasitism upon non-epistemic factors.

12.1. Getting Cases Wrong

Consider the following case.

Unknowingly Rigged Lottery: The Powerbucks lottery pool is $10,000,000. Smith

buys a ticket for the Powerbucks lottery and when the lottery is drawn, all of his

numbers come up. Smith is the sole winner and collects his $10,000,000. Unknown

to Smith, Mr. Powerbucks rigged the lottery so that Smith was guaranteed to win.[80]

Smith is in the same epistemic position in *Unknowingly Rigged Lottery* as he is in *Fair Lottery*. But surely Smith is not lucky to win the lottery in *Unknowingly Rigged Lottery*; it is rigged such that there is no chance he will not win the lottery. He may be lucky that Mr. Powerbucks rigged

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[78] Paraphrased from Steglich-Petersen, "Luck as an Epistemic Notion," 369; "Does Luck Exclude Knowledge or Certainty?," ibid. (2018): 2.

[79] Paraphrased from Gregory Stoutenburg, "In Defense of an Epistemic Probability Account of Luck," ibid.: 7.

[80] For a similar case see Peels, "A Modal Solution to the Problem of Moral Luck," 79.

the lottery to guarantee his win,[81] but it is implausible that he is lucky to win the lottery. But according to the epistemic probability accounts of luck Smith is just as lucky to win the lottery in *Unknowingly Rigged Lottery* as in *Fair Lottery* because his epistemic position regarding the events is identical in both cases.

The epistemic probability accounts determine that Smith is equally lucky in these cases because they are entirely insensitive to the *objective* chanciness of events occurring.[82] But surely an event's luckiness depends at least *partly* on how (objectively) chancy it is to occur. To illustrate this problem further, note that the epistemic probability accounts of luck state that Smith is equally lucky to win a fair lottery which sells one hundred tickets as he is to win a fair lottery which sells one *billion* tickets, as long as he is unaware of how many tickets are sold.[83] But intuitively he is luckier to win the latter than the former, precisely because winning the latter is objectively chancier. Epistemic probability accounts of luck cannot make this judgement because they determine an event's luckiness according to the agent's epistemic position, not its objective chanciness.

12.1.1. Reconsidering Lucky Events

Further, if an event's luckiness for an agent is determined by his epistemic position, then it seems plausible that the agent should be able to update his judgements of luckiness on the basis of updated evidence which emerges after the event occurs. But this is impossible according to Steglich-Petersen's and Stoutenburg's accounts of luck. These accounts state that an event's luckiness for an agent is determined by the epistemic position of the agent *prior to* that event's occurrence. So if an agent's epistemic position has improved since this time, this has no effect on whether the event was lucky for him.

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[81] Or he may not if, say, he and Mr. Powerbucks had an arrangement such that Mr. Powerbucks would do something to reward Smith, but Smith did not know what Mr. Powerbucks would do.

[82] Recall that by "chanciness" I do not mean objective probability. I mean some factor that at least closely approximates chanciness, such as objective probability or modal fragility (or possibly some other concept).

[83] Suppose that this lottery is like a raffle such that the more tickets are sold, the lower the probability of each ticketholder winning.

For instance, suppose that in *Unknowingly Rigged Lottery*, Smith does not know that the lottery is rigged at the time that he wins and he thus believes that he was lucky to win the lottery. Suppose further that after he wins the lottery, he learns that the lottery was rigged such that he was guaranteed to win. It is plausible that he should now update his belief to acknowledge that he was *not*, in fact, lucky to win the lottery. But according to Steglich-Petersen's and Stoutenburg's accounts of luck, he would be *wrong* to believe that he was not lucky because although his epistemic position regarding the lottery win has improved, it improved *after* the lottery occurred. Had his epistemic position improved *before* he won the lottery, he would have been right to believe that he was not lucky to win the lottery. But it is implausible that agents should not update their beliefs regarding an event's luckiness on the basis of improved evidence which they become aware of after that event occurs. The epistemic probability accounts do not allow for such updating, and this counts against them.

12.2. Beings Lacking Epistemic Capacities

Epistemic probability accounts of luck also struggle to apply to any seemingly lucky being who lacks the sort of epistemic capacities that normal adult humans have.[84] Epistemic probability accounts link an event's luckiness to the epistemic position of the individual(s) involved, so it is unclear how these accounts function for beings who do not have relevant epistemic positions. There are two problems for these accounts stemming from this issue. Firstly, they cannot adequately account for beings who lack relevant epistemic capacities. Secondly, they cannot account for events which are lucky for individuals and occur before those individuals exist.

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[84] Steglich-Petersen is aware of this problem with his account, although he believes that the class of beings to which we attribute luck probably overlaps with the class of beings to which we attribute knowledge. I doubt this, for reasons that I present in this subsection. See Steglich-Petersen, "Does Luck Exclude Knowledge or Certainty?," Page 3, footnote 6.

12.2.1. Beings Lacking Epistemic Capacities

Stoutenburg believes that children are cognitively sophisticated enough to meet the epistemic conditions that he sets on luck.[85] I doubt this, particularly with respect to human babies, who seem clearly to lack (relevant) epistemic capacities but who can also obviously be the recipients of good or bad luck. And not only can humans of all ages be the recipients of luck, so can non-human animals.

Some animals may be sufficiently cognitively developed that they can have evidence guaranteeing, or knowledge of, events occurring. A chimpanzee, say, may know for certain that dark clouds and thunder signal a coming storm. But some animals are the recipients of luck while quite clearly lacking the capacity to have evidence guaranteeing, or knowledge of, the occurrence of the lucky event.

> *Blind Mole Rats*: A particular (fictional) species of blind mole rat lives ten metres below the surface of the Earth. They subsist on worms which (unintentionally) dig their way down towards the mole rats. If the sun did not rise each day, these worms would die, and the mole rats would have nothing to eat and would thus themselves die.

Intuitively, it is not lucky for the blind mole rats that the sun rises each day. But according to the epistemic probability accounts, the sun rising is lucky for the mole rats. This is because they are in no position to know, or have any evidence guaranteeing, that the sun will rise (they are blind so they could not learn of the sun's existence even if they were "exposed" to it), and the rising is significant for them. So the epistemic probability accounts get this case wrong.

It could be suggested that according to epistemic probability accounts, an event cannot be lucky for a being which lacks any epistemic capacity sufficiently related to that event. Given this

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[85] Gregory Stoutenburg, "Think of the Children! Epistemic Justification and Cognitively Unsophisticated Subjects," *Pacific Philosophical Quarterly* 98, no. S1 (2017); "In Defense of an Epistemic Probability Account of Luck," 9.

supposition, the sun rising would *not* be lucky for the mole rats. But this solution fails in cases such as the following.

> *Beetle and Spiderwebs*: A beetle is born with an unusual genetic abnormality that results in him having no capacity for vision. This beetle is flying around in an area with many spiderwebs. Many of the beetles flying in this area get caught in the webs. Despite having no way of gauging where the webs are or whether he is about to fly into one, he manages to reach his destination safely without flying into any webs.

Despite the beetle lacking any epistemic capacity related to avoiding spiderwebs, he is lucky to avoid them. Thus the above suggested rejoinder fails in this case, and is therefore untenable. Therefore epistemic probability accounts are unable to provide plausible determinations of events' luckiness for beings which lack relevant epistemic capacities.

12.2.2. Beings who do not yet Exist

Epistemic probability accounts run into further problems when trying to discriminate between non-lucky and lucky events that occur before an agent is born. This is because prior to the agent existing, he has no epistemic capacities at all. Consider the following case.

> *Pre-Birth Lottery*: Each year Powerbucks selects a person at random to win the Powerbucks Pre-Birth Lottery, which bestows $10,000,000 to the winner's next born child. 10 months before Smith was born, his mother won the Powerbucks Pre-Birth Lottery. Smith is currently 16 years old and will receive his money in 2 years' time.[86]

It is clear to me that Smith is lucky that his mother won the Powerbucks Pre-Birth Lottery. I think it is particularly clear that Smith is lucky for his mother to win the lottery – and not that he is lucky

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[86] I believe that this may also serve as a counterexample to Rescher's concept of *fate*, which he distinguishes from luck and seems to identify as the conditions of the world and the agent at the time of an agent's creation. See Rescher, "The Machinations of Luck," 621.

to have received the money – because he *has not yet received the money*. But epistemic probability accounts struggle to make this judgement because at the time that Smith's mother won the lottery, Smith had no epistemic capacities.

It might be suggested that epistemic probability accounts judge that Smith's mother winning the lottery is lucky for Smith because this is significant for him and at the time of its occurrence he had no evidence or knowledge that this would happen. But then *any* event which occurs before Smith exists and is significant for him is thereby lucky for him. So he is lucky that the sun rose each morning (and the Earth kept spinning, and so on) before he was alive. But this is implausible, so this rejoinder fails. Therefore epistemic probability accounts cannot handle there being events which are lucky for an agent and occur before that agent exists.[87]

12.3. Parasitism

I will here contend that epistemic probability accounts derive much of their *prima facie* plausibility from their parasitism on other factors which are more plausibly relevant to events' luckiness. They are parasitic in three ways: being in a good epistemic position regarding an event's occurrence suggests that the event is objectively probable, modally robust, and under the agent's control.

12.3.1. Objective Probability

If an agent is in a position to know that some event will occur, or his evidence guarantees that that event will occur, then it is impossible for that event not to occur. In other words, the objective probability of that event not occurring is 0. This is because knowledge is *factive*: to know some

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[87] Neil Levy has suggested to me in a personal communication that epistemic probability accounts of luck could determine an event's luckiness for an agent by appeal to some (partly) idealised observer, rather than by appeal to the epistemic position of the agent herself. I admit that this solves the problems I have presented in this subsection, but I believe it comes at a significant cost. The cost is that this approach seems to undermine the intuition upon which epistemic probability accounts of luck rest: an event's luckiness for an agent significantly depends upon the epistemic position of that very agent. Additionally, Julia Driver has presented an independent problem for this sort of account in Driver, "Luck and Fortune in Moral Evaluation," 163.

event will occur, it must be *true* that it will occur. If a case stipulates that an agent is in such an epistemic position then it is implied that the event is objectively certain to occur.[88]

So it is possible that when an agent is in an epistemic position which guarantees or allows knowledge of the occurrence of an event, any intuitions we have regarding whether the event is lucky for the agent may be parasitic upon our intuition that the event's occurrence is objectively certain. But when an agent is not in such an epistemic position, the event's objective probability is unspecified. In cases where agents are in a poor epistemic position and they are also intuitively lucky, this could be because we implicitly consider the event as objectively improbable. Thus when our intuitions seemingly support that an event's luckiness for an agent is determined by the agent's epistemic position, these intuitions may, in fact, be driven by what we infer about the objective probability of the event. Something similar occurs with modal fragility.

12.3.2. Modal Fragility

It is possible for certain epistemic agents, such as divine beings, to have knowledge of a future modally fragile event's occurrence just as easily as it is to have knowledge of a future modally robust event's occurrence. But this is not the case for human agents. Humans are limited in their epistemic capacities, such that it is generally easier for humans to be in a good epistemic position regarding the occurrence of future modally *robust* events than future modally *fragile* events. This is because more detailed evidence is required to have a good idea whether a modally fragile event will occur than a modally robust event.

For instance, if I am asked whether a person will successfully cross over a bridge, where that bridge is three metres wide, I am in a good epistemic position to believe that he will successfully cross over the bridge. Crossing the bridge is the sort of thing that almost any human will find easy to do. But if the bridge is only fifteen centimetres wide, it is quite hard for me to have a good idea whether he will make it across. To know whether a person will cross such a

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[88] Perhaps it is possible to know that an event will occur even if that event has some chance of not occurring but does, in fact, occur. The point I make in this section stands even given this nuance, as long as the truth condition on knowledge requires that an event have a sufficiently high chance of occurring.

narrow bridge, I will have to know much more, such as whether he is young or old, strong or weak, fit or not, co-ordinated or not, intoxicated or not, and so on (as well as details about the bridge, such as whether it is sturdy or shaky). It could be that the person reaches the other side in both cases, and that the success of both crossings had an objective probability of 1. The difference is that the former case is modally robust, while the latter is modally fragile; in the former case the person would have to stumble drastically to fall off the bridge, whereas in the latter the person would only have to lose balance for a moment.

So if a human agent is in a good epistemic position regarding whether an event will occur, this suggests that this event's occurrence is modally robust. It is possible that the event is modally fragile but that the agent is sufficiently informed to be in a good epistemic position regarding its occurrence, but such cases are at best rare. Similarly, if an agent is in a poor epistemic position regarding whether an event will occur, it is left open whether this is because the event is modally fragile and thus attaining evidence regarding whether it will occur is difficult, or whether the agent lacks evidence for some other reason. Thus when our intuitions align with the determinations of epistemic probability accounts of luck, this may not be because agents' epistemic position is relevant to luck, but because we infer something about an event's modal fragility from the epistemic position of the agent.

12.3.3. Control

Further, in many cases whether an event is lucky depends on an agent's epistemic position only insofar as this allows the agent to have *control* over the event.[89] Consider the following case.

> *Possible Danger*: According to Derek's evidence, there is a 10% chance that he
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> will die today, but he does not know from what.

Suppose that Derek dies that day from a meteorite crashing into him. Is he any less bad-lucky to have had this meteorite crash into him than he would have been had he no evidence that such an

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[89] For a discussion of the epistemic demands of control see Levy, *Hard Luck*, 110-54..

event would occur? According to my intuitions, no. Derek is just as bad-lucky as he would have been had he no idea that such an event might occur. In fact, I find Derek intuitively bad-lucky even if he knows with absolute certainty that he will die that day by a meteorite crashing into him (given that this is still somehow chancy), as long as he does not know how he can avoid it. But if Derek knows that he will die that day, then his death does not count as lucky according to the epistemic probability accounts. In my view, Derek is bad-lucky to die because he has no *control* over his death, despite his good epistemic position regarding his death. This suggests that epistemic probability accounts' *prima facie* plausibility may depend on how well agents' epistemic positions affect their control.[90]

Note that although I have argued that the epistemic probability accounts derive plausibility from their parasitism on factors related to chanciness and control, it is possible for cases to be constructed which separate these factors. But these factors may often be conflated, and this conflation may lend undue support to the epistemic probability accounts of luck.

Given the problems I have presented here for the epistemic probability accounts, and my debunking of these accounts' *prima facie* plausibility, I believe that epistemic probability accounts, and thus all probability accounts of luck, fail. I will now move on to discussing the modal condition on luck, beginning by arguing that the stock form of the modal account fails.

13. Modal Problems

I will now present what I believe are counterexamples to the stock form of the modal account of luck. Recall the account.

> *Stock Modal Account of Luck*: An event, E, is lucky for an agent, A, to the extent
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> that E is significant for A and modally fragile, where an event is more modally

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[90] Of course, due to my arguments in Section 10, I do not believe that control accounts of luck are tenable. But a control condition may at least be a necessary condition on luck, or control of an event may be built in to a modal account. I discuss these possibilities in Sections 9 and 15.

fragile the fewer of the nearby possible worlds it occurs in, where the relevant

initial conditions for this event are held fixed.

I believe that the problems I will discuss here are also troubling for mixed accounts of luck which

incorporate both a modal and control condition. But because the problem for the mixed accounts

stems from the problems with the modal condition, I will here focus on modal accounts of luck.

Still, mixed accounts are not off the hook. If what I argue is correct, then mixed accounts of luck

should replace the modal condition they incorporate with the modal condition that I argue in favour

of here. The problem for modal and mixed accounts of luck is that some events – all of them, if I

am right – are lucky due to the contrast between them and events that do *not* occur. Here are the

cases that motivate my argument.

13.1. The First Case

> *Better Benevolent Observer*: The Powerbucks lottery pool is $10,000. Smith buys
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> a ticket for the Powerbucks lottery and when the lottery is drawn, all of his numbers
>
> come up. Smith is the sole winner and collects his $10,000. Had Smith not won the
>
> lottery, he would have been given $10,000,000 by a benevolent observer.

Intuitively, winning the lottery is *bad luck* for Smith because winning the lottery causes him to

miss out on receiving a much bigger prize. But, ignoring what *would have* happened had Smith

not won the lottery, winning the lottery is good-lucky for Smith according to the modal account

because it is modally fragile and significant for him (because getting $10,000 is good for him).[91]

So the modal account gets this case wrong.[92]

However, Neil Levy has suggested (in a personal communication) that although the modal

account gets the *valence* of luck wrong in this case – that is, it classes as good-lucky an which is

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[91] Mixed accounts of luck cannot avoid this counterexample by appealing to control because winning the lottery is also uncontrolled.

[92] Note that although Coffman's earlier mixed account of luck is resistant to these problems, similar problems can still be concocted for that account by altering the time at which events occur. See Coffman, "Thinking About Luck."

intuitively bad-lucky – it still correctly identifies *that this event is lucky* at all. And identifying whether an event is lucky at all is what matters, not identifying the valence of the luck. So, this objection goes, *Better Benevolent Observer* is not a good counterexample to modal and mixed accounts of luck.

13.2. The Second Case

I am not persuaded by the above objection because it seems that for at least some projects which at least arguably rely upon the concept of luck, it matters whether agents are lucky in a good or bad way.[93] Still, even if this objection is correct, there are cases where the stock modal account mischaracterises events as lucky when they are not lucky *at all*.

> *Equal Benevolent Observer*: The Powerbucks lottery pool is $10,000,000. Smith buys a ticket for the Powerbucks lottery and when the lottery is drawn, all of his numbers come up. Smith is the sole winner and collects his $10,000,000. Had Smith not won the lottery, he would have been given $10,000,000 by a benevolent observer.

In *Equal Benevolent Observer*, winning the lottery is intuitively non-lucky for Smith because he would receive the same amount of money irrespective of whether he wins. But the modal account of luck determines that he *is* lucky to win for the same reason as before: winning the lottery is modally fragile and significant (because getting money is good). So the modal account of luck cannot even adequately distinguish lucky from non-lucky events.

Patrick Beach has provided an account of luck which may appear to solve this problem.[94] His account does determine the right answers in these cases: winning the lottery is *bad-lucky* for Smith in *Better Benevolent Observer* and *non-lucky* in *Equal Benevolent Observer* because had

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[93] For instance, if moral luck incorporates the modal account of luck, presumably if someone experiences bad moral luck – they perform some culpable action luckily – we should not blame them even *more* than we naturally do, whereas we may think that if someone experiences good moral luck we should praise them *less* than we are inclined.

[94] Beach, "Defending Contrastive Luck."

Smith not won in these cases, he would have received more money or the same amount, respectively.[95] Although I believe that Beach's approach to these problems is generally correct, I will now explicate his account and argue that it ultimately fails.

14. Beach's Significance and Modal Conditions

Here, again, is Beach's account of luck.

> *Beach's Contrastive Luck*: An event, E, is lucky for a subject, S, if and only if (i) E is counterfactually significant to S (in contrast to how S might have been otherwise), (ii) E is sufficiently out of S's luck-canceling control, and (iii) relative to some initial event, E∗, in a large enough proportion of worlds that are relevantly similar to the actual world, E does not occur and some different event, E′, occurs instead.[96]

Clause (ii) is not relevant for this section, so I will focus here on clauses (i) and (iii). Beach's condition (i) entails that an event's significance is determined by comparing the effect it has on the agent to what would have happened had it not occurred. For instance, suppose that a falling hammer narrowly misses my head. According to Beach's account, this is a highly significant event because if it did *not* narrowly miss my head – if it hit my head instead – I would have died.[97] The

[95] Julia Driver also discusses this contrastive aspect of luck and suggests a contrastive modal account in Driver, "Luck and Fortune in Moral Evaluation." But Driver's account is less promising than Beach's for two reasons. Firstly, Driver states that events that occur in nearby worlds can affect the luckiness of events in the actual world, but she does not make explicit *how* they do so. Secondly, Driver's account fails in obvious cases. Her account states: "If an agent is lucky that event p rather than event q, then p occurs in the actual world, and does not occur in a wide class of the nearest possible worlds where the relevant initial conditions for that event are the same as in the actual world, whereas q does not occur in the actual world, and does occur in a wide class of the nearest possible worlds where the relevant initial conditions for that event are the same as in the actual world" ibid., 167.

But suppose that some event *x* occurs in the actual world, but that in nearby worlds there is an equal distribution of events *p, q, r, s,* and *t* occurring instead of *x*. Then the events which contrast with event *x* do not occur in a *wide class* of the nearest possible worlds. (If 20% of nearby possible worlds is still a wide class, then suppose that even more events are equally distributed in nearby worlds.) Thus *x* cannot be lucky (even if it is extremely good and all the other events are extremely bad). For an additional response to Driver see Lee John Whittington, "Getting Moral Luck Right," *Metaphilosophy* 45, no. 4-5 (2014).

[96] Beach, "Defending Contrastive Luck," 108.

[97] Ibid., 110.

negative significance of the event that occurs in a nearby world renders the actual event of the hammer missing my head highly *positively* significant.

14.1. The First Problem

Although I believe that the correct account of luck must have some counterfactual or contrastive element, I will now argue that conceiving of significance contrastively – as Beach does – is wrong. Take the following case, from Coffman.

> *Game Show*: You are on a game show. You confront two identical doors: Door A and Door B. Unbeknownst to you, the doors conceal two qualitatively identical iPads: iPad A and iPad B. You choose Door B and receive iPad B. There was absolutely no chance that you would fail to receive an iPad – that is, you were guaranteed to pick one of Doors A and B, and so you were guaranteed to walk away with one or the other of the two qualitatively identical iPads.[98]

I believe that receiving either iPad is not lucky, but *surely* it is significant. According to Beach's account, however, it is not significant to receive either iPad because in the contrastive case, you would have received an equally valuable iPad. That is, suppose that you receive iPad B. If you did not receive iPad B, you would have received the equally valuable iPad A. Contrastively, receiving iPad B is no better than receiving iPad A. According to Beach's account, the significance of an event is determined by comparing it to the value of contrastive events, so receiving iPad B is not significant because it is no more valuable than receiving iPad A. But obviously receiving iPad B *is* significant. So, I claim, Beach's method for determining an event's significance is wrong.

Beach could respond to this by arguing that although it is not significant to win iPad A or to win iPad B, it is significant to be on the game show. But *why* is it significant to be on the game show? There is nothing *intrinsically* significant about being on a game show. Presumably it is significant to be on the game show because this results in some other significant event, such as

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[98] Paraphrased from Coffman, *Luck: Its Nature and Significance for Human Knowledge and Agency*, 32-33.

winning an iPad.[99] But Beach cannot appeal to the significance of receiving the iPad to show why being on the game show is significant, because – as I just argued – according to clause (i) of his account of luck, receiving an iPad is *not* significant. So Beach cannot claim that being on the game show is significant. Thus this attempted rejoinder, and Beach's contrastive significance condition, fail. Fortunately, there is a solution to this problem. This solution comes in two parts.

14.2. The First Solution

Firstly, an event's *significance* does not depend on what would have happened had it not occurred. For instance, suppose that in the actual world and almost all nearby and distant worlds, you experience great joy when you wake up in the morning. This is surely significant for you, despite it being no better or worse than what happens in other worlds. Instead, I believe that an event's significance is determined by how well- or badly-off the agent is given that event, irrespective of what would have happened otherwise. Experiencing great joy is positively significant for you because it makes your life better; what would have happened had you not experienced joy does not affect the significance of this experience. Another way to put this is that a positively significant event is one that provides you with goods (or removes evils), and a negatively significant event is one that provides you with evils (or removes goods). Whether an event is positively or negatively significant for a person thus depends on what the best theory of value determines is good or bad for a person.

Secondly, the contrastive element of luck should be located within the *modal* condition, not the significance condition. This entails that although an event's *significance* is not determined by a comparison with what occurs in nearby worlds, its *luckiness* is so determined. The amended reading of Beach's modal condition is as follows.

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[99] Similarly, there is nothing *intrinsically* significant about winning an iPad. This event derives its significance from it enabling the winner to derive intrinsically significant goods (such as pleasure) from its use.

(iii*): relative to some initial event, E*, in a large enough proportion of worlds that are relevantly similar to the actual world, E does not occur and some event, E', with a different significance, occurs instead.

According to this amended form of Beach's account, in *Game Show* you experience a positively significant event when you receive either iPad because having an iPad is good for you. And although you are not *lucky* to receive either iPad – because if you did not receive one iPad, you would have received the other – you *are* lucky to get on the game show, because in most nearby worlds you do not get on the game show, and getting on the game show is positively significant for you due to it resulting in you getting an iPad.

Further, this amended form of Beach's account entails that in *Better Benevolent Observer*, where Smith wins $10,000 but would have received $10,000,000 had he not won, winning the lottery is *positively significant* for Smith, but he is *bad-lucky* to win the lottery because in most nearby worlds something with even *greater positive significance* occurs. Similarly, Smith is not lucky at all in *Equal Benevolent Observer*, where he wins $10,000,000 but would have received $10,000,000 had he not won, because although his win is significant, the significance of his win does not differ at all from the significance of his loss in nearby worlds. So this amended form of Beach's account gets all the cases right so far. But there is a further problem with his account.

14.3. The Second Problem

As Beach acknowledges, according to his account the luckiness of an event for an agent depends on what event we contrast it with, as required by clause (iii) or its amended form, (iii*).[100] But this is problematic in cases such as the following, which include multiple relevant contrastive events.

> *Die Roll*: I am playing a board game and am about to roll a six-sided die, where higher numbers are more positively significant for me and lower numbers are less

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[100] Beach, "Defending Contrastive Luck," 109-10.

so, with this significance increasing linearly (rolling a 1 is +1 significance, rolling

a 2 is +2, and so on). I roll a 3.

Was I lucky to roll a 3? According to Beach's account, I was good-lucky compared to rolling a 1, but bad-lucky compared to rolling a 6. Although some philosophers may be content to hold that an event's luckiness is contrastively determined by a comparison to one other event which has not occurred, I believe that this is problematic for two reasons.

Firstly, it seems plausible that the extent to which an event is lucky is not variable such that its luckiness differs by comparing it to various contrastive events. It seems that we intuitively attribute luckiness *simpliciter* to events. For instance, if I were to roll a 2 in *Die Roll* I would not consider myself good-lucky compared to rolling a 1 but bad-lucky compared to rolling a 6. I would consider myself bad-lucky *simpliciter* because my roll was low.

Secondly, luck is employed to do a variety of normative tasks in different philosophical domains. But it is unclear how these tasks will be accomplished if nothing is lucky *simpliciter*, but only in comparison to (potentially multiple different) contrastive events. For instance, suppose that if my action is lucky then I am not responsible for it, and it may be lucky compared to one contrastive event, but non-lucky compared to another. It is now unclear whether I am responsible for my action or not.[101]

14.4. The Second Solution

But there is a solution to this as well. Instead of comparing the event that actually occurs to *single* different events which occur in nearby worlds, compare the significance of the event that actually occurs to the average significance of events that occur in nearby worlds. An event is good-lucky to the extent that its significance is greater than the average significance of events which occur in nearby worlds, and it is bad-lucky to the extent that its significance is less than this average. The

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[101] There is no mechanism within Beach's account for aggregating luck such that we may attribute degrees of responsibility in cases such as this to avoid this problem.

significance of rolling a 3 is +3, and the average significance of the events in nearby worlds is +3.5, so I am slightly bad-lucky to roll a 3.

15. My Modal Account

In this section I aim to unify the solutions that I proposed in the last section in order to produce a modal account of luck that provides plausible judgements of luckiness in cases where the luckiness of an event is (partly) determined by what does not happen. Here is the modal account of luck that I propose does just this.

> *Modal Luck*: An event, E, is lucky for an agent, A, to the extent that: (1) the significance of E differs from the average significance of events that occur in nearby possible worlds, holding fixed the relevant initial conditions for this event.

According to this account of luck, an event's luckiness is determined by the difference in significance between it and the average significance of events which occur in nearby worlds. This involves, roughly, aggregating the significance of the events that occur in nearby worlds and then averaging the aggregated significance by the number of nearby worlds. If the significance of E is equal to the average significance of the events that occur in nearby worlds, then E is non-lucky. If E's significance is greater than the average then it is good-lucky, and if it is lower then it is bad-lucky.

Consider *Game Show* as an illustration. According to this account, you are not lucky *to win either iPad*, although it is *significant* for you to receive an iPad because having an iPad is good for you, even though had you not received iPad A, you would have received iPad B (and vice versa). Suppose you win iPad A but do not win it in most nearby worlds. In most nearby worlds, you win iPad B. The significance of winning iPad B is the same as the significance of winning iPad A because they are qualitatively identical. So the average significance of the events that occur in nearby worlds will be identical to the significance of what occurs in the actual world. Thus you are not lucky to win iPad A. However, you *are* lucky to *get on the game show*, as long as no other

significant event would have occurred had you not gotten on. This is because being on the game show results in a significant event: either winning iPad A or winning iPad B. So getting on the game show is more significant than the average significance of events which occur in nearby worlds, and is therefore lucky.

This also entails that Smith is bad-lucky in *Better Benevolent Observer* because what happens in nearby worlds (the benevolent observer giving him $10,000,000) is much more positively significant than what happens in the actual world (Smith receiving $10,000 from his lottery win). Similarly, Smith is non-lucky in *Equal Benevolent Observer* because in nearby worlds a benevolent observer gives him $10,000,000 and in the actual world he receives $10,000,000 from his lottery win, and there is thus no difference in significance between what happens in the actual world and nearby worlds.

Additionally, this account provides the right answer in *Die Roll*. Suppose that this is a fair die, so nearby worlds are equally split between me rolling a 1, 2, 3, 4, 5, and 6. Thus the average significance of what occurs in nearby worlds is $((1 + 2 + 3 + 4 + 5 + 6) / 6 = 3.5)$. The significance of rolling a 3 is 3. Thus I am slightly *bad-lucky* to have rolled a 3. If I had rolled a 4, I would have been *good-lucky* (to the same degree to which I am bad-lucky having rolled a 3). My proposed modal account of luck thereby gets all the cases right, unlike the standard modal account and Beach's account.

15.1. Problems with My Account

Having illustrated my proposed modal account of luck, I will now deal with two potential problems for the sort of modal comparison that it requires.

15.1.1. Infinite Worlds

I have presented my modal account as requiring the aggregation and averaging of the significance of events that occur in nearby worlds. But it seems that there can be *infinite* nearby worlds. To see this, consider this case.

Randomised Dartboard: Jerome is playing a game where a computerised mechanism throws a dart at a random position on a dart board. Jerome has no control over where the computer will throw the dart. The rules of the game hold that Jerome will receive more points the closer the dart lands to the centre of the board. The computerised arm throws the dart and it lands about halfway between the centre and the edge of the board.

According to my account of luck, to determine how lucky Jerome is, the event of the dart hitting the board where it actually does must be compared to what events occur in nearby worlds. In some nearby worlds, the dart lands 10cm further out than it actually does. But there are even closer worlds where it lands 5cm further out than it actually does, or 2.5cm out, or 1.25cm out, or 0.625cm out, and so on. Then there are the worlds where it is 10cm closer to the centre, 5cm closer, 2.5cm closer, and so on. It seems that the dart can always just be a *little bit* closer or further away from where it lands. And because the distance of the dart from the centre of the board affects the significance of its landing – because Jerome gets more points the closer it lands to the centre – then it seems like there are infinite nearby worlds which differ in significance.[102] It might appear difficult or impossible to aggregate the significance of events which occur in infinite worlds, and thus it may appear impossible to compare the significance of the event which actually occurs to the average significance of events which occur in nearby worlds. If this were the case, it would be severely problematic for my account.

I propose that the solution to this problem is to determine the average significance of events which occur in nearby worlds according to the *proportion of nearby worlds* in which events of that significance occur. For instance, in *Die Roll*, although there are plausibly *infinite* different ways that the die may land on each number, there are only six different significance values obtaining for events which occur in nearby worlds: the significance of rolling a 1, or a 2, or a 3, and so on. In other words, one sixth of nearby worlds have significances of +1, one sixth have significances of

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[102] For more on this see David Lewis, *Counterfactuals* (Oxford: Basil Blackwell, 1973).

+2, and so on. Because of this, the significance of events occurring in nearby worlds can be determined in accordance with the proportion of worlds in which events of various significances occur. As before, this is: $((1+2+3+4+5+6)/6 = 3.5)$.

But now suppose that the significant events in nearby worlds are *not* distributed evenly. Suppose that the die is biased, such that in nearby worlds it lands 5 and 6 only half as much as the other numbers. In one tenth of nearby worlds it lands 5 and in one tenth 6, and then two tenths for each of the other numbers. In such cases, the average significance of events in nearby worlds is calculated according to the proportion of worlds in which events of various significances occur: $((1+1+2+2+3+3+4+4+5+6)/10 = 2.7)$.[103] This method allows the significance of events occurring in nearby worlds to be aggregated even if there are infinite nearby worlds.[104] As long as nearby worlds can be divided into proportions according to the significance of the events that occur in them, there is no problem determining the average significance of events that occur in nearby worlds.

15.1.2. Other Worlds

It has been suggested by Ian Church, as well as J. Adam Carter and Martin Peterson, that distant, and not just nearby, worlds matter for determining the luckiness of an event.[105] For instance, Church discusses the following case.

> *Haven/Heaven*: Haven is an exceedingly safe place. Visitor goes to Haven and
>
> manages to leave without being shot. There are only very distant possible worlds
>
> in which Visitor goes to Haven and gets shot. Heaven is an even safer place. Visitor

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[103] Much more can be said on this topic, but I will not explore it further for two reasons. Firstly, dealing with the metaphysics of modality is not the focus of this essay. Secondly, these sorts of problems are troubling for *all* modal accounts of luck – and other modal concepts – and hence although they are worth attending to, they are not a special problem for my account.

[104] The standard mathematical formalisation of proportions of sets involves assigning a greater measure to a set in accordance with the proportion of the set. This method works for sets with both finite and infinite members. See John Pollock, "Probability and Proportions," in *Theory and Decision: Essays in Honor of Werner Leinfellner*, ed. Gerald L. Eberlein and Hal Berghel (D. Reidel Publishing Company, 1988); *Nomic Probability and the Foundations of Induction* (Oxford University Press, 1990).

[105] Ian M. Church, "Getting 'Lucky' with Gettier," *European Journal of Philosophy* 21, no. 1 (2013); J. Adam Carter and Martin Peterson, "The Modal Account of Luck Revisited," *Synthese* 194, no. 6 (2017).

goes to Heaven and manages to leave without being shot. There are no possible worlds in which Visitor goes to Heaven and gets shot.[106]

Church suggests that Visitor is slightly luckier not to be killed in Haven than in Heaven. Presumably he is not lucky at all to not be killed in Heaven, but slightly lucky to not be killed in Haven.

I find this argument reasonably compelling, although I am not committed to it being correct. But I will note here that my proposed modal account of luck is consistent with this. To incorporate distant worlds into the calculation in a plausible manner, the significance of an event which occurs in another world should be weighted according to the other world's distance from the actual world. The weighting should be 1, or close to 1, for extremely nearby worlds, and diminish to 0, or close to 0, for extremely distant worlds. A very good event in a nearby possible world with a value of +20 may have a weighted significance of (20 * 0.9 = 18), while an equally good event in a distant possible world may have a weighted significance of (20 * 0.1 = 2). These weighted significance values can then be factored into a determination of the average significance of events which occur in other worlds.[107]

15.2. The Merits of my Account

I will now briefly discuss why I believe that my proposed modal account of luck should be accepted over its competitors.

Firstly, I believe that my account produces plausible judgements in cases such as *Die Roll* which involve *multiple* alternative events occurring in nearby worlds. I do not believe that any other account can determine whether an event in such a case is lucky *simpliciter* (rather than merely contrastively). And as I noted earlier, having various contrastive determinations of an event's luckiness is not good enough. Not only does it seem like we *do* make judgements of luck

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[106] Paraphrased from Church, "Getting 'Lucky' with Gettier."
[107] This weighting should not alter the *significance* of events which occur in other worlds, only the strength that these events have to influence the (weighted) average of the significance of events which occur in other worlds. Events that occur in nearby worlds should have a greater influence on this (weighted) average than events that occur in distant worlds.

simpliciter, but the concept of luck is used in various philosophical projects to perform different normative functions. It is not clear how luck could perform these functions if an event's luckiness is relativised to different contrastive events.

Secondly, my proposed modal account is simpler and more unified than the standard modal account (and Beach's modal condition in his mixed account). Although my account relies upon the same quantity of theoretical concepts as the standard modal account – two; modality and significance – my account unifies these concepts in a way that the standard account does not. My account holds that the determination of an event's modal fragility is relevant precisely because this relates to the difference in significance between what actually occurs and what occurs in nearby worlds. The standard modal account, however, holds that modal fragility and significance are two distinct necessary, and jointly sufficient, conditions on an event being lucky. My account is thus more theoretically virtuous than the standard modal account.[108]

That said, I admit that the calculation of the average significance of events in nearby worlds is quite complicated, and obviously people do not (explicitly) perform this calculation when they make intuitive judgements regarding whether an event is lucky. This could be taken as a criticism of my account of luck: Because the concept of luck is used seemingly accurately by laypeople in everyday thought and discourse, the conditions that determine whether an event is lucky should not be so complicated that laypeople would be unable to understand them or use them in their determinations of luck. However, I suspect that when agents make everyday judgements of luck they are *approximating* the method that I have presented here. They attribute good luck to an event if something on balance worse would have happened had the world been just a little different (and similarly for judgements of bad luck and no luck at all). Given this, I do not think that my account of luck is implausibly cognitively demanding.

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[108] For a discussion of the theoretical virtues see Michael N. Keas, "Systematizing the Theoretical Virtues," *Synthese* 195, no. 6 (2018).

15.3. Modal or Mixed?

I have here argued that both the probability and control accounts of luck fail, and that the modal and mixed accounts of luck require amendment. But I have not discussed whether a modal account is to be preferred over a mixed account, or vice versa. I will not attempt to arbitrate between these accounts, and will only note that a mixed account of luck which incorporates both of my amendments, from Sections 9 and 15, will run as follows.

> *Mixed Luck*: An event, E, is lucky for an agent, A, to the extent that (1) the significance of E differs from the average significance of events that occur in nearby possible worlds, holding fixed the relevant initial conditions for this event.
>
> An event, E, is non-lucky for an agent, A, to the extent that (2) A exercises control in causing E.

The account of mixed luck is phrased in this way because while the absence of control is not sufficient for an event to be lucky, as I argued in Section 10, the exercise of control is sufficient for an event to be non-lucky. Hence the account of luck must be presented asymmetrically: the greater the modal differences, the luckier the event; the greater the control exercised, the less lucky the event. But an absence of an exercise of control does not render an event lucky, whereas an absence of modal differences does render an event non-lucky.

As I discussed in Section 9.2, I believe that plausible modal accounts of luck need not incorporate a control clause to avoid the problems I have discussed in this essay. But there are some problems for modal accounts that I have not discussed, and unfortunately have no space to discuss, here.[109] Because of that, I will leave it open whether a mixed or modal account of luck is

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[109] Philosophers who have endorsed mixed accounts over modal accounts have provided two rationales for doing so. Firstly, some philosophers have argued that agents can sometimes make choices *on a whim* which are modally fragile but *not* lucky, and hence that the modal account of luck is wrong. For examples of this, see Lackey, "What Luck Is Not."; Coffman, "Strokes of Luck."; *Luck: Its Nature and Significance for Human Knowledge and Agency*; Peels, "The Mixed Account of Luck."; "A Modal Solution to the Problem of Moral Luck." Secondly, Neil Levy has suggested that the modal account of luck begs the question against agent-causationist views of free will and moral responsibility because it entails that modally fragile choices and actions are lucky, whereas agent-causationists hold that such choices and actions may be free (and hence, plausibly, non-lucky). See Levy, *Hard Luck*.

superior. Either way, I believe that the modal account I have presented is superior to its competitors for the reasons I have provided, and that this mixed account is superior for similar reasons: it avoids the counterexamples discussed so far, and is more theoretically virtuous than other mixed accounts.

15.4. Rebutting Other Problems

Before concluding, I will briefly discuss why some of the other key cases I have discussed are not problematic for the modal (and mixed) account(s) of luck I have presented here.

15.4.1. The Sun Rising

My accounts of luck do not class the sun rising as a lucky event because this event occurs in all nearby worlds, so the significance of this event in the actual world is no different to the average significance of events that occur in nearby worlds.

15.4.2. Vincent and Buried Treasure

I believe that my accounts are immune to Lackey's arguments against the modal condition on luck for reasons already provided in Section 6: modally robust events only appear lucky because they are the consequences of previous modally fragile events. So although my account holds Vincent not lucky to dig up the treasure, he *is* lucky to develop a deep connection to the location at which Sophie buries her treasure.

15.4.3. Smith and the Rigged Lotteries

My accounts hold Smith to be non-lucky to win the lottery in the *Rigged Lottery* and *Unknowingly Rigged Lottery* cases because he wins the lottery in the actual world as well as all nearby worlds. There is no difference in significance between the actual world and the average significance of events in nearby worlds, and thus no luck.

15.4.4. Lucky Beings

My account holds that the mole rats are not lucky in Section 12's *Blind Mole Rats* because they continue to live in both the actual world and nearby worlds (because the sun keeps rising in such worlds). It also holds that the beetle is lucky in *Beetle and Spiderwebs* because the beetle avoids the webs in the actual world but not in many nearby worlds, such that the average significance of events that occur in nearby worlds is much worse than the significance of what actually occurs.

Further, my account holds Smith to be lucky in *Pre-Birth Lottery* because Smith's mother winning the pre-birth lottery is highly significant for him, and this event does not occur in most nearby worlds (and he lacks control over this event).[110]

16. Conclusion

The purpose of this essay was to assess the probability, control, modal, and mixed accounts of luck in order to determine which is most plausible.

Sections 1 through 3 introduced the philosophical discussion on luck. Section 4 argued that an event's luckiness for an agent is determined by how it impacts the agent's life both at the time it occurs and in the future.

Sections 5 through 9 defended various accounts of luck from arguments against them. Section 5 argued that, contra Hales, only the diachronic – and not synchronic – view of an event's luckiness matters. Section 6 discussed Lackey's cases of putatively modally robust lucky events and argued that such events are not lucky, but do have lucky events as their precursors. Section 7 introduced Hales's cases of skillful luck, which are supposedly skillfully produced events which are implausibly deemed lucky by various accounts of luck. Section 8 discussed Beach's solution to such cases, which is to allow that control is scalar. Section 9 argued that, following Beach, cases

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[110] As noted earlier, my proposed accounts of luck do not capture all cases of constitutive luck, and for this reason are not *exhaustive* accounts of luck. Instead, I believe that they are highly plausible accounts of what I called *lottery luck* – the sort of luck exemplified by events such as winning the lottery.

of skillful luck are easily accommodated by the control, modal, and mixed accounts of luck by allowing that such events are *partly* lucky.

Sections 10 through 13 argued that the control and probability accounts of luck fail, in all their forms. Section 10 argued that all forms of the control account get various cases wrong. Section 11 argued that the objective probability account fails because it entails that no events are lucky in deterministic worlds. Section 12 contended that epistemic probability accounts of luck fail because they get cases wrong and cannot deal with beings who lack relevant epistemic capacities being the recipients of luck.

Sections 13 through 15 argued that modal and mixed accounts of luck, as they are currently presented, fail because the modal condition is unable to produce plausible determinations of luckiness for events which derive their luckiness from a contrast with events that do not occur. Section 13 presented cases which illustrate this phenomenon. Section 14 discussed Beach's mixed account of luck and argued that it implausibly renders significant events as insignificant and fails in cases with multiple relevant contrastive events. Section 15 presented my proposed modal account of luck which avoids the problems raised in Sections 13 and 14 and throughout the rest of this essay. This account involves an event's luckiness being determined by the difference between its significance and the average significance of events which occur in nearby worlds.

Much more must be said to determine which account of luck is best. In particular, I have not evaluated whether it is reasonable to abandon a modal account of luck for a mixed account, although I have illustrated which sort of mixed account I believe is most plausible. Further, my arguments here may be rebutted, or there may be some plausible account of luck which I have not discussed here. And as I noted at the start of this essay, I have not done any work attempting to elucidate the concept of *constitutive* luck, which eludes capture by (most of) the accounts of luck I have discussed here. But despite the limitations of this essay, given how important the concept of luck is in many philosophical projects, I will be content if I have managed to assist in its analysis.

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