FOREKNOWLEDGE, FATE AND FREEDOM

By

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ABSTRACT

"Foreknowledge, Fate and Freedom" is concerned with diagnosing and debunking a pervasive and prevalent folk intuition: that a foreknown future would be problematically, and freedom-hinderingly, fixed. In it, I discuss foreknowledge in and of itself, but also as a lens through which we can examine other intuitions and concepts: the apparent asymmetry of future and past; worries about fate and free will; notions of coincidence and likelihood; assumptions about God, time travel and ourselves.

This thesis provides the first philosophical map of a region of conceptual space visited often by the folk and popular culture, and as a result ties together a host of disparate threads in the literature. I make three central claims:

1. The folk intuition is wrong in rejecting foreknowledge wholesale on the basis that it entails a problematically fixed future, and thereby undermines our freedom.
2. Foreknowledge gives rise to new problems, and sheds new light on old ones, but none of these are insurmountable.
3. The same paradoxes thought to plague backwards time travel can arise in foreknowledge cases, and can be defused in the same way.

I conclude that foreknowledge is puzzling, but possible: it neither inevitably entails fatalism nor precludes free will. While its consequences may be strange, they are not sufficient to vindicate the folk intuition.

STATEMENT OF CANDIDATE

I certify that the work in this thesis has not previously been submitted for a degree nor has it been submitted as part of the requirements for a degree at any other institution. I declare that this thesis is an original piece of research and contains no material written by any other person, except where due reference is made. Any assistance that I have received in my work has been appropriately acknowledged.

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Stephanie Rennick

Date: 17/08/2014

NB. In the period since the thesis was originally submitted, some of the material in Chapter 4 (§4.4.2) was published in S. Rennick, "What mere mortals *can* do, but philosophers can't", *Analysis,* Vol. 75 No. 1, 2015, pp. 22-26. Specifically, it is a development of the argument against Lewis in §4.4.2.3, and considers one ramification of the intention problem.

ACKNOWLEDGEMENTS

"Is it Fate or Chance? I can never decide" – Flemeth[1]

The PhD is a strange beast. You don't get to the end quite the same person as you started: either the work changes you, or the time does (much like Heraclitus and rivers). Many of the good changes – in this work, and in me – are attributable to the plethora of fine philosophers (professional and otherwise) with whom I have had the pleasure of engaging, chatting, and drinking.

I am indebted, first and foremost, to my stellar supervisory squad. In Glasgow, Dr Martin Smith and Dr Stephan Leuenberger: thank you both for your time, expertise, reassurance, advice, patience, and good humour. You're both astonishingly clever, kind, decent human beings. At Macquarie, Emeritus Professor Peter Menzies, who supervised me for the bulk of my candidature – your brilliance and insight will never cease to astound me (whenever I give a talk it is your questions I try to predict). Finally, Dr Albert Atkin, for taking up the administrative reins at the Macquarie end – your patience for bureaucracy should earn you a medal.

I cannot express the extent of my gratitude and affection towards the fabulous staff and students at Glasgow who welcomed me with open arms, embraced the sparkles, made me so much more rigorous, and continued to have farewell drinks for me despite insisting I would return (in this, as in so many things, you were right). Particular thanks (and glitter) are owed to Neil McDonnell (for making me better), Carole Baillie (for keeping me sane (and proof-reading a chapter on your birthday!)), and Professor Fiona Macpherson (for being herself).

I benefitted enormously from the discussions, suggestions, feedback, encouragement, criticism and proof-reading of a host of splendid people, including Kate Lynch, Jen Corns, Jennifer Duke-Yonge, Jim McDonaugh, James Humphries, Jonathan Tallant, David Braddon-Mitchell, Graeme A. Forbes , Talia Sellars, Alan Weir, Fraser MacBride, Chris Mills, Michael Brady, Paul Daniels, John Donaldson, and Emily Askham. Thanks also go to my family for lending me their names in thought experiments, reading bits and pieces, and listening to my waffle; and to my almost-family (including but not limited to Gigi, Al, James, Brendan, and David) for – one way or another – getting me here. And for the (endless) cups of tea.

I am hugely privileged to be in this position, and grateful for the whole experience of the last few years. Getting paid to contemplate sober the kind of questions others think about drunk is an honour and a delight. Long may it continue.

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[1] Mark Darrah, *Dragon Age II,* (Bioware, 2007).

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CHAPTER ONE: FOREWARNED IS FOREARMED
(An Introduction)

"We have no specific destiny against which we can fight — for the fighting would be as much a part of the destiny as the final end." – H. P. Lovecraft[2]

1.1 INTRODUCTION

"Foreknowledge, Fate and Freedom" is principally concerned with diagnosing and debunking a pervasive and prevalent intuition: that a foreknown future would be problematically, and freedom-hinderingly, fixed. This 'folk intuition' dates back at least two millennia, and reveals itself in philosophy, fiction, film, video games, and a host of other media. In examining it and its metaphysical consequences, I discuss foreknowledge not only in and of itself, but also as a lens through which we can examine other intuitions and concepts: the apparent asymmetry of future and past; worries about fate and free will; notions of coincidence and likelihood; assumptions about God, time travel and ourselves.

There are two main ways in which to frame the project, and each reveals a different, albeit compatible, motivation. The first is an attempt to answer two key questions:

Does the possibility of foreknowledge entail predestination?

And,

Does predestination preclude free will?

If some of the consequences of foreknowledge are improbable or intolerable, then they could act as an informal *reductio* for the possibility of foreknowledge. As I shall argue, they are not. However, distinctions matter – who knows, how they know, and what they know – these impact the extent to which one's actions are predestined, or free, or causally loopy; and reveal difficult questions that have too often been underestimated or overlooked.

The second way to describe the thesis is as an exploration of the seeming asymmetry between future and past: the former as open, malleable and within our control; the latter as fixed, unchanging, and knowable. Interestingly, two of the most popular theories of time – four-dimensionalism and presentism – lack such an asymmetry in their ontology. If there is in fact future-past symmetry, then knowledge of

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[2] H. P. Lovecraft, Letter to Rheinhart Kleiner, 15 May 1921. Cited in S. T. Joshi and Christopher Hitchens, *Against Religion: The Atheist Writings of H. P. Lovecraft* (New York: Sporting Gentlemen, 2010), p. xviii.

the future should not inherently (and without other reason) be more problematic than knowledge of the past; yet we think it is.[3] Part of the motivation for this thesis is to identify why, and show otherwise. Thus the conclusions I draw are not limited to the logical possibility or palatability of foreknowledge – although, as will become evident, it is indeed far less problematic than philosophers, fictional protagonists and our drunken selves have feared– they also shed light on our metaphysical concepts and assumptions more broadly.

In terms of significance, I here provide the first philosophical map of a region of conceptual space often visited by the folk and popular culture – and in doing so tie together a host of disparate threads in the literature (ranging from ancient philosophy to contemporary high fantasy, with video games, philosophy of religion, contemporary metaphysics and children's films in between). I make three central claims:

(1) The folk intuition is wrong in rejecting foreknowledge wholesale on the basis that it entails a problematically fixed future, and thereby undermines our freedom.

(2) Foreknowledge gives rise to new problems, and sheds new light on old ones, but none of these are insurmountable.

(3) The same paradoxes thought to plague backwards time travel can arise in foreknowledge cases, and can be defused (or 'paradoctored'[4]) in the same way.

To establish (1), I diagnose and debunk the folk intuition concerning foreknowledge by presenting three useful distinctions – types of foreknowers, types of predestination, and first-person v third-person foreknowledge – and thereby show *that* we, and *how* we, make such a mistake. Regarding (2), I demonstrate that the philosophical significance of foreknowledge goes well beyond concerns about freedom, despite the paucity of literature to that effect. Finally, to arrive at (3) I consider the parallels between backwards time travel and foreknowledge, particularly in terms of past-future symmetry, causal loops, bilking and probability. Many of the same counter-intuitive consequences seem to arise from foreknowledge as from time travel – for free will, and how we understand coincidence, knowledge, causation and time – and yet the consequences of time travel have been most often explored in relation to the past. Although the literature on foreknowledge touches on similar issues, it likewise limits itself to the future. This thesis addresses the lack of communication by tying together the disparate threads and

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[3] Indeed, even if there is an ontological asymmetry, this need not preclude the possibility of foreknowledge (see §5.5).

[4] A term taken from Robert A. Heinlein, " – All You Zombies – ", first published in *The Magazine of Fantasy and Science Fiction*, March 1959. Reprinted in Peter A. French and Curtis Brown (eds.), *Puzzles, Paradoxes and Problems* (New York: St Martin's Press, 1987), pp. 212-221.

investigating why and whether the future and past need be so different.[5] Just as backwards time travel is both interesting in itself and a useful lens for examining the past and our assumptions and concepts pertaining to it; so foreknowledge is an interesting and useful analogue for considering the future (although one does not have to travel to the future to know it, and thus a rejection of foreknowledge requires more than a rejection of time travel).

As the title suggests, in what remains of this chapter I shall outline the structure of the thesis as a whole (§1.2) and highlight certain parameters and assumptions employed throughout (§1.3).

1.2 STRUCTURE

This work consists of two major, overlapping arcs. As noted above, the first is an exploration and debunking of what I diagnose to be the folk intuition concerning foreknowledge: that if the future was foreknown, it would be problematically predestined – inevitable and outside of our control. This consists of three parts: the link between foreknowledge and predestination (Chapter 2), the consequences of predestination for free will (Chapter 3), and the difference between third-person and first-person foreknowledge – that is, between: *S* having foreknowledge pertaining to your actions, you knowing *S* has foreknowledge, and you knowing the content of *S's* foreknowledge (Chapter 4). The second arc, its themes arising in Chapter 4 and attaining full focus in Chapter 5, is an exploration of the similarities between backwards time travel and foreknowledge: similarities not limited to or requiring (but perhaps motivating) a symmetry between the future and the past. This allows for consideration of the consequences of foreknowledge beyond predestination and freedom, and puts to rest additional reasons to doubt its possibility. As it turns out, a better understanding of foreknowledge and its consequences allows a new crack at some age-old chestnuts – problems of free will, divine omniscience, fatalism, and so forth. In addition, I introduce novel distinctions, articulate new problems, and use a variety of literature to shine new light. To this end, following this introduction are four chapters, each of which concentrates on a particular theme:

In Chapter 2 I identify the folk intuition and consider whether foreknowledge entails problematic predestination. Central to this chapter is distinguishing different ways in which we might think the future is fixed, and how these correspond to the foreknowledge of an omniscient God, a future-visiting time traveller, an infallible predictor, and an ordinary agent. I conclude that wrapped up in the folk

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[5] Spoiler alert: They needn't be.

intuition is a fatalistic notion of 'fixed', and one which is entailed, at worst, only by the infallible knowledge of God. I suggest that what is going wrong in the folk intuition is conflation: of important characteristics in the foreknowledge scenarios, of types of predestination, and of truth with necessity.

Chapter 3 moves on from predestination to free will: it surveys eight types of account in the free will debate – concentrating specifically on the necessary conditions they posit – and their compatibility with the types of predestination identified in Chapter 2. I show that, at minimum, the foreknowledge of the ordinary agent and the time traveller is compatible with each of these accounts. This further undermines the folk intuition: it is just not the case that foreknowledge inevitably precludes our being free.

In both the preceding chapters I limit the discussion to third-person cases: where the subject or object of the knowledge is unaware of the existence or content of latter. In Chapter 4 I turn to first-person foreknowledge, first in terms of predestination and free will – finding it, broadly speaking, no more problematic than the third-person variety. Then I consider other problems more vivid in, if not unique to, first-person cases: self-fulfilling prophecy and the intention problem (or 'genuinely trying when you know you will fail').

In the final chapter I turn explicitly to the symmetry between backwards time travel and foreknowledge, first in terms of logical possibility – demonstrating that the same solutions to the paradoxes thought to plague the former can be provided for analogous problems generated by the latter –and then in terms of probability: considering the types of consequences foreknowledge might generate and why we still should not consider it unlikely.

I conclude that foreknowledge can be puzzling, but is not paradoxical. The reasons provided by the folk-intuition to reject foreknowledge – that it entails problematic predestination and precludes free will – are thoroughly debunked by thesis end, as are other concerns that arise out of its similarity with time travel (that it generates long strings of inexplicable coincidences, or paradoxical loops).

1.3 ASSUMPTIONS, PARAMETERS & METHODOLOGY

Long preliminaries can be more burdensome than beneficial, thus I shall be brief here. Indeed, many of the assumptions and parameters will be introduced as we go along, but it is worth saying a little about a handful at the outset, as they operate throughout the thesis:

Firstly, I am not presuming a particular substantive account of foreknowledge: take your preferred epistemology, make the content of the knowledge future-pertaining, and the conclusions I draw will be applicable. The only requirements I make are that **knowledge entails belief** – that is, for the agent to know *p* she must believe *p* – and that **knowledge is factive**: one can only know *p* if *p* is true. I take these to be fairly uncontroversial, and will not argue for either. As Ichikawa and Steup note, "most epistemologists have found it overwhelmingly plausible that what is false cannot be known" and while belief being a necessary condition for knowledge is "slightly more controversial" than factivity, "it is certainly accepted by orthodoxy."[6] The truth condition is implicit in the folk intuition – the worry is that knowing the future fixes it, a problem that would not arise if the knowledge could be false; so we need the assumption to get the discussion off the ground. The belief condition becomes most important when considering the intuitive objections to first-person foreknowledge (Chapter 4); the conclusions of Chapters 2 and 3 – that foreknowledge neither inevitably entails problematic predestination nor precludes free will – apply even if foreknowledge does not require belief, as do many of the observations concerning the symmetry of past and future.

Secondly, for there to be foreknowledge at all, the future must be knowable: there must be true propositions describing it. Thus foreknowledge requires that **bivalence extend to future contingents**. The principle of bivalence states that every proposition or declarative sentence has a single-truth value: it is either true or false.[7] Whether bivalence applies to the future is a matter of great historical debate, but assuming it does is a necessary first step for the purpose of examining whether foreknowledge entails fatalism.[8] This is discussed further in Chapter 2, but it is a consequence of factive foreknowledge that future contingents must be bivalent, thus in order to be in a position to evaluate the folk intuition, I am assuming it from the outset.[9]

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[6] Jonathan J. Ichikawa and Matthias Steup, "The Analysis of Knowledge", *The Stanford Encyclopedia of Philosophy* (Spring 2014 Edition), Edward N. Zalta (ed.), http://plato.stanford.edu/archives/spr2014/entries/knowledge-analysis/, accessed 2 Aug. 2014.

[7] Michael Glanzberg, "Truth", *The Stanford Encyclopedia of Philosophy* (Fall 2014 Edition), Edward N. Zalta (ed.), http://plato.stanford.edu/entries/truth/, accessed 27 Jul. 2014; Paul Tomassi, *Logic* (London and New York: Routledge, 1999), p. 124.

[8] Indeed, analogous arguments for theological fatalism – which presume God has foreknowledge – are given as for logical fatalism, which assumes only bivalence (see §2.2.2). The earliest source commonly cited for the rejection of bivalence for future contingents is Aristotle, *De Interpretatione* IX, and for the contrary position, Chrysippus the stoic logician, who accepted bivalence for all propositions (see for instance S. Bobzien, "Chrysippus and the Epistemic Theory of Vagueness", *Proceedings of the Aristotelian Society* Vol. 102 (2002), pp. 217-238). Of course, foreknowledge does not require that *all* future contingents have a truth value, only those which are foreknown.

[9] There is disagreement among molinists on this issue, but the assumptions required for molinism go above and beyond those implicit to the folk intuition, and thus I shall not dwell on it here. For a helpful discussion on the

Thirdly, I will often employ the language of four-dimensionalism, particularly when discussing the time travelling foreknower. Under David Lewis's account, the universe is a "four-dimensional manifold of events", where time is a dimension additional and analogous to the three spatial dimensions.[10] Entities have extension in four directions through space-time: they have breadth, width, length and duration.[11] Under a four-dimensional ontology the past and future are equally real as the present, but exist at a temporal distance; just as Australia is equally real as Scotland but spatially distant. As a result, the future is *there* for the time traveller to visit. I will introduce the necessary terminology as we go along, but it is important to note that unless otherwise stated, none of the conclusions I draw are restricted to a four-dimensional universe (this will become particularly evident in Chapter 5) – the choice of vocabulary is solely pragmatic (as the bulk of time travel philosophy is set in a four-dimensional framework).

Finally, in terms of literature, I will draw on a plethora of texts from a variety of areas in philosophy. There is no standard source for my thesis topic or the broad problems considered; each chapter (and in some cases each sub-section) will introduce different works and themes. The result is a tapestry of interwoven texts, concepts and accounts which, I hope, will enrich the dialectic. Additionally, I do not rely solely on philosophical texts; many of the thought experiments and scenarios throughout are drawn from popular culture. Not only are these more vivid and exciting than some of the dry, abstract examples found in technical sources, but more importantly they reveal prevalent and pervasive notions, concepts and worries that continue to resonate beyond philosophy.

The discussion begins in earnest over the page. As the chapter title suggests, consider yourself forewarned.

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issue, see Richard Gaskin, "Molina on Divine Foreknowledge and the Principle of Bivalence", *Journal of the History of Philosophy,* Vol. 32 No. 4 (1994), pp. 551-571.
[10] David Lewis, "The Paradoxes of Time Travel", *American Philosophical Quarterly,* Vol. 13 No. 2 (1976), p. 145.
[11] As H. G. Well's time traveller notes, an object that does not last for any time at all cannot have a real existence: "any real body must have extension in *four* directions: it must have Length, Breadth, Thickness, and – Duration." H.G. Wells, *The Time Machine* (New York: Garden City, 1961), pp. 193-4.

CHAPTER TWO: FOREKNOWLEDGE AND PREDESTINATION

"No one can unmake the past. It already happened. There's no "undo." Similarly, the future already happened. We just haven't reached it yet." – Sarda the Sage[12]

2.1 INTRODUCTION

Insofar as many of us think about foreknowledge, the folk intuition is that if someone knows the future, this means the future is somehow fixed or inevitable: it is predestined. When someone tries to prove otherwise, what they are seeking to prove (more often than not) is the prophecy or prediction false, that is, that it is not really foreknowledge. Examples abound in both ancient and modern texts, including:

Alvin Goldman in his Book of Life scenario:

> I realise that this purports to be a book of my life, and I resolve to test it… I decide to defeat the book by looking at a future entry,[13]

Peter in the Bible:

> 'Truly I tell you,' Jesus answered, 'today – yes, tonight – before the rooster crows twice you yourself will disown me three times.' But Peter insisted emphatically, 'Even if I have to die with you, I will never disown you',[14]

And Oedipus in the Greek myth, immortalized by Sophocles,

> But by chance he came to hear, again from the mouth of Apollo's ministers, the terrible prediction concerning him. Again, as his parents had done, he sought to give the lie to the oracle.[15]

That is, rather than questioning the conditional – if the future is known then it is fixed – it is the consequent that the intuition rejects as undesirable, and by *modus tollens,* the antecedent. We like to think of the future as open and mutable, and this seems incompatible with the possibility of foreknowledge. This is interesting, as we are normally quite happy to accept that we can know things about the past and that this knowledge reflects the way the past was: it does not confine the past. But to have knowledge of the future means the latter is fixed in a way we cannot reconcile with our ordinary

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[12] Sarda the Sage, *8-bit Theater* cited in "Quotes: You Can't Fight Fate", *TV Tropes,* http://tvtropes.org/pmwiki/pmwiki.php/Quotes/YouCantfightfate, accessed 25 Jul. 2014.

[13] Alvin I. Goldman, "Actions, Predictions and Books of Life", *American Philosophical Quarterly,* Vol. 5 No. 3 (1968) pp. 143-44.

[14] Mark 14: 30-31

[15] E. F. Watling, "The Theban Legend" in Sophocles, *The Theban Plays,* E.F. Watling (ed.), (Harmondsworth: Penguin Classics, 1947), p. 24.

conception of it. So while the examples above depict characters rejecting the veracity of predictions or prophecy, there is sufficient literature – particularly, but not exclusively, pertaining to God's foreknowledge – that suggests once one puts stock in an instance of foreknowledge then one accepts, in fatalistic fashion, that the future is destined or doomed to be that way. This is what I claim to be the 'folk intuition' regarding foreknowledge, and it is not a recent invention. For instance, Cicero, according to Augustine, feared that,

> [I]f all things have been foreknown: and if they come to pass in this order… then by fate… all things happen which happen. But if this be so then there is nothing in our power and there is no such thing as freedom of will; and if we grant this, says he, the whole economy of human life is subverted.[16]

This sentiment is echoed by Boethius, a sixth-century Roman philosopher,

> I don't see how God can have foreknowledge of everything and that there can still be free will. If God sees everything that will happen, and if he cannot be mistaken, then what he foresees must necessarily happen. And if he knows from the very beginning what all eternity will bring, not only men's actions but their thoughts and desires will be known to him, and that means that there cannot be any free will.[17]

And is found in fantasy,

> My life isn't my own. I'm a puppet for the Pattern and the prophecies, made to dance for the world before having my strings cut… my choices are made for me by the Pattern itself.[18]

And film,

> Oracle: Candy?
> Neo: Do you already know if I'm going to take it?
> Oracle: Wouldn't be much of an Oracle if I didn't.
> Neo: But if you already know, how can I make a choice?[19]

This notion –that foreknowledge gives rise to counter-intuitive and problematic consequences – is the starting point for this chapter, which seeks to show that we make a mistake when we reject foreknowledge wholesale on the grounds that it entails problematic predestination. It is an attempt,

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[16] Augustine, *City of God,* trans. Henry Bettenson, G.R. Evans (ed.), (London: Penguin Classics, 2006), Book V Chapter 9 §2.

[17] Boethius, *The Consolation of Philosophy,* trans. David R. Slavitt, (Cambridge, MA: Harvard University Press, 2008), Book V Chapter III, p. 152. (Elsewhere in the thesis I use the Walsh translation, as it generally remains more faithful to the original Latin. Here, however, the sentiment is clearer in the Slavitt).

[18] Robert Jordan and Brandon Sanderson, *The Gathering Storm* Kindle Edition, (Orbit, 2010) Ch. 47.

[19] L. Wachowski and Andy Wachowski, *The Matrix Reloaded* Script (2001), http://www.horrorlair.com/movies/scripts/matrixreloaded.pdf, accessed 18 Oct. 2014.

thereby, to diagnose and debunk the folk intuition, which might otherwise serve as an informal *reductio* to the possibility of foreknowledge.[20] To this end I consider two crucial yet overlooked distinctions: (i) different senses of 'fixing the future' (§2.2), and (ii) different foreknowers and their respective modes of knowledge (§2.3). I conclude that foreknowledge does not necessarily entail problematic predestination or fixedness, and suggest that insofar as there are any foreknowledge scenarios that do involve a problematic form of predestination, these begin by imposing a problematic combination of characteristics on the foreknower: that is, they implicitly build into the foreknower extra features, and then mistakenly move from such cases to a wholesale rejection of foreknowledge.

It is worth noting that outside of the ordinary foreknowledge cases (§2.3.1), this chapter is restricted to discussing third-person foreknowledge; that is, where the object of the knowledge is unaware that the foreknower exists. Reflexivity is an extra feature which raises its own questions and consequences, and these are discussed at length in Chapter 4, which is dedicated to first-person foreknowledge. That such cases may be problematic does not weaken the conclusion of this chapter: here I seek only to establish that foreknowledge does not always or necessarily entail problematic predestination, and that the folk intuition makes a mistake in rejecting foreknowledge wholesale on such grounds. The debunking of the intuition will continue in Chapter 3, where I investigate the compatibility of various free will accounts with the types of predestination identified below.

There are several questions that can be raised about the apparently intuitive connection between foreknowledge and predestination, as follows:

1. Does knowing the future fix the future? That is, does the existence of someone with foreknowledge and their acquiring that foreknowledge result in the future being predestined?
2. Is a knowable future a fixed future (despite the existence or absence of a knower)? That is, does the mere possibility of foreknowledge require or result in the future being fixed in a certain way?

These are the crucial questions underpinning the folk intuition. If knowing the future problematically and counter-intuitively fixes the future, then foreknowledge is equally problematic and counter-intuitive. If the mere possibility of foreknowledge entails a future fixed in an undesirable or counter-intuitive way, then similarly foreknowledge will be rejected as a result of the metaphysical picture it requires. Finally, we may wish to ask,

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[20] Provided we think we are free and that the future is not fated in such a way as to preclude it.

3. Is a fixed future knowable? That is, if the future were to be fixed in the undesirable, problematic way suggested by the folk intuition, would it allow for the possibility of foreknowledge?

That is, does fixedness entail knowability or vice versa?

This chapter explores the answers to these questions, by considering a range of potential foreknowers and the relationship between events of the future and the knowledge pertaining to them. Although for much of the discussion they will operate in the background, they provide the impetus for the two aforementioned distinctions: conceptions of predestination (§2.2) and types of foreknower (§2.3). Consideration of these issues and distinctions will ultimately converge on the central question of this chapter: that is, whether we should (or whether it even makes sense to) reject the possibility of foreknowledge on the grounds that it entails a problematically predestined future.

2.2 THREE SENSES OF PREDESTINATION

The first step in debunking the folk intuition is teasing out precisely what is meant by a 'fixed' or 'predestined' future. After all, the constancy and inevitability of the connection between foreknowledge and predestination depends on how we construe the latter; how we think the future might be fixed. We might mean for instance something fairly weak, such as the following:

Weak Predestination (WP): An event *x* is predestined now iff for some future time *t* it is true now that *x* will occur at *t.*

If it is now *weakly predestined* that I will wear red next Friday, it is now true that I will wear red next Friday, and no one or nothing will prevent this from occurring. I did not have to wear red, and had I chosen otherwise, it would not have been true that I would have (see §§2.2.2; 2.3).

Alternatively, we might mean something stronger than this: we might think that if future events are known, they are necessary; that is, that they *must* happen, rather than that they merely *will* happen. One of the most common conceptions of 'fixedness' in terms of the necessity of future events is causal determinism, which we can formulate as follows:

Causal Determinism (CD): An event *x* is predestined now iff *x* is necessitated by the conjunction of past states and the laws of nature.

Under causal determinism, future event *x* must occur, given the state of the past in conjunction with the laws of nature, but if those past events or the laws had been different, so might the future events. But for this very reason, determinism does not seem to account for the sense of inevitability that arises in the folk intuition of what foreknowledge entails. So it seems there is a third sense of predestination under which *no matter what we do,* future event *x* will occur.

Several philosophers have spelled out this inevitability in terms of a kind of metaphysical necessity, or 'now-necessity', that is, the same sort of necessity that past events are supposed to have in virtue of being past (see §2.2.1). An event that is problematically predestined, it seems, is one in which it is now impossible to alter the fact or details of its occurrence; an event that is 'metaphysically fated':

Metaphysical Fatalism (MF): An event *x* is predestined now iff it is now-necessary that event *x* will occur.

It is this latter kind of predestination which is bundled up in the folk intuition concerning foreknowledge: that if the future was foreknown, events *must* happen, *no matter what;* that foreknown events are unpreventable, there are no possible defeaters for their occurrence. There is nothing we can do to change a metaphysically fated future, just as there is nothing we can do to change the past.[21]

The next step is to consider different foreknowers and the types of predestination their foreknowledge entails, but before doing so, it is worth a) spelling out in more detail what metaphysical fatalism might be, and considering the literature devoted to it, b) examining the link between metaphysical fatalism and causal determinism, and showing why it is useful to consider them as separate notions, and c) making clear why weak predestination does not entail metaphysical fatalism. The following sub-sections are devoted to each of these in turn.

2.2.1 NOW-NECESSITY: PAST AS PARADIGMATIC

Various philosophers have touched on the type of predestination that I am calling metaphysical fatalism when discussing events that *must* occur, where that 'must' is spelled out in terms of metaphysical necessity, temporal necessity, accidental necessity or 'now-necessity'. The notion is a monstrous

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[21] The necessity of the past has been discussed by Aristotle (explicitly in Metaphysics, Book Vi Chapter 3, but also according to Richard Sorabji in *De Interpretatione* IX; see his *Necessity, Cause, and Blame* (Ithaca, N.Y.: Cornell University Press, 1980), pp. 91-92) and also by Thomas Aquinas (*Summa Theologiae* Book I, Q. 25 A. 4; *Summa Contra Gentiles,* Book I Ch. 67 §2). Diodorus Cronus's Master Argument depends on the necessity of the past as well – see §2.2.2. Cf. Linda T. Zagzebski, *The Dilemma of Freedom and Foreknowledge,* (New York and Oxford: Oxford University Press, 1996), pp. 15-17.

chimera: hard to get a grip on, unclear, and inconsistent. Even where the terms have been used interchangeably – for they share a similar spirit – their proponents differ on what conditions are necessary and sufficient, on the rare occasions they are spelled out at all. I suggest that we zero in on two aspects underpinning several of the accounts, and operate with a minimalist, broadly compatible account of now-necessity: the past as a paradigm case, and the falsity of certain counterfactuals.

While some philosophers have defined the necessity in question in terms of the past and the necessity of past events, others have considered the past merely a paradigmatic case, rather than inherent to the definition. Members of the former camp tend to define 'now-necessity' as something belonging solely to the past[22], for instance in Taylor we find:

> *Temporal necessity,* which might less misleadingly be called "irrevocability" or "unalterability", applies to any event that has happened, and is thus relative to a date… What this notion calls attention to is just this obvious, and in other contexts trivial, fact: that nothing that may be in the past is any way revocable or alterable by what might happen now, whereas this is plainly not the case with such things as may be yet to come. The lapse of time by itself thus imposes a kind of necessity on things… past things, but not future things, are by now "of necessity".[23]

However, defining 'now-necessity' as limited to the past begs the question against the possibility of now-necessary future events, and thus the folk intuition.[24] Better then, for the sake of this discussion, to consider past events as paradigmatic cases of events that are now-necessary. This is the first important feature of the minimalist account with which I shall be working. Much of the literature can be read in this light: Zagzebski, for instance, writes,

> [W]e can begin with the intuitive idea that there is a kind of necessity that a proposition has now when the content of the proposition is about something that occurred in the past. To say that it is now-necessary that milk has been spilled is to say nobody can do anything now about the fact that milk has been spilled.[25]

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[22] And thus tend to be A-theorists. See §5.5.

[23] Richard Taylor, "The Problem of Future Contingencies", *The Philosophical Review,* Vol. 66. No. 1 (1975), p. 11.

[24] It also begs the question against the B-theory, as it posits, if not passage, then at least a significant difference (in terms of ontology, causation etc.) between the past and other times. Charity to the folk intuition requires a 'past as paradigmatic' view: as Zagzebski notes, it will be problematic for any fatalistic argument to depend on a notion of necessity defined as belonging solely to the past, as fatalism extends this necessity to the future. See Linda T. Zagzebski, *The Dilemma of Freedom and Foreknowledge,* (New York and Oxford: Oxford University Press, 1996), p. 15f.

[25] Linda Zagzebski, "Foreknowledge and Free Will", *The Stanford Encyclopedia of Philosophy* (Fall 2011 Edition), Edward N. Zalta (ed.), http://plato.stanford.edu/archives/fall2011/entries/free-will-foreknowledge/, accessed 25 Jul. 2014. NB. In earlier work (1996) Zagzebski seems more attached to the notion that now-necessity is unique to

Burgess uses the term 'now necessary' in similar fashion, describing it as "what is now unpreventable", continuing, "[i]t is in this sense that one may say that the past is necessary, and that 'whatever is, when it is, is necessarily.'"[26] Bernstein, by contrast, uses the term 'metaphysical necessity', but it is roughly equivalent: he describes the necessity as that which "all past events acquire when they become past."[27] A future event is metaphysically necessary, for Bernstein, if "we are as unable to influence it as we are incapable of modifying the past."[28]

Freddoso, under the term 'accidental necessity' or 'necessity *per accidens*'[29], gives a more fleshed out account than those mentioned above. Some of the properties Freddoso lists are different to those posited by others – such as his stipulation that only logically contingent propositions can be necessary in this way – but others are clearly in keeping with the corpus.[30] For instance, Freddoso states that a proposition's being accidentally necessary at *t* entails that it remains accidentally necessary at every moment after *t*, and an important corollary of this – also evident in the folk intuition – is that if *p* is accidentally necessary at *t,* then "no one can have the power at or after *t* to bring it about that *p* is or will be false"[31]. Similarly, if *p* is accidentally impossible at *t,* no one can subsequently have the power to make *p* true. Like other types of necessity, accidental necessity is closed under entailment (for logically contingent consequents). Thus, if *p* entails *q,* and *p* is accidentally necessary at *t,* then no one at or after *t* has or will have the power to bring it about that *q* will be false.[32] This will be important later (§2.3.4.3).

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the past, but the view presented here is agnostic – it can be *read* this way, as can many of the other treatments of the subject.

[26] J. P. Burgess, "The Unreal Future", *Theoria,* Vol. 44 No.3 (1978), p. 157 (quoting Aristotle in the latter line, *De Interpretatione,* IX).

[27] Mark Bernstein, "Fatalism" in Robert Kane (ed.), *The Oxford Handbook of Free Will* (Oxford: Oxford University Press, 2005), p. 66.

[28] *Ibid.*

[29] A term thought to date back to the 13th century logician William of Sherwood. Cf. Norman Kretzmann, *William of Sherwood's Introduction to Logic* (Minneapolis: University of Minnesota Press, 1966), p. 41.

[30] Alfred J. Freddoso, "Accidental Necessity and Logical Determinism", *The Journal of Philosophy,* Vol. 80 No. 5 (1983), pp. 259-60.

[31] *Ibid.,* p. 259.

[32] *Ibid.,* p. 260.

Freddoso's account is similar to Ockham's, who argues that past states (as well as those future states entailed by past or present states) are necessary, "not in the sense that their opposites are logically impossible, but in the sense that there is no longer any potency in things for their being otherwise."[33]

Borrowing from Freddoso and assuming the past is a paradigmatic case of 'now-necessity', if my wearing red next Friday is now-necessary, then no one or nothing can bring it about that I wear blue instead. I *must* wear red. No matter what anyone does, or might do, I will wear red next Friday. In addition to being in line with the folk intuition, it is to this sense of necessity – or something very similar – that much of the literature on free will and time travel paradoxes refers, as discussed in Chapters 3 and 5.

2.2.2 NOW-NECESSITY: COUNTERFACTUALS AND DETERMINISM

If a future event is merely weakly predestined, then it just happens to occur, and it is already true that it will; but it might not have occurred, in which case it would not have been true that it would. Under causal determinism, future event *x* must occur given the state of the past in conjunction with the laws of nature, but if those past events or the laws had been different, so might the future events. However, under metaphysical fatalism, future event *x* must happen *no matter what:* it is inevitable. The 'must' is important here; the necessity of determined events is causal or physical: so for instance, we can tell a story about my wearing red being the result of my packing certain clothes into my suitcase, there being a certain dress code at the event I am attending, and so forth.[34] If I had packed differently, or had different intentions or desires, I may have dressed differently. However, if it is metaphysically fated that I wear red – that is, if I will wear red *no matter what* – then despite what I put in my suitcase, despite the dress code, despite my desperately wanting and intending and preparing to wear black, I end up in red regardless.[35] There are two upshots of this contrast. Firstly, it allows us to distinguish between

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[33] Marilyn Adams and Norman Kretzmann, "Introduction" in William Ockham, *Predestination, God's Foreknowledge and Future Contingents,* (Cambridge, MA: Hackett, 1983), p. 5.

[34] Much of the recent literature refers to 'determinism' rather than 'causal determinism', at least partly in an attempt to disentangle the debate over what causation might entail from the truth of the former. Nonetheless, I tend to agree with Hoefer that "the notion of cause/effect is not so easily disengaged from much of what matters to us about determinism" (Carl Hoefer, "Causal Determinism", *The Stanford Encyclopedia of Philosophy* (Spring 2010 Edition), Edward N. Zalta (ed.), http://plato.stanford.edu/archives/spr2010/entries/determinism-causal/, accessed 13 Sep. 2013). To keep clear the difference between causal determinism and other 'determinisms' (e.g. logical determinism) I will refrain from using the term to refer to anything but the former – that is, 'determinism' and 'causal determinism' are here synonymous.

[35] You might think that such an outcome is impossible, or at least highly unlikely. This, as shall become clear, is not sufficient reason to reject the possibility of foreknowledge, but rather those foreknowers whose knowledge would entail metaphysical fatalism. I make no claims about the empirical possibility or likelihood of future events being fixed in this way – I am only spelling out what seems implicit in the folk intuition, and shall go on to examine whether this is entailed by foreknowledge, either broadly or in specific instances.

determinism and fatalism. Secondly, that very distinction serves as a defining factor of the now-necessity underpinning metaphysical fatalism: we can understand it in terms of determinism and counterfactuals with different truth values.

The two notions are certainly distinct: it is plausible, at minimum, to talk about an event that is metaphysically fated without being causally determined. For instance, the folk intuition that foreknowledge entails metaphysical fatalism seems to be independent of the universe being determined or otherwise; it makes sense to think that my wearing red next Friday might be fated (because God knew I would from the beginning of time) without it being entailed by the laws. Hoefer echoes this point as follows:

> Fatalism is easily disentangled from determinism, to the extent that one can disentangle mystical forces and gods' wills and foreknowledge (about specific matters) from the notion of natural/causal law… As a general matter, we can imagine that certain things are fated to happen, without this being the result of deterministic natural laws alone.[36]

One might concede this but think the reverse is less clear: that causal determinism does not entail metaphysical fatalism. As Hoefer continues, in a loose sense "it is true that under the assumption of determinism, one might say that *given* the way things have gone in the past, all future events that will in fact happen are already *destined* to occur." In other words, future events are just as inevitable or unpreventable under determinism as they are under metaphysical fatalism. I shall briefly consider this, but it is worth pointing out that even if you think one entails the other, you should still not accept the conclusion of the folk intuition – as will become clear, some foreknowledge entails neither determinism nor fatalism. Still, we have reason to think the two come apart.

While under determinism if my beliefs and desires had been different, my choice of dress may have been different; under metaphysical fatalism no matter what my beliefs and desires, my dress would be red. That is, the counterfactual "had *x* been different, I would not have worn red" will be true under determinism for some values of 'x' concerning, minimally, my actions and mental states; but will be false under metaphysical fatalism.[37] Think of an equation, where the left side includes all the pertinent details leading up to my donning the dress in question (including the laws), and the right side contains the event itself. Under determinism, changes to the left side of the equation may affect the right side, but if

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[36] Hoefer, Causal Determinism.
[37] Again, the past is paradigmatic. Unless evaluated in a back-tracking way, we usually think of counterfactuals like 'If I do X then Y would not have been the case' to be false. Metaphysical fatalism extends this to the future.

an event is metaphysically fated, then no matter what happens between the moment it becomes fated (which may be the beginning of time) and the event itself, the right side of the equation is fixed.

In other words, the kind of conditional analysis of 'could have been otherwise' employed by classical compatibilists can be performed for determinism but not fatalism (§3.4.1): if it had been the case that *x,* I would have done otherwise. Compatibilists about determinism and free will generally wish to reject the entailment of fatalism from determinism, because the former – as will be seen in Chapter 3 – undermines a much broader set of accounts of free and efficacious action. If you are an incompatibilist this may be less convincing. After all, if one accepts that past events are fixed, then it is all very well to talk in counterfactual terms, but as it stands, there is only one potential outcome in the actual world: my wearing red. However, this implies that the laws are not up for grabs either, and depending on your conception of the latter, this may not be the case. Certainly it seems logically possible for a proposition that was once a law of nature to subsequently cease being so,[38] or to conceive of the laws as contingent (as opposed to necessary) generalisations that serve as a concise, informative summary of what happens in the world.[39] Some, such as Barnes and Cameron, have argued that both the laws and the past states may be 'unsettled' in an important sense.[40] It is beyond the scope of this chapter to explore in any depth this literature, but it is worth noting that there is room in the dialectic to argue that causal determinism and metaphysical fatalism come apart; and indeed, fatalism is most helpfully understood in terms of the counterfactual truth value differences under it versus determinism.

2.2.3 WHY WP DOES NOT ENTAIL MF

That weak predestination does not entail metaphysical fatalism may be immediately obvious. Nonetheless it is worth discussing why, as it is a misunderstanding to the contrary that arguably motivates the folk intuition and its rejection of the possibility of foreknowledge, and one which dates back to at least Aristotle.[41] The move being made is from my wearing red next Friday being *true,* to its being *necessary.* Recall the definitions for weak predestination and metaphysical fatalism respectively:

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[38] See Freddoso, Accidental Necessity, p. 259.

[39] As per Lewis in *Counterfactuals,* Second Edition (Oxford: Wiley-Blackwell, 2001), p. 73 and "New work for a theory of universals" in his *Papers in Metaphysics and Epistemology,* (Cambridge: Cambridge University Press, 1999) p. 39f.

[40] Elizabeth Barnes and Ross Cameron, "The Open Future: Bivalence, Determinism and Ontology", *Philosophical Studies,* Vol. 146 (2009), p. 300f.

[41] Aristotle, De Interpretatione IX

Weak Predestination (WP): An event *x* is predestined now iff for some future time *t* it is true now that *x* will occur at *t.*

Metaphysical Fatalism (MF): An event *x* is predestined now iff it is now-necessary that event *x* will occur.

My wearing red is weakly predestined if it is true that I will wear red. Why is this different to my *having* to wear red, or my wearing red being necessary? Why isn't the proposition 'I will wear red next Friday' necessarily true, if it is true? Why does its truth not entail its inevitability?

The obvious response is that claiming weak predestination entails metaphysical fatalism involves a modal fallacy: moving from the truth of *p* to its necessity. That is, from necessarily (if *p* is true then *p*) – the necessity of the conditional – to necessarily *p,* the necessity of the consequent. After all, *p* may be contingently true, rather than necessarily true. If it is true that I will wear red next Friday, then it so happens that I will wear red next Friday, but I could have worn blue, in which case, it would have been false that I would wear red next Friday. However, if it is metaphysically fated that I wear red, my wearing red is *necessary:* I must wear red, and it is impossible that I will wear blue.

Alternatively, the entailment could be interpreted in light of logical fatalism: arguments for the latter posit that future truths are sufficient for fatalism, and foreknowledge requires there be future truths. That is, rather than being a modal fallacy, it is argued that one can legitimately move from the necessity of the past and there existing future truths to the necessity of the future. This is what Diodorus Cronus is thought to have been doing in his 'Master Argument'[42] (of which only the premises, but not the reasoning, are extant), and is one way to interpret Aristotle's famous sea-battle problem. In the spirit of these instances, Hugh Rice gives the following formulation:

> What is true of the past is necessary. Suppose that there is a sea-battle on 1/1/2100. Then it was true in 1900 that there would be a sea-battle on 1/1/2100. Then it was true of the past that there would be a sea-battle on 1/1/2100. So it is necessary that there will be a sea-battle on 1/1/2100. Therefore, if there is a sea-battle on 1/1/2100, it is necessary that there will be a sea-battle on 1/1/2100 (and impossible that there should not be).[43]

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[42] William Kneale and Martha Kneale, *The Development of Logic* (Oxford: Clarendon Press, 1962), p. 119.
[43] Hugh Rice, "Fatalism", *The Stanford Encyclopedia of Philosophy* (Spring 2013 Edition), Edward N. Zalta (ed.), http://plato.stanford.edu/archives/spr2013/entries/fatalism, accessed 8 Feb. 2014 .

The most popular strategies to refute such arguments have been a) to deny that bivalence extends to future contingents,[44] b) to deny the necessity of the past (see §2.3.4.3.2) or c) to deny that it is really a fact about the past that in 1900 there would be a sea battle in 2100 (see §2.3.4.3.1). Of course, if the logical fatalist's argument stands, then this will be a problem whether or not there are any foreknowers: the possibility alone of foreknowledge, i.e. of future truths, will be enough.

Which is the correct interpretation hinges on whether the antecedent in the conditional "necessarily if p then q" (for instance, necessarily if it is true in 1900 that there will be a sea battle in 2100, then there will be a sea battle in 2100) is itself necessary. If foreknowledge gives us a necessary antecedent, then the fatalist argument goes through and future events are problematically predestined. If it is not – and I shall argue that for all but one foreknower this is the case – then the move from foreknowledge to a problematically predestined future is indeed a modal fallacy.

The distinction between weak predestination and metaphysical fatalism will be explored further throughout §2.3.

2.3 THE FOREKNOWERS

Distinguishing between different conceptions of predestination allows for a clearer picture of the intuition permeating, at minimum, a great deal of philosophy, literature and film: if someone knew the future, the future would be problematically predestined; that is, metaphysically fated. But is metaphysical fatalism really entailed by foreknowledge? Certainly the leap is common-place, which makes the question worth considering. To answer it, it helps to distinguish between the types of foreknowledge that feature in the scenarios motivating the folk intuition.

2.3.1 ORDINARY FOREKNOWLEDGE

First, it could be argued that we ordinarily have intentional, testimonial or inductive knowledge of the future. For instance, I might know that I will get up at 8am (because I intend to), that you will get up at 8am (because you told me so), or that the sun will come up tomorrow (because it has done so reliably thus far). These cases do not result in problematic predestination: it seems clear that my knowing the

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[44] This is a common solution, dating back to at least Aristotle – see De Interpretatione IX. However, as noted in §1.3, discussions of foreknowledge do not get off the ground without assuming (at least limited) bivalence, so this will not be a helpful strategy here. Additionally, as discussed in §5.5, most mainstream accounts of time are compatible with unrestricted bivalence, so there is little motivation to reject it as a first step.

sun will come up tomorrow does not fix it so that it will be the case that the sun comes up. Nor does it prevent the sun not coming up. Similarly, my knowing I will eat yoghurt for breakfast tomorrow does not mean my eating yoghurt was inevitable. Of course, my knowledge claim might report something true about the future, and thus entail weak predestination, but it does not lead to the conclusion of metaphysical fatalism that the event is now-unpreventable or inevitable (nor does it require causal determinism (see §2.3.2)).

It is worth noting that, generally speaking, accounts of ordinary knowledge are fallibilist, that is, there is nothing necessary about a person's beliefs being true; that they happen to be is sufficient for knowledge (along with whatever other criteria a particular epistemology requires, such as strong evidence, justification or a reliable process of belief formation). For example, if I believe I will attend the Norway Day Parade on May 17th, and satisfy the other epistemic criteria, and then come the 17th I do attend, we would be inclined to say I knew I would attend: I had ordinary foreknowledge about the events of that day. To this end, Zagzebski writes,

> [T]here is nothing problematic about that kind of foreknowledge because events *could* have proven me wrong even though as events actually turned out, they *didn't* prove me wrong. Ordinary foreknowledge does not threaten to necessitate the future because it does not require that when I know *p* it is not possible that my belief is false.[45]

However, ordinary foreknowledge is not really the kind of foreknowledge we find troubling.[46]

2.3.2 THE TIME TRAVELLER

The first potentially problematic kind of foreknowledge involves someone who has direct access to the future, that is, who can witness it. In travelling to the future, the time traveller experiences it as present; she is an ordinary person who acquires knowledge via her senses and experience. If we can never have infallible knowledge then neither can the time traveller, but insofar as we commonly think we can know things, so can she. Her knowledge becomes *fore*knowledge when she returns to the present: she knows now that I will wear red next Friday, because she saw me wear red next Friday. Upon her return she

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[45] Zagzebski, Foreknowledge and Free Will.
[46] I am not sure why this is. I suspect it has to do with the mode of knowledge – it may seem more like 'guessing' because we do not commonly have access to the future via our senses, memory, or the records of others'. Given the similarities between our ordinary foreknowledge and that of the time traveller (as will become evident throughout this chapter and later in the thesis), if we think that ordinary foreknowledge is possible, and that the time traveller's foreknowledge is problematic, we should be less blasé. As I shall argue, however, the knowledge of the time traveller is not problematic. Alternatively, perhaps we intuitively hold the other foreknowers to a higher standard than we do our ordinary foreknowledge – perhaps we think that we are fallible, whereas 'foreknowers' generally are not. This would account for some of the conflation addressed in §2.3.4.4.

remembers facts about the future (her personal past) just as we commonly remember facts about the external past.

Of course, if the time traveller does not return from the future then she does not have foreknowledge (any more than we would say our descendants had foreknowledge just because they happen to exist in the future). Likewise, if she stays in the future without returning, her knowledge would pertain only to her subjective past and present, and any future beliefs or knowledge we might want to say she has are of the mundane, ordinary sort mentioned above: she might know what she will eat for breakfast tomorrow, or that the sun will come up.

There are two obvious objections to such a scenario. Firstly, a series of events including a time traveller who travels into the future and then returns to the past may result in a causal loop and require backwards causation, which may cast doubt for some on the possibility of such a time traveller. Secondly, depending on your account of knowledge you might wonder whether the time traveller counts as a foreknower *even if* she returns to the present, that is, whether she has knowledge rather than merely beliefs pertaining to future events. We get the hint of such an argument from Lewis, here adapted to fit the present discussion[47]:

> The time traveller, having returned to the present, knows that I will wear a red dress next Friday. For she remembers seeing me wear such a dress, and she knows (let us suppose) that she is a time traveller, and the day on which I wore the dress lies in the future, a future which lies in her personal past. The fact of her foreknowledge "is not entirely about that moment. It can be divided into two parts". There is the fact that she then believes that I will wear a red dress; and there is the further fact that her "belief is correct, and correct not at all by accident, and hence qualifies as an item of knowledge." In calling her state at the present moment "knowledge, not just belief, facts about personally earlier but externally later moments were smuggled into consideration." [48]

This is an Ockhamist move, and is discussed at length in §2.3.4.3.1 (although it seems perfectly plausible to me that the time traveller does have the potential for foreknowledge). The possibility and likelihood of time travel are explored in Chapter 5. Given that the folk intuition does not get off the ground without at least a candidate foreknowledge scenario, for now, suffice to say: *if* someone could time travel into the future and then return to the present, and *if* we deem this person to have genuine knowledge of events, does this foreknowledge entail problematic predestination, i.e. metaphysical fatalism?

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[47] In its original context it pertains to the grandfather paradox and a past-visiting time traveller.
[48] Lewis, Paradoxes, p. 152. Cf. Ira Kiourti, "Killing Baby Suzy", *Philosophical Studies,* Vol. 139, pp. 343-352.

Certainly, the existence of the time traveller seems to result in some sort of predestation. In fact, the time traveller does not have to be future-visiting for this to be the case. If a time traveller travels into the past then her journey itself is predestined: her being in the past entails she gets into the time machine in the present (see §5.4). Her travels are a condition of the past, and thus, in the present, 'now-necessary'; in the same way Zagzebski spilling milk yesterday is a condition of the past and 'now-necessary'. So too the future-visiting time traveller's antics in the future seem to necessitate her getting into the time machine at present (§4.3.3).[49] But does her *knowledge* entail predestation?

At minimum, the time traveller's existence and foreknowledge entail weak predestation. For her to have witnessed events in the future, such a future must exist.[50] If it does, then propositions describing events that take place have truth values, and it is already true now that certain events will take place in the future. Not that they must, but that they do. Of course, if this is the only predestation attached to the time traveller's foreknowledge, then she is not required for WP to hold. That is, the fact that the future is knowable is all that is required for future events to be predestined in this weak way; it is not required that the future actually be *known.*

But is this the only type of predestation entailed by the time traveller? It seems clear that her existence does not require causal determinism: a case of future time travel in a universe where determinism does not obtain is at least as conceivable as one in which it does.[51]

Finally, is a future known by a time traveller metaphysically fated? Does her knowing the future lead to the sort of irksome inevitability that makes the possibility of foreknowledge problematic? No more than knowledge of the present. Just as in ordinary foreknowledge cases, the time traveller's knowledge does not fix events in a certain way, or prevent them happening differently: it just reports how things happened to occur. So if we suppose that *x* pertains to some future event that the time traveller witnessed (or a proposition that describes it); it is not that the time traveller's seeing *x* (or knowing *x*) implies that *x* must have occurred, but rather that the time traveller just so happened to see *x* because *x* occurred. It might not have occurred, and if it had not, the time traveller would have seen something else.

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[49] Of course, the very existence of backwards causation might undermine the necessity of the past. This is addressed in §2.3.4.3.2.

[50] Or 'come to exist'. As noted in §1.3, the four-dimensional vocabulary is just for ease; neither my conclusions nor the possibility of time travel are limited to a four-dimensional universe (§5.5.).

[51] See, for instance, David Horacek, "Time Travel in Indeterministic Worlds", *The Monist,* Vol. 88 No. 3, pp. 423-36.

Also notice that the time traveller's knowledge is fallible: when she claims to know that *x* occurred, she could have gotten it wrong. She may have looked away at the wrong moment, or been hypnotized, or misinterpreted what she had seen. If the time traveller does indeed know *x,* then *x.* But *x* did not have to be true, it just happened be, and no one did (as opposed to could) make it otherwise. If *x* was not true, then the time traveller did not know *x*, either because she was mistaken in believing *x,* or because she believed *y* instead. Of course, it may be the case that *x* is metaphysically fated before she departs for the future, but if so, that would be the case whether she knew it or not. After all, a metaphysically fated event by its very nature must occur *no matter what.*

In other words, while it is true that if the time traveller knew I would wear red then I wear red, there is nothing *necessary* about the time traveller's knowledge, and thus moving from the necessity of the conditional to the necessity of the consequent would be fallacious.[52] It is worth spelling this out in more detail. In each of the foreknowledge cases, the following premise is true, in virtue of the factivity of knowledge:

> **P1** Necessarily if a foreknower knows I will wear a red dress next Friday, I will wear a red dress next Friday.

For the ordinary foreknower and the time traveller, the argument progresses thus:

> **P2** The foreknower knows I will wear a red dress next Friday.

> **C** I will wear a red dress next Friday.

Thus ordinary foreknowledge and that of the time traveller entails weak predestination: it is true now that I will don red. However, to get metaphysical fatalism, the conclusion would need to be stronger; it would need to establish the necessity of me wearing red, not just its truth (discussed further in §2.3.4.3).

Neither our ordinary foreknowledge nor that of the time traveller entails metaphysical fatalism. So where does the intuition that foreknowledge entails problematic predestination come from?

2.3.3 THE DETERMINED PREDICTOR

If someone with fallible foreknowledge gained through ordinary methods (perception and reasoning) does not lead to metaphysical fatalism, what about an infallible knower, a knower who cannot be

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[52] Michael Clark, *Paradoxes from A to Z,* Second Edition (London: Routledge, 2007), p. 65f.

wrong? A foreknower who features prominently in the philosophical literature is the Newcomb predictor, who can predict which of two options you will choose before you make the choice. There are many explanations one could give to account for such a predictor's ability, and the mechanisms vary from source to source. Mackie, for instance, envisions a skilled psychologist, good at reading tells, or one might think that the predictor has researched you and spoken to those close to you about how you behave in certain situations.[53] Alternatively, the predictor might be a gifted statistician who works out, using complicated mathematical formulae, a 'best guess' of your actions. However, none of these seems to easily fit a common-sense, intuitive account of knowledge, and certainly not of infallible knowledge.

As with the time traveller, the predictor might not be a 'predictor' per se, but rely on backwards causation to achieve accuracy, in which case its foreknowledge would entail weak predestination, as discussed above.[54] For example,

1. Next Friday I happen to wear red
2. My wearing red causally affects what the predictor today predicts I shall wear next Friday

(Arguably calling such a foreknower a 'predictor' is a bit of a stretch, but this is how they are billed in the Newcomb literature.)[55]

Alternatively, and I think most plausibly, causal determinism could give rise to such a predictor (taking the aforementioned psychologist and statistician predictors to the limit). If the universe is determined, and the predictor has sufficient information concerning past states and the laws of nature, then it – imagine a kind of super-computer – can know what you will do in the future. The existence of such a predictor may be problematic for some accounts of free will (as discussed in Chapter 3), but not any more so than causal determinism itself. That is, if the future is determined, it is determined whether anyone knows what the determined future will hold. It is hardly a surprise that positing determinism in order to get an infallible predictor results in a determined future, but a determined future – as discussed in §2.2.3 – need not be a metaphysically fated one. That is not to say that a determined future is unproblematic for accounts of our free will, or the efficacy of our actions and so forth, but the

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[53] J. L. Mackie, "The Newcomb Paradox and the Direction of Causation", *Canadian Journal of Philosophy,* Vol. 7 No. 2 (1977), p. 219.
[54] Such a predictor is discussed, for example, by J. H. Schmidt, "Newcomb's Paradox Realised with Backwards Causation", *The British Journal for the Philosophy of Science,* Vol. 49 No. 1 (1998), pp. 47-87.
[55] *Ibid.;* Mackie, Newcomb Paradox. There is a causal loop here – see §4.3.3.

determined predictor's foreknowledge does not seem to entail problems above and beyond those generated by determinism itself.

2.3.4 GOD

The foreknower that most often appears in philosophical and other related literature in terms of problematic predestination is an infallible, omniscient God: most commonly depicted as removed from our everyday experience, but with a 'bird's eye view' of space-time in its entirety.[56] Time is laid out before God, and his beliefs formed about it are infallible.

There is considerable debate concerning how best to define 'omniscience' (and, to a lesser extent, 'infallibility') in various contexts, but I shall adopt the fairly uncontroversial definitions given by Zagzebski, who supposes that God is not only omniscient and infallible, but essentially so, as follows:

> *A* is *omniscient* ⟷ *A* knows the truth value of every proposition.

> *A* is *essentially omniscient* ⟷ it is impossible that *A* exist and fail to know the truth value of any proposition.

> *A* is *infallible* ⟷ *A* cannot make a mistake in his beliefs. For any proposition *p,* if *A* believes *p* is true, *p* is true.

> *A* is *essentially infallible* ⟷ it is impossible that *A* fail to be infallible. For any proposition *p,* if *A* believes *p* at any time in any world, *p* is true in that world.[57]

The upshot of this is the following biconditional: God believes *p* iff *p;* that is, if *p* is true God will believe it, and if God believes it, *p* is true. Therefore, if God believes today that I will wear red next Friday, then I will wear red next Friday, and seemingly I must: it is inevitable. As Boethius articulates,

> If God foresees all things and cannot be in any way mistaken, then what Providence has foreseen will happen must inevitably come to pass…the only action and any sort of intention which can possibly exist in the future will be foreknown by divine Providence, which cannot be misled. [58]

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[56] Note that for the purpose of this discussion, when referring to 'God' I am positing an omniscient foreknower, but not assuming omnipotence, omnipresence or benevolence. Rogers argues that not only is this view of God compatible with four-dimensionalism (as popularly argued), but that its medieval proponents may also have been four-dimensionalists: Katherin A. Rogers, "Anselm on Eternity as the Fifth Dimension", *The Saint Anselm Journal,* Vol. 3 No. 2 (2006), pp. 1-8.
[57] Zagzebski, The Dilemma, pp. 4-5.

(Note that the problem of divine foreknowledge, as the name suggests, tends to be framed in terms of God's 'knowledge' rather than 'belief'. However, the conditional 'if *S* knows *p,* then *p'* is true for any 'S' given factivity. It is the infallibility of God's beliefs that will prove crucial, as seen in §2.3.4.3, but until then I will tend, following the literature, to talk of 'knowledge'.)

Of course, one might question whether God *today* knows anything about me: it is not clear his beliefs, and thus his knowledge, have the same kind of temporality as ours do – it might not even make sense to talk about God knowing today or yesterday what I will do next week. Whether God's knowledge is really *fore*knowledge has unsurprisingly been a subject of great debate. Three overarching objections to the supposition of infallible foreknowledge, and particularly to the claim that God's knowledge should be considered *fore*knowledge, are considered below (§2.3.4.1). For now, as with the time traveller, suffice to say: if God is legitimately a foreknower – as many have argued – then the question arises of what kind of predestination, if any, his foreknowledge entails.

Firstly, there is nothing about God's foreknowledge that requires causal determinism. The latter might hold if such a foreknower existed, but it is not necessitated by the possibility. On the other hand, propositions describing the future must have a truth value in order for knowledge pertaining to them to be possible.[59] So long as God's foreknowledge has a temporal aspect, or it makes sense to talk about God's knowledge as *fore*knowledge, then it entails weak predestination. If God knows I will wear red on Friday, then at the very least it is true that I will wear red on Friday. That is not to say that I had to, or that I could not have done differently; but provided he knows I will, I will.

But God's foreknowledge is traditionally thought to entail something stronger than this: that when God knows something will happen, not only *will* it happen, but it must happen, for God cannot be mistaken. If the time traveller makes a knowledge claim, she can be proven wrong by events occurring other than she describes: there is nothing necessary about her knowing the future. If she in fact has knowledge, then its factivity ensures the propositions to which her knowledge pertains are true – i.e. weakly predestined – but it is a contingent rather than necessary fact that she has knowledge rather than mere

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[58] Boethius, *The Consolation of Philosophy,* trans. P. G. Walsh, (Oxford: Oxford University Press, 2000), Book V Ch. 3 p. 100.
[59] There is some debate concerning whether Molinists require bivalence for their account of divine foreknowledge – see Gaskin, Molina on divine foreknowledge. However, Molina's God is a more substantive one than the omniscient deity I posit, and has a special kind of knowledge (middle knowledge) that is outside the scope of the folk intuition (and thus this discussion).

belief. The possibility of being mistaken is not open to God, or any other essentially infallible foreknower. Since that is the case, then if he knows that I will wear red, it cannot be otherwise. God's knowledge therefore seems to entail metaphysical fatalism. The argument can be formulated as follows:

P1 Necessarily if God knows *p* then *p*

P2 Necessarily God knows *p*

Therefore,

C Necessarily *p*

There are two potential problems with this argument: the accuracy of premise 2, depending on how one reads 'necessarily'; and the move from premises to conclusion. These are dealt with in sections 2.3.4.3.1 and 2.3.4.3.3 respectively.

But first, to see the dialectical landscape more clearly, it is worth examining an expanded version of the argument given above which makes explicit each assumption and step in the reasoning:[60]

Let '*R*' denote any future-pertaining proposition, which happens to be true: e.g. 'I will wear red next Friday'.

1. Yesterday, God infallibly knew *R.*   **[Supposition of infallible foreknowledge]**
2. If any event *E* occurred in the past, it is now-necessary that *E* occurred then.   **[Principle of the Necessity of the Past]**
3. It is now-necessary that yesterday God knew *R.*   **[1, 2]**
4. Necessarily, if yesterday God knew *R,* then *R.*   **[Factivity of Knowledge]**
5. If *p* is now-necessary, and necessarily (p → q), then *q* is now-necessary. **[Transfer of Necessity Principle]**
6. It is now-necessary that *R*   **[3,4,5 MP]**

Note that the necessity in premise 2 is the now-necessity underpinning metaphysical fatalism: the kind of necessity of which the past is paradigmatic. It is not God's omniscience that grounds the necessity, as that would reverse the order of premise 2 and the conclusion (necessarily if *R* then God knows *R*). Additionally, it is not required that God *know R* for this argument to hold: given that he is infallible,

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[60]The formulation that follows is adapted (and abbreviated) from Zagzebski, Foreknowledge and Free Will.

God's belief is sufficient. If this was the case, all instances of 'know' would be replaced by 'believe', and premise 4 would define infallibility instead. The consequences of this crucial point are considered in §2.3.4.4.

2.3.4.1 DOES GOD HAVE FOREKNOWLEDGE?

As should be clear, without premise 1 ('Yesterday God infallibly knew *R*'), the argument does not get off the ground. Historically, the supposition of infallible foreknowledge has been challenged in three overarching ways:

a. Argue that God is outside of time, and thus his knowledge does not constitute foreknowledge.
b. Deny that any being has infallible foreknowledge.
c. Deny that 'I will wear red next Friday' had a truth value yesterday when God believed it.

While it may be the case that (b) is the correct option, and that there cannot be a being with infallible foreknowledge, I am hesitant to assume such a position without exhausting other options first: after all, to get a discussion of a being with infallible foreknowledge off the ground, one must at least temporarily entertain the possibility of a being with infallible foreknowledge.

To embrace (c) is to reject bivalence – at least about future contingents – as Aristotle seems to do in the Sea Battle Problem.[61] To do this would be to abandon the possibility of foreknowledge,[62] and obviously I do not wish to do so this early in the proceedings, especially given the popularity of bivalence in contemporary philosophy (even in some open future models of time, as discussed in §5.5).

However, some of the (a)-type approaches are worth considering in more detail: if God's knowledge does not count as foreknowledge, then regardless of the necessity his knowledge might or might not entail, it will not strictly be predestination, and thus have no bearing on this discussion (the folk, and many sources of literature, will merely have been mistaken in involving God in the matter). There are conflicting intuitions in the literature, but we should not operate on intuitions alone; there is a long history of debate about God's temporality, and given the purpose of this chapter is itself to debunk a long-held intuition, the objections ought to be explored.

Certainly, refuting that God *yesterday* knew anything is a plausible strategy for avoiding the conclusion of metaphysical fatalism, and one that is usually credited as having originated with Boethius in the sixth-

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[61] De Interpretatione, IX. See footnote 7, and Zagzebski, Foreknowledge and Free Will.
[62] At least the interesting kind (it would not preclude foreknowledge of necessary truths).

century.[63] The following sections outline his argument – as well as similar solutions offered by Aquinas and contemporary proponents of the 'Timeless God' view – followed by some common objections. [64]

2.3.4.1.1 Boethius

The fifth book of Boethius's *The Consolation of Philosophy* concentrates on the connection between God's foreknowledge and the necessity of events, with Boethius displaying concern that God's foreknowledge entails predestation of the sort that would preclude free will. Philosophy, personified, responds with an account of an eternal God who "ponders all things as if they were being enacted in the present."[65] Thus, she says, we should "envisage the foresight by which God discerns all things not as a sort of foreknowledge of the future, but as knowledge of the unceasingly present moment."[66] God's knowledge is thought to be analogous to an ordinary agent perceiving something in the temporal present: the fact that a person *observes* me wearing red does not make my wearing red necessary, and similarly with God's *knowing* I will wear red. But are they analogous, really? Philosophy perceives the obvious objection:

> At this point you may say that what God sees will happen must inevitably happen, and that what must inevitably happen, happens of necessity.[67]

This is the charge of metaphysical fatalism: if God knows I will wear red, then it is inevitable that I will wear red. I am not free to do otherwise than wear red; my wearing red is *necessary.* Philosophy's response is to distinguish between types of necessity, much as I did above when distinguishing between types of predestation (and will do so again in §2.3.4.3). Although it is not expressed in these terms, it seems that Philosophy agrees that God's knowledge – by its very factivity – entails weak predestation, but not the problematic variety. As a result, she says,

> [T]he future events which God foreknows will all undoubtedly come to pass, but some of them proceed from free choice…[T]hose events which God sees in the present will undoubtedly come to be,

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[63] Although some of his concepts (including his definition of 'eternity') derive from the earlier work of Parmenides (via Plato and Plotinus). Cf. Parmenides, *On Nature;* Plato, *Timaeus,* 37d and Plotinus, *The Six Enneads,* III 7 (45). 3, 36-8.

[64] Anselm is often mentioned in discussions of God's timelessness. I will not explore his views here, firstly because his intention is not to solve the divine foreknowledge/free will problem, and thus his account shines little light on the current discussion; and secondly, his account is complex, and doing it justice would require space disproportionate to its helpfulness. However, Anselm is worth examining when looking at eternalism and atemporality more broadly; particularly the Monologion §20f.

[65] Boethius, Consolation (Walsh), Book V Ch. 6 p. 111.

[66] *Ibid.,* p. 112

[67] *Ibid,* p. 112

but some will result from their innate necessity, and others at the discretion of those who perform them.[68]

So, God's knowledge is thought to report facts about the future (from our temporal perspective), and in that sense, necessarily if God knows something it will occur. This is weak predestination, and it is derived from the factivity of knowledge (or the infallibility of God's beliefs). However, it is not the case that if God knows I will wear red, then it is metaphysically fated I will wear red: I choose what to wear freely, and God witnesses my choice as if it is present.

Before critiquing this view, it is worth briefly outlining other arguments in the same vein, as historically this has been a popular approach to the problem of God's foreknowledge.

2.3.4.1.2 Aquinas

There are several crucial differences between Aquinas's account of God's knowledge and Boethius's, not least the former's attribution of a causal relationship between the knowledge and the events to which it pertains: Aquinas claims that "the knowledge of God is the cause of things known", while Boethius rejects this.[69] Nonetheless, the description of God as having all time laid before him as present appears in both, thus we find in the *Summa Theologiae* that "all things that are in time are present to God from eternity, not only because He has the types of things present within Him, as some say; but because His glance is carried from eternity over all things as they are in their presentiality."[70] This is explained further in *Summa Contra Gentiles,* using the analogy of a circle:

> Let us consider a determined point on the circumference of a circle. Although it is indivisible, it does not co-exist simultaneously with any other point as to position, since it is the order of position that produces the continuity of the circumference. On the other hand, the centre of the circle, which is no part of the circumference, is directly opposed to any given determinate point on the circumference. Hence, whatever is found in any part of time coexists with what is eternal as being present to it, although with respect to some other time it be past or future."[71]

That is, each moment in time is present to God in the same way as each point on the circumference of the circle is equidistant to its centre.

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[68] *Ibid,* p. 113; cf. Boethius, *De Trinitate,* trans. Erik C. Kenyon, http://pvspade.com/Logic/docs/BoethiusDeTrin.pdf, accessed 20 Feb. 2014., Chapter 4.
[69] Aquinas, Summa Theologiae*,* I Q. 14 A. 13 (also A. 8); cf. Boethius, Consolation of Philosophy, Book 5 Chapter 3.
[70] *Ibid.,* Q. 14 A. 13.
[71] Aquinas, Summa Contra Gentiles*,* I, 66 (7).

2.3.4.1.3 Contemporary proponents

Arguably the most recognised of the contemporary proponents of the timeless, eternal God view are Eleonore Stump and Norman Kretzmann, who argue as part of their account of God for eternality, part of which includes atemporality (i.e. a God that is 'outside' of time). Their account draws directly from Boethius, and reflects Aquinas's circle metaphor:

> The existing of an eternal entity is duration without succession, and because eternity excludes succession, no eternal entity has existed or will exist; it only exists. It is in this sense that an eternal entity is said to have present existence. But since that present is not flanked by past and future, it is obviously not the temporal present.[72]

Their response to the incompatibility of divine foreknowledge and free will mirrors that of Boethius also – they claim that God's knowledge cannot be foreknowledge, but rather is like "mere observation of what is going on in the street outside your window", and can no more "threaten the freedom with which that activity is being carried on."[73]

More recently, Michael Rota has given a four-step formulation of the eternity solution, as (broadly) follows:

1. God is eternal and atemporal.
2. For any time, any event temporally located at that time is present to God.
3. God has immediate knowledge of any event located at any time.
4. God has knowledge of events because they occur, rather than their occurrence being attributable to God's knowledge.[74]

God's knowledge acquisition could thus be argued to be analogous to the time traveller's: he witnesses events as present and his knowledge reports that which he witnesses. However, his status as eternal and atemporal is often argued to be a) internally inconsistent or incoherent, b) inconsistent with other notions about God, and c) not a solution to the problem of divine foreknowledge.

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[72] Eleonore Stump and Norman Kretzmann, "Eternity", *Journal of Philosophy,* Vol. 78 (1981), p. 434; Cf. Eleonore Stump "Simplicity", in P. Quinn and C. Taliaferro (eds.) *A Companion to Philosophy of Religion,* (Malden, MA: Blackwell, 1999), p. 250.

[73] Eleonore Stump and Norman Kretzmann, "Prophecy, Past Truth, and Eternity", *Philosophical Perspectives (Volume Five: Philosophy of Religion),* James Tomberlin (ed.), (1991), p. 397.

[74] Michael Rota, "The Eternity Solution to the Problem of Human Freedom and Divine Foreknowledge", *European Journal for Philosophy of Religion,* Vol. 2 No. 1 (2010), p. 167f.

2.3.4.2 OBJECTIONS TO THE TIMELESS GOD VIEW

This section considers three of the general strategies employed against the timeless God solution to the problem of divine foreknowledge, using several accounts as illustrative.

2.3.4.2.1 Timeless God as Inconsistent

A popular response to the view has been to argue that a timeless God is inconsistent with other characteristics thought to be more important from a religious perspective. Pike, for instance, argues that a timeless God could not be appropriately emotionally responsive and would likely fail to meet any reasonable criteria for 'personhood'.[75] Swinburne makes a similar point,

> If God had thus fixed his intentions 'from all eternity' he would be a very lifeless thing; not a person who reacts to men with sympathy or anger, pardon or chastening because he chooses to there and then. Yet… the God of the Old Testament, in which Judaism, Islam, and Christianity have their roots, is a God in continual interaction with men, moved by men as they speak to him, his action being often in no way decided in advance. We should note, further, that if God did not change at all, he would not think now of this, now of that.[76]

Other accounts have concentrated on different features of God, for instance the ability and tendency to reveal true prophecies to human beings. Along these lines, Widerker argues that even if a timeless God himself avoids the problem of temporality, if he reveals true prophecy, then some of his eternal knowledge gains temporal status.[77] For instance, should God have revealed to a prophet yesterday the outcome of some future event, it looks like that prophet now has infallible foreknowledge (although whether it would really be 'infallible' is open to criticism). If Widerker is right, proponents of the timeless God view would have to deny that God ever does reveal true prophecies, or that prophesied actions are free, or that the past is fixed (that is, that we cannot now change what the prophet knew yesterday).

There has been considerable back-and-forth over these challenges, but for the purpose of this discussion we should not assume a divine foreknower would be consistent with scripture – enough that he be omniscient, rather than requiring his omnibenevolence or engagement in the plight of humans. What we require, then, is a logical solution to the foreknowledge problem, rather than a theological one.

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[75] Nelson Pike, *God and Timelessness,* (London: Routledge, 1970), pp. 128-9.
[76] Richard Swinburne, *The Coherence of Theism,* (Oxford: Clarendon Press, 1977), p. 221.
[77] David Widerker, "A Problem for the Eternity Solution", *International Journal for Philosophy of Religion,* Vol. 29 (1991), pp. 87-95.

2.3.4.2.2 Timeless God as Incoherent

There have been many attempts to show that timelessness is incoherent, with multiple rejoinders from the timeless God proponents. For instance, Swinburne argues that while an eternal God is coherent – if we understand 'eternal' to mean "always having existed" and "going to exist forever" – timelessness is not. He writes,

> The inner incoherence can be seen as follows. God's timelessness is said to consist in his existing at all moments of human time simultaneously. Thus he is said to be simultaneously present at (and a witness of) what I did yesterday, what I am doing today, and what I will do tomorrow. But if $t1$ is simultaneous with $t2$ and $t2$ with $t3$, then $t1$ is simultaneous with $t3$. So if the instant at which God knows these things were simultaneous with both yesterday, today, and tomorrow, then these days would be simultaneous with each other. So yesterday would be the same day as today and as tomorrow – which is clearly nonsense. To avoid this awkward consequence we would have to understand 'simultaneously' in a somewhat special stretched sense.[78]

In response to such objections, Stump and Kretzmann distinguish between two types of simultaneity, the ordinary variety – which they call 'T-simultaneity' – and a second kind which denotes the relationship obtaining between two eternal entities or events: E-simultaneity, or "existence or occurrence at one and the same eternal present."[79] Given these, they argue, one can derive a species of simultaneity that "can obtain between what is eternal and what is temporal", which they call 'ET-simultaneity' or 'eternal-temporal simultaneity'.[80]

It is not my intention to expand on or critique this view – the literature is substantial and tangential to my purpose here – but only to point out that there is continuing debate regarding the coherence of a timeless God. However, should a timeless God prove incoherent, this does not rule out the possibility of an eternal God in the Swinburne sense who, he argues, could have foreknowledge.[81] Swinburne does not go into detail regarding the mechanism behind such knowledge, but perhaps it might be analogous to a fortune teller looking into a crystal ball: seeing the future without being 'outside' of time. If this is the case, then the objection that it makes no sense to think of God knowing anything 'yesterday' – that is, God's knowledge having temporal status – fails. If, on the other hand, a timeless God turns out to be coherent, this may not be enough (as the final strategy suggests) to overcome the charge of metaphysical fatalism.

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[78] Swinburne, Coherence of Theism, p. 228.
[79] Stump and Kretzmann, Eternity, p. 435.
[80] *Ibid.*
[81] Swinburne, Coherence of Theism, chapters 10 and 12, especially p. 172.

2.3.4.2.3 Timeless Knowledge as 'Now-Necessary'

Zagzebski argues in several places that timelessness does not overcome the problem of metaphysical fatalism, on the basis that an analogous argument to the one given above (§2.3.4) can be formulated for timeless knowledge. In her argument, the necessity of the timeless realm is suggested to be equivalent to the necessity of the past: both are 'now-necessary'.[82]

Recall the first three steps of the argument that divine foreknowledge entailed metaphysical fatalism:

1. Yesterday, God infallibly knew *R.*   **[Supposition of infallible foreknowledge]**
2. If any event *E* occurred in the past, it is now-necessary that *E* occurred then.   **[Principle of the Necessity of the Past]**
3. It is now-necessary that yesterday God knew *R.*   **[1, 2]**

Zagzebski suggests that these be reformulated as follows for a timeless God:

1* God timelessly knows *R*

2* If *E* is in the timeless realm, then it is now-necessary that *E*

3* It is now-necessary that *R*

Zagzebski notes that although '*now*-necessary' may seem an inappropriate term when applied to timeless events,

> [W]e have no more reason to think we can do anything about God's timeless knowing than about God's past knowing. The timeless realm is as much out of our reach as the past. So the point of [3*] is that we cannot now do anything about the fact that God timelessly knows *[R]*. The rest of the steps in the timeless dilemma argument are parallel to the basic argument. Step [5*] says that if there is nothing we can do about a timeless state, there is nothing we can do about what such a state entails. It follows that we cannot do anything about the future.[83]

The criteria for necessity *per accidens* given by Freddoso equally apply to timeless knowledge as they do past knowledge, including its remaining accidentally necessary once it becomes so, and it being closed under entailment.[84] Likewise, Bernstein's description of metaphysical necessity applies equally to the

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[82] Zagzebski, Foreknowledge and Free Will; Zagzebski, The Dilemma, Chapter 2.
[83] Zagzebski, Foreknowledge and Free Will; A longer version of this argument is given in Zagzebski, The Dilemma, p. 60f.
[84] Freddoso, Accidental Necessity, pp. 257-260. The only slight departure is criterion 2, which posits that propositions are accidentally necessary relative to time. However, as Freddoso notes, 'becoming' necessary

timeless as the temporal: an event is metaphysically necessary "if we are as unable to influence it as we are incapable of modifying the past".[85] Certainly timeless knowledge possesses the key signifier of now-necessity (as pointed out by Zagzebski), analogous to the past as discussed by Freddoso, Bernstein and others: if *p* is infallibly and timelessly known by God then no one has the power to bring it about that *p* is or will be false. It is now-necessary.[86]

The above discussion of the arguments for and against a timeless God and how these pertain to the foreknowledge problem is not, and is not intended to be, exhaustive. I have barely scratched the surface, and not even begun to consider the host of objections to each of the arguments presented; the intention was only to give an indication of the strategies employed within the literature. What this means for the folk intuition and the foreknowledge dilemma is as follows:

I.   If God is timeless, then either

        i.   He is not a foreknower, and the folk intuition does not apply.

       ii.   His timeless knowledge, following Zagzebski, is as problematic as his foreknowledge and can be treated analogously.

II.   If God is not timeless then he is a foreknower, and we are back at square one.

2.3.4.3 DOES GOD KNOW 'NECESSARILY'?

The preceding sections contain several different formulations of the argument that God's foreknowledge entails metaphysical fatalism, the simplest being:

1. Necessarily if God knows *p* then *p*

2. Necessarily God knows *p*

Therefore,

C. Necessarily *p*

This can be restated as follows (where K_p denotes 'God knows P'):

(having not previously been so) is only a typical feature of accidentally necessary propositions, not a necessary one.
[85] Bernstein, Fatalism, p. 66.
[86] Cf. Rota, The Eternity Solution.

1. $\Box(K_p \rightarrow p)$

2. $\Box K_p$

C. $\Box p$

One way to debunk this argument is to challenge premise 2, which can be done in at least three ways: challenging that necessarily God *knows* p (rather than believing it)*,* challenging that necessarily God knows *p* (the particular content of the knowledge)*,* and challenging that *necessarily* God knows *p* (where the necessity is the right sort to ground metaphysical fatalism). Each of these objections has essentially the same result: they accept the contingent truth of K_p, but not its necessity. As a result, it would be fallacious to move from the necessity of the conditional (premise 1) to the necessity of the consequent (conclusion). God may know *p,* and if so *p* would be true, but one cannot move from K_p to $\Box p$.

The first objection is quickly addressed by appeal to infallibility. Where God differs from the ordinary foreknower and the time traveller is that he is infallible, and essentially so. What this means is that it is not required that God *know p,* just that he believes *p* will do. After all, his beliefs are infallible and thus tantamount to knowledge for the purpose of entailing metaphysical fatalism. As noted previously, this means amending the argument slightly: replacing instances of 'know' with 'believe' and grounding the conditional (premise 1) in infallibility rather than the factivity of knowledge, but the argument still goes through: Necessarily if God infallibly believes that I will wear red next Friday, then I will wear red next Friday; necessarily God infallibly believes I will wear red next Friday, thus necessarily I will wear red next Friday (more on this in §2.3.4.3.1).

Secondly, one could argue, much as I did for the time traveller above, that there is nothing necessary about God knowing *p,* rather than ¬*p* or *q.* That is, while the necessity of the conditional in premise 1 holds, there is nothing necessary about God's knowledge having a particular content – it would merely reflect whatever happens to be true. Clark pursues this avenue, writing,

> God does not know just any old proposition: He will not know you will get married if you are not going to get married. No one, not even God, can know a falsehood. If God is necessarily omniscient, then what is necessary is that *if you will get married then God knows you will get married.*[87]

The implicit assumption then is that God knows you will get married because you happen to get married, and you might do so freely and independently of his knowing that you will. If you were not going to get married, he would know that instead.

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[87] Clark, Paradoxes, p. 66.

Clark's argument is persuasive, and I think it works for the time traveller (whose knowledge – if it is knowledge – merely reports the outcome of future events, rather than constraining them). But there is a niggling doubt that this is not the end of the problem, that if God knew yesterday that I would get married ten years from now, that no matter what I do in the interim I will end up getting married; that my nuptials are inevitable, because God already has infallible knowledge to that effect. I cannot make God wrong, so my future is fixed in a problematically predestined, metaphysically fated way. I am as incapable of not getting married as I am of changing what I ate for breakfast yesterday.

It is important to note that it is not God's omniscience but rather his infallibility that causes the problem: all the former entails is that if something is or will be the case, God will know it. Recall the bi-conditional: God knows *p* iff *p*. Once God knows *p*, *p* must occur; and more importantly, once God believes *p*, *p* must occur. To object 'there is nothing necessary about God's believing *p* rather than ¬*p* or *q*' is to misunderstand the type of necessity in premise 2: it is now-necessity. Even if God's beliefs would (counterfactually) have been different – that is, if I had not gotten married, God would have believed that instead – this does not solve the problem. If *in fact* I do get married a decade from now, and God *in fact* believed yesterday that I would, then ten years from now I cannot refrain from getting married, because by the time the fated day arrives, God's belief is "tucked away" over a decade in the past.[88] Thus nothing I can do now, or in the interim, could have any bearing on what God believed in the past, and my getting married is necessarily inevitable. In Boethius's words,

> But if no such uncertainty can reside in that most unerring source of all things, then what God assuredly knows will happen is guaranteed to come about. What follows from this is that there is no freedom for human plans and actions, since the divine mind foresees all of them without straying into error; he confines and restricts them to a single outcome.[89]

Of course, one might respond, 'but the same is true of the time traveller: if the time traveller *knew* in fact that you would get married then you must, in fact, get married'. But the fact that the time traveller knows (rather than merely believes) is a matter of epistemic luck: she could have been mistaken, or known something else instead. It is a contingent truth that the time traveller *knows* rather than believes; a contingent truth that she is right. Her belief is tucked away in the past, like God's, but her belief need not be true. That it is true – that it is knowledge – gets us weak predestination, but not metaphysical fatalism. For the latter, something more is needed.

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[88] Pike, God and Timelessness, p. 58.
[89] Boethius, Consolation (Walsh), Book V Ch. 3 p. 102.

I suggested above that what makes God's foreknowledge problematic is its being now-necessary. The final way to challenge premise 2 is to challenge that necessity: either the very principle of 'now-necessity' or that God's knowledge has that 'now-necessity'. Many scholars dating back to at least William of Ockham in the fourteenth century have pursued the latter course, disputing whether a knower having foreknowledge (such as God knowing yesterday that *p*) is really a fact about the past, or one partially about the future, because the facts that make the knowledge true belong in or to the future. If the latter, then it is thought possible to get around the notion of God's knowledge being "tucked away in the past". Similarly, if the past lacks necessity generally, then we have no reason to affirm the now-necessity of God's foreknowledge. The following sections deal with each of these strategies in turn.

2.3.4.3.1 The Ockhamist Solution

That the past is fixed and now-necessary is widely (although not universally) accepted. Ockham does not challenge the necessity of the past, but he does challenge the necessity of some past propositions, specifically in terms of whether they are truly 'past':

> Some propositions are about the present as regards both their wording and their subject matter. Where such [propositions] are concerned, it is universally true that every true proposition about the present has [corresponding to it] a necessary one about the past… Other propositions are about the present as regards their wording only and are equivalently about the future, since their truth depends on propositions about the future.[90]

This is a similar notion as that mentioned by Lewis in relation to the time traveller: when we say that the time traveller knows certain things will happen in the future, Lewis says we are "smuggling facts about the future" into our claims about the past; that is, some claims, while made in the past or present, pertain to the future, and depend on the future for their truth or falsity.[91] As a result, they do not share the necessity of the past. So the proposition 'it was true in 1974 that there would be an earthquake in 2092' may be true, but its truth is not contained in 1974, and thus it was not a necessary truth in 1974.

Ockham (and arguably Lewis) distinguishes between what are commonly called 'hard' facts about the past and 'soft facts': those which are about the past in their wording only but have content that pertains to the future. Only 'hard' facts are supposed to be now-necessary. Many critics have pointed out the

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[90] Ockham, Predestination, pp. 46-47. NB. Ockham additionally argues that the truth value of some future-pertaining propositions is as yet unsettled – that is, he accepts a truth value gap for future contingents. For reasons mentioned above I will not adopt this part of Ockham's position (in short, it undermines the possibility of foreknowledge generally). However, the 'hard fact'/'soft fact' dichotomy can be considered independently.
[91] Lewis, Paradoxes, p. 152.

difficulty of satisfactorily defining the necessary and sufficient criteria which make a fact 'hard' or 'soft'.[92] However, some facts are more plausibly 'soft' – and thus lacking 'now-necessity' – than others. Rice, for instance, suggests those propositions "equivalent to a conjunction where one of the conjuncts is plausibly wholly about the future, and where the other conjunct does not entail it."[93] For instance, as suggested above, the proposition 'it was true in 1974 that there would be an earthquake in 2092' seems to fit the bill. Rice argues that this is "plausibly equivalent" to 'there was such a time as 1974, and there will be an earthquake in 2092', and that such a conjunction would not be necessary if it was not independently necessary that there be an earthquake in 2092.[94]

Returning to foreknowledge, following Rice, in the case of the time traveller we can consider her foreknowledge statement as a conjunction of propositions where only the first conjunct is necessary. After all, it is not clear that the fact that she *knows* rather than merely *believes* is really a fact about the present or past. For instance,

> The time traveller knows I will wear red next Friday

Is plausibly equivalent, following Rice, to

> The time traveller (justifiably) believes I will wear red next Friday, and this belief is true.[95]

The truth of her claim is borne out on Friday: it is not about today. Unlike Ockham, I would not like to argue that it is 'unsettled' whether I will wear red – that is, I deny the truth value gap – but like Lewis I think there is something to be said against 'smuggling in' facts when trying to establish necessity. So while it may be *true* now that the time traveller has foreknowledge – that is, it is weakly predestined that I will wear red – this is the wrong kind of proposition to be now-necessary, following Ockham, and thus does not result in metaphysical fatalism.

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[92] See for instance, Rice, Fatalism. The most famous attempt was Marilyn Adams's in "Is the Existence of God a "Hard" Fact?", *The Philosophical Review,* Vol. 76 No. 4 (1967), pp. 492-503. This was convincingly refuted by John Martin Fischer in "Freedom and Foreknowledge", *The Philosophical Review*, Vol. 92 No. 1 (1983), pp. 67-79. See also Joshua Hoffman and Gary Rosenkrantz, "Hard and Soft Facts", *The Philosophical Review*, Vol. 93 No. 3 (1984) pp. 419-434; and Fischer "Hard-Type Soft Facts", *The Philosophical Review* Vol. 95 No. 4 (1986), pp. 591-601.

[93] Rice, Fatalism.

[94] *Ibid.* See footnote 92 for other accounts, as well as Pike, God and Timelessness.

[95] Of course, depending on your account of knowledge, the first conjunct may need to be modified (and in doing so, may not be now-necessary). Nonetheless, it would likely still fit Rice's definition of a soft fact: the second conjunct is wholly about the future, and the first does not entail it. The time traveller's belief that *p,* unlike God's, does not entail that *p* is true. You may not like Rice's formulation – that is ok. As will be seen, my argument does not depend on it.

However, it seems very much a fact about the present that the time traveller *believes* I will wear red next Friday. If she believed it yesterday, then if the past is necessary, there is nothing I can do now to affect the fact that she had such a belief. However, whether or not her belief reflects something true is a fact about the future. And insofar as I can ever do anything to affect the future, it seems that my choice of dress is as open to me as it was before the time traveller formed her belief. If it is within my power to influence the future, then it is within my power to make what the time traveller believes true or false. (Of course, we might question the extent to which I have such a power, as discussed in Chapters 3 and 5).

But this is not the case with God. We can run the same argument: that God *believed* yesterday I would wear red next Friday is arguably a fact about yesterday, not the fact that he knew. What he believed then I cannot do anything about, as Pike puts it, his belief is "tucked away" in the past.[96] But God's beliefs are infallible: if God believes something, it is true. So while for the time traveller or ordinary foreknower we can only run the weaker form of the argument (since their knowledge is contingent and their beliefs fallible):

1. $\Box(K_p \rightarrow p)$

2. K_p

C. p

For God, essential infallibility results in his mere beliefs entailing metaphysical fatalism:

1. $\Box(B_p \rightarrow p)$

2. $\Box B_p$

C. $\Box p$

In other words, if God infallibly believed yesterday that I would wear red next Friday, then it is now-necessary that God believed I would wear red, and thus it is now-necessary (i.e. metaphysically fated) that I will wear red.

It could be objected, however, that God's infallibility is precisely what makes statements concerning his past beliefs 'soft' rather than 'hard'. That is, because God's believing p yesterday entails $p,$ it should be considered a soft fact. One of the most convincing accounts of the hard/soft fact dichotomy is Hoffman

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[96] Pike, God and Timelessness, p. 58.

and Rosenkrantz, who make just this point: they argue that *God believes at T1 that Steph will wear red at T2* is a soft fact about T1, because if it obtains at T1, it entails an immediate fact obtains at T2.[97] However, even if we accept Hoffman and Rosenkrantz's account (or others in the same vein), and thereby accept that God's belief constitutes a soft fact, this does not overcome the charge of its entailing metaphysical fatalism. Fischer argues compellingly that the soft-hard distinction can come apart from facts being fixed, and it is the fixedness, I suggest, that leads to now-necessity.[98] What fixedness hinges on is whether it is within my ability at T2 to make it the case that the fact about God's belief would not have been a fact at T1. That is, is it within my power to make it the case at T2 that God did not believe at T1 that I would wear a red dress.

First, consider that some soft facts are, although soft, nonetheless fixed. As Fischer notes, "*Yesterday I woke up a day prior to the sun's rising in the east today* is a soft fact about yesterday, but I cannot so act that it wouldn't have been a fact."[99] It is not the fixity of the past that prevents my falsifying the fact, but rather that preventing the sun rising in the east is "outside the scope of my abilities."[100] Fischer observes that "if falsifying fact F1 would require falsifying fact F2, and one *cannot* falsify F2, then one cannot falsify F1."[101] Fischer argues that while God's belief is a soft fact, it is nonetheless fixed at T2: it has "a hard part or aspect."[102]

To demonstrate this, the second part of Fischer's argument distinguishes between soft and hard properties: the former are "temporally non-genuine or relational", such as 'getting dressed an hour before leaving the house' and the latter temporally genuine or non-relational, such as 'getting dressed at 7pm'.[103] Combining a soft property and an ordinary object results in a soft fact – *In 1945 Hitler dies prior to the release of 'Gangnam Style'* – and a hard property plus ordinary object a hard fact. But, and this is the important part, combining a hard property with a special kind of object, such as God, can result in a *soft* fact. So, if we think that an agent believing yesterday is a hard property relative to yesterday (as I suggested with the time traveller), but make the agent God, then the resulting fact is, as

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[97] Hoffman and Rosenkrantz, Hard and Soft Facts, p. 432f.

[98] Fischer, Hard-Soft Facts, p. 591.

[99] *Ibid.,* p. 595. The existence of such facts is granted by Hoffman and Rosenkrantz, Hard and Soft Facts, pp. 432-33.

[100] *Ibid.,* p. 595.

[101] *Ibid.,* p. 559.

[102] *Ibid.,* p. 596. Elsewhere Fischer has argued that facts about God's belief should be considered hard, but there does not consider God's essential omniscience and infallibility. Here he assumes Hoffman and Rosenkrantz's account. Cf. Fischer, Freedom and Foreknowledge, esp. pp. 76-79.

[103] *Ibid.*, p. 597. Although Fischer employs Hoffman and Rosenkrantz's hard/soft apparatus to characterise the properties, he notes that other accounts could be substituted.

per the Ockhamist account, soft.[104] For Fischer, "the softness of the fact seems to come, not from the softness of the constituent property, but from the "interaction" between a hard property and a special kind of bearer of the property – God." So facts pertaining to God's beliefs are fundamentally different than other soft facts; they are 'hard-type soft facts': soft facts "with a constituent property which is a *hard* property (relative to the pertinent time)".[105]

The upshot of this is that if you think it is not within an agent's power to change what God believed in the past, then you should believe that such hard-type soft facts about a time "are fixed at later times."[106] In other words, "even if one grants that the fact about God's belief is soft, there is a part or aspect of it which is hard and which must be affected, if one is to falsify the fact."[107]*God believed yesterday I will wear a red dress on Friday* may be a soft fact, but it contains a hard property: God believing yesterday. No one can now make it the case that God did not believe this yesterday, and thus God's belief – being infallible – will prove true. Further, *God's believing yesterday* is now-necessary, and thus the content of the belief – my wearing red – is likewise now-necessary. It is metaphysically fated.

Fischer makes a similar move regarding God's knowledge. That God knows yesterday that I will wear red on Friday is a soft-soft fact, as the property 'God knows' is a soft-property (it entails certain truths about the future). Nevertheless, it is fixed yesterday that God knows, because "falsifying the fact about God's knowledge at T1 would require falsifying the fact about God's belief at T1", and the latter is a hard-type soft fact.[108]

If you accept the Ockhamist solution, then not even God's foreknowledge will entail metaphysical fatalism, and thus the folk intuition proves false. However, while it works for the time traveller, an ordinary agent and predictor, as it stands it does not work for God.[109]

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[104] Fischer and I are in agreement that having a belief at a time is a hard property/fact relative to that time. *Ibid.,* p. 597, and further motivated p. 598f.

[105] *Ibid.,* p. 597.

[106] *Ibid.,* p. 599.

[107] *Ibid.*

[108] *Ibid.*

[109] In order to solve the problem for God, Ockhamists would need to show that hard-type soft facts are not fixed, that is, that it is not outside the scope of human ability to change them. Fischer notes (p. 600) that Ockhamists might respond by questioning whether humans can act so that a bearer of a hard property relative to a past time would not have possessed that property, but responds that non-questioning-begging examples (of hard-type soft facts that are not fixed) have not been offered.

2.3.4.3.2 The Necessity of the Past

Under my account of now-necessity, I posited that the past is a paradigmatic instance, but not inherent to the definition; so, one might think, giving up the necessity of the past would not undermine the account. This is true, but the argument that God's foreknowledge entails metaphysical fatalism hinges on God's believing *p* in the past being now-necessary, and the easiest way to demonstrate its now-necessity is its being a past (hard-soft or hard) fact. When discussing weakly predestined future propositions I noted that they were true but not necessary. The same could be said of propositions describing God's past beliefs: it may be true that God believed *p* yesterday, but it did not have to be the case that God believed *p.* God believed *p* because I was going to wear red, and if I was going to wear blue, he would have believed that instead.

Zazgzebski suggests that when we say the past is necessary, we mean it is "outside the realm of our causal control".[110] This hinges on the assumption that effects must follow their causes. But many philosophers have argued that backwards causation is logically possible, and indeed, backwards time travel (or the future-visiting time traveller returning to the present) requires the possibility of backwards causation.[111] If we can causally affect the past, then it might not make sense, as Zagzebski notes, to talk about its being necessary.

There is ongoing debate in the literature concerning whether we can substitute the non-causability of the past (or particular past events, such as God's believing *p* in the past) for the necessity of the past and thus arrive at fatalism.[112] Which way you fall in the debate depends on, among other things, your account of causation, time, laws and necessity. Giving this the attention it deserves would take more room then I have here, and would constitute something of a departure from the original point. The important part is that even if you think the past is necessary – or un-causable in a sense sufficiently similar to 'necessary' to entail metaphysical fatalism – only God's foreknowledge will be problematic. So

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[110] Zagzebski, Foreknowledge and Free Will. Rota makes a similar point in The Eternity Solution, p. 8.

[111] This isn't strictly true: time travel via closed-timelike curves may involve only forwards causation. Nonetheless, the vast majority of time travel stories told look to involve backwards causation. Cf. John Roberts, "Must a Cause be earlier than its Effect?", presented at the *Gargnano Philosophy of Time Conference* (2014). http://philosophy.unc.edu/files/2013/10/BackCause-GargnanoConf.pdf, accessed 8 Aug. 2014.

[112] *Ibid.* The most plausible formulation is BETA-2, proposed by Timothy O'Connor as a revision of Peter Van Inwagen's Principle Beta (originally posited for the free will and determinism debate, but applicable in the foreknowledge/free will debate). Alexander Pruss has recently proposed to define the relevant kind of necessity in terms of counterfactuals, and proven BETA-2 to be a consequence of standardly accepted principles in the logic of counterfactuals. See Timothy O'Connor, *Persons and Causes: The Metaphysics of Free Will,* (Oxford: Oxford University Press, 2000); Peter Van Inwagen, *An Essay on Free Will,* (Oxford: Clarendon Press, 1983); Alexander R. Pruss, "Incompatibilism Proved", *Canadian Journal of Philosophy,* Vol. 43 No. 4 (2013), pp. 430-7.

the folk intuition is wrong in rejecting foreknowledge *in toto* on the basis that it entails problematic predestination.

2.3.4.3.3 Transfer of Necessity

Another way to attack the argument that God's foreknowledge entails metaphysical fatalism is to question the transfer of necessity from the antecedent of the conditional to the consequent. Recall the argument:

1. $\square(B_p \rightarrow p)$

2. $\square B_p$

C. $\square p$

It could be argued that the move from 'it is now-necessary that God believed p yesterday' to 'it is now-necessary that p' – that is from premises to conclusion – is fallacious, because 'now-necessity' is not the right kind to allow this argument to be valid.

To make this clearer, we should distinguish between the necessity at play in premise 1, which is logical necessity, and that in premise 2 and the conclusion: now-necessity.

1. $\square_1(B_p \rightarrow p)$

2. $\square_2 B_p$

C. $\square_2 p$

In the extended argument for metaphysical fatalism given above, I defined the Transfer of Necessity Principle following Zagzebski:

> If p is now-necessary, and necessarily ($p \rightarrow q$), then q is now-necessary. [113]

Elsewhere she notes that the idea behind such a principle is that "a necessity weaker than logical necessity can be transferred by strict implication (or strict equivalence) from the antecedent to the consequent of the conditional." [114] Now-necessity – or $\square_2$ – is this weaker necessity, and there is no reason to think that the K principle, which is part of even weak systems of modal logic, does not here apply:

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[113] Zagzebski, Foreknowledge and Free Will. Freddoso endorses a similar principle (Accidental Necessity, p. 260).
[114] Zagzebski The Dilemma, p. 7.

K: □ (p → q) → (□ p → □ q)

If K holds for now-necessity, and logical necessity entails now-necessity, then the argument is valid:

1. □ (p → q) → (□ p → □ q)   (K principle)

2. $\Box_1$ p → $\Box_2$ p   (Logical necessity entails now-necessity)

3. $\Box_1$ (p → q)   (Premise 1 of above argument (necessarily if God knows…))

4. $\Box_2$ (p → q)   (from 2, 3)

5. $\Box_2$ p → $\Box_2$ q   (from 1, 4)

6. $\Box_2$ p   (Premise 2 of above argument (it is now-necessary that God knows)

: $\Box_2$ q   (from 5, 6 by MP)

As noted with the necessity of the past, however, only God's foreknowledge falls prey to this argument. In the belief version of the argument, God's infallibility entails the truth of his beliefs, and if his beliefs are now-necessary, so is their content. In the knowledge version, only God's knowledge is necessarily knowledge (§2.3.4.3.1).

2.3.4.4 THE ROLE OF INFALLIBILITY

As the preceding sections reveal, there are multiple reasons to suspect that even God's foreknowledge does not entail problematic predestination, even if we deem him to be a 'foreknower'. One can challenge premise 2 (necessarily God knows *p*), question the move from premises to conclusion, and contest the necessity of the past.

However, even if we assume that this is a genuine case of foreknowledge entailing metaphysical fatalism, it is not the foreknowledge doing the work, but God's essential infallibility. Without it, the premise (□ K$_p$) cannot hold: there is nothing necessary about God's knowledge a) being knowledge rather than merely belief, or b) pertaining specifically to '*p*' rather than '¬*p*'. Ordinary knowers, and even future-visiting time travellers, do not possess such infallibility, but the latter is implicit in many thought experiments relating to the problem of foreknowledge and is implicit in the folk intuition. What causes the sense that the future is problematically fixed is the notion that God *cannot be mistaken,* that it is already fixed in advance that he not only has beliefs about what you will do in the future, but that those

beliefs are (and must be) *right.* You cannot do anything about his belief, you cannot make him wrong, and you cannot change his mind. God's beliefs entail their truth, while the ordinary foreknower's or time traveller's do not. That the time traveller turns out to be right is a contingent fact: a fact dependent on the future, not the now-necessary past. That God turns out to be right is a necessary fact, and one that was implicitly built into the problem from the very beginning.

A final note on infallibility: if you think that causal determinism entails metaphysical fatalism, then the predictor's foreknowledge will be equally as problematic as God's. If however you think that the two come apart, perhaps because the laws are 'up for grabs', then the infallibility of the predictor is not essential to it, but a contingent feature. If this is the case, then while you cannot change the fact that yesterday the predictor predicted that *p,* whether the predictor was right, and continues to be infallible, is arguably a fact about the future: a fact determined not at the time of prediction but at the later time of the predicted event. It is God's essential infallibility that proves problematic, and it is little wonder that starting with extraordinary features will result in extraordinary consequences.

2.4. CONCLUSION

The types of foreknowledge and the predestination they entail are shown in Table 1:

	WP	CD	MF
Ordinary FK	✓	X	X
Time Traveller	✓	X	X
Predictor	✓	✓	X
God	✓	X	✓

Table 1. Foreknowledge and Predestination Summary

So what does this mean for foreknowledge, predestination, and the folk intuition?

Firstly, God's foreknowledge is the only kind that entails metaphysical fatalism, and then only if you accept premise 2 ($\Box$ K$_p$).[115] In this case, his essential infallibility is what is doing the work. The first problem in the folk intuition is thus building in characteristics other than those inherent in knowers generally: infallibility that we as ordinary knowers, or even future-visiting time travellers, do not possess. This infallibility is implicit in many thought experiments relating to the problems of

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[115] If you think that determinism entails fatalism – which, as argued in §2.2.2 I do not think you should – then the predictor is likewise problematic, but positing an infallible predictor of the sort discussed requires positing determinism, and thereby starting out with a universe problematically predestined (rather than getting one as the outcome of the argument).

foreknowledge, and is implicit in the folk intuition discussed above: as has been shown, when considering the problem of predestation, infallibility does the work, not knowledge. Future knowledge is not significantly different to past knowledge: it does not confine the events it pertains to, but merely reports them. However, infallible knowledge is vastly different to the ordinary, fallible kind, and has vastly different consequences.

Secondly, if you think that the argument for metaphysical fatalism is fallacious because of the transfer of now-necessity (or if you otherwise dispute that God knows necessarily), then none of the foreknowledge cases result in problematic predestation. After all, without the principle, one cannot move from the now-necessity of any foreknower's knowledge to the necessity of the content of the knowledge (i.e. the events to which the knowledge pertains occurring). Although the strategy employed throughout this chapter was to be as charitable as possible to the folk intuition (and particularly in its most plausible form – i.e. regarding divine foreknowledge), the overall goal is to debunk it and thereby salvage the possibility of foreknowledge. If the transfer of necessity principle fails, or if the past or God's beliefs are not necessary, then the intuition proves baseless: foreknowledge will entail weak predestation, but not metaphysical fatalism.

Thirdly – independently of the debate over the divine – ordinary foreknowledge and the knowledge of the time traveller do not result in metaphysical fatalism. So the widespread intuition that 'foreknowledge necessarily entails the future is inevitable and unpreventable and now-necessary' is wrong. This is exciting enough. But we can go a step further than merely debunking the intuition; we can begin to diagnose where the folk intuition goes awry. I suggest that there are two potential mistakes being made in the move from foreknowledge to problematic predestation:

1. **Conflation of types of predestination:** weak predestination is being mistakenly equated with metaphysical fatalism; the fact that I will wear red, and this is known, is thought to be tantamount to me having to wear red, because this is known. As noted above, this is a fallacious move from the necessity of the conditional (necessarily if someone knows *p* then *p*) to the necessity of the consequent.
2. **Conflation of types of foreknower:** extra characteristics (such as infallibility) are implicitly built in to foreknowers in our fictional and philosophical scenarios, and it is these that do the work in entailing problematic predestation, not the fact that the knowledge is future-pertaining. Drawing conclusions from such cases with regards to the possibility of foreknowledge overall is thus misleading.

Fourthly – and to be explored in further detail in Chapter 3, which focuses on the relationship between foreknowledge and free will –no philosophically interesting case of foreknowledge from the perspective of the free will debate (that is, one which involves a free agent) entails problematic predestination. This is true whether you are a compatibilist or incompatibilist about free will and determinism. This is hugely important, as a crucial motivation for rejecting foreknowledge under the folk intuition was the notion that it hindered or precluded our being free. If foreknowledge poses no extra problems for the free will debate,[116] we have little reason to continue defending that intuition. Both the incompatibilist and compatibilist get ordinary and time traveller foreknowledge free of metaphysical fatalism (and thus the potential for free agents) and the latter further gets the predictor: a causally-determined world with no *extra* fate, no *extra* necessity to impede free will. At worst they both lose God, but he was implicitly problematic from the outset, and his (essentially infallible) knowledge is significantly different from the other kinds.

Finally, to return to the questions highlighted at the beginning of this chapter:

1. Does knowing the future fix the future?

No, unless God knows, or some equally mysterious essentially infallible knower. But if there existed a foreknower with the same ordinary kind of knowledge we have about the past and present, it would have no more effect on fixing time or reality than the latter does currently.

2. Is a knowable future a fixed future?

Yes, in a weakly predestined sense. For the future to be known, propositions about the future must have a truth value, and thereby be knowable. However, the future can be known without being causally determined or metaphysically fated.

And finally,

3. Is a fixed future knowable?

As of yet, there is no reason a future in which bivalence holds could not be knowable; that is, it is logically possible. The answer to this question depends on one's account of knowledge, the inclusion or exclusion of ordinary foreknowledge under that account, or one's acceptance of the possibility of time travel, all of which go beyond the limits of this chapter. Nonetheless, there is sufficient scope to allow

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[116] At least the third-person kind (we'll get to first-person cases in Chapter 4).

for a tentative 'yes'. (The logical possibility of foreknowledge and challenges to it are considered in Chapters 4 and 5).

Having debunked the folk intuition's wholesale rejection of foreknowledge based on the (mistaken) notion that it entails problematic predestination, we now turn to the next step of the puzzle: what about free will? What bearing does each of the foreknowledge cases and their corresponding types of predestination have on our being free? With greater understanding of the different ways in which the future might be fixed and the bearing our knowledge has, what light can be shed on the free will debate? Finding answers to these questions is the motivation for Chapter 3.

CHAPTER THREE: FOREKNOWN BUT FREE

"In the end, he could not escape the hands of fate… However, there is no need to pity him, because no one can escape. Not you, nor me…" – Chronica[117]

3.1 INTRODUCTION

In the previous chapter I answered the first of two major questions:

Does the possibility of future knowledge entail predestination?

I argued that it does, but not necessarily of the problematic sort: the foreknowledge of the ordinary agent and time traveller lead only to weak predestination, and at worst, only the infallible foreknowledge of God gets us metaphysical fatalism. In this chapter I turn to the second question:

Does predestination preclude free will?

Here I am interested in the bearing each type of foreknowledge has on our being free. That is, with greater understanding of the different ways in which the future might be fixed – thanks to the three-way predestination distinction – what further light can be shed on the folk intuition, and more broadly, on the possibility of freedom? The content of this chapter is an investigation of the link between foreknowledge, predestination and free will via an examination of the major schools of thought in the free will debate. I am less interested in the details of particular accounts than the fundamental loci of free will each posits – i.e. where or in what the freedom is to be found – and their compatibility with each type of predestination. On a macro level, this constitutes further investigation of the *reductio* argument we could derive from the folk intuition: if free will is precluded by foreknowledge (or some types of foreknowledge), then we may think we have grounds to reject the latter.[118] I argue that in most cases, foreknowledge does not preclude free will – and specifically, that weak predestination never threatens it. However, a couple of accounts also provide for the compatibility of free will and (local)

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[117] Sound Horizon, *Chronicle 2nd,* cited in "Quotes: You Can't Fight Fate", *TV Tropes,* http://tvtropes.org/pmwiki/pmwiki.php/Quotes/YouCantfightfate, accessed 25 Jul. 2014.

[118] The perceived significance of free will is not to be understated: it is thought to be (and has been for at least two millennia) connected with moral responsibility, autonomy, dignity, and desert for accomplishments, to name a few. See Timothy O'Connor, "Free Will', *The Stanford Encyclopedia of Philosophy* (Fall 2014 Edition), Edward N. Zalta (ed.), http://plato.stanford.edu/entries/freewill/, accessed 1 Aug. 2014; Robert Kane, *The Significance of Free Will,* (New York: Oxford University Press, 1996), p. 81f.; Linda T. Zagzebski, "Recent Work on Divine Foreknowledge and Free Will" in Robert Kane (ed.), *The Oxford Handbook of Free Will,* (Oxford: Oxford University Press, 2002) p. 47f; Randolph Clarke, *Libertarian Accounts of Free Will,* (New York: Oxford University Press, 2003), Chapter 1; and Susan Wolf, "The Importance of Free Will", *Mind,* Vol. 90 (1981), pp. 386-405.

metaphysical fatalism, and this might serve as a motivation to revise what we mean by 'free'.

As O'Connor notes, the "main perceived threats to our freedom of will are various alleged determinisms: physical/causal; psychological; biological; theological." This chapter is interested in three such 'determinisms' (using the term very loosely), those mapping onto the three types of predestination discussed in Chapter 2: weak predestination, causal determinism and metaphysical fatalism.[119] In terms of structure, this chapter will outline the various proposed conditions for free will and action, test their compatibility with each of the three aforementioned types of predestination, and then summarise the results. As with the previous chapter, here I am concerned only with third-person cases of foreknowledge: I shall turn to first-person foreknowledge and its consequences for predestination and free will in Chapter 4. Additionally, except where otherwise noted, I shall assume that the three types of predestination are global. That is, if determinism obtains, it applies to the universe as a whole; if God's knowledge entails metaphysical fatalism, his omniscience means everything is fated; and that all facts are knowable, and thus weakly predestined.[120]

The discussion begins with the principle of alternate possibilities, which is cited in several instances of the folk intuition as the freedom condition precluded by foreknowledge (§3.2). I shall show that not all foreknowers are precluded by such a view (indeed none might be, depending on the details – §3.3). Then I will turn to alternate accounts of free will: concentrating first on accounts offered as compatibilist alternatives in the determinism debate (§3.4), and secondly on positive incompatibilist accounts posited in response to the intelligibility question (§3.5). I will not evaluate the strengths and weaknesses of each free will account –any reasonable attempt could fill many volumes – I shall just briefly outline them and point to their compatibility (or incompatibility) with each type of predestination. Nor will I cover all types of accounts, just the most prominent threads in the current debate.[121] Ultimately, I conclude that

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[119] There are philosophers who claim outright that free will is impossible (hard determinists including Baron d'Holbach, Clarence Darrow, Paul Edwards etc. as well as those that remain agnostic on the truth of determinism but reject the possibility of free will under either determinism or indeterminism, such as Pereboom). I am sympathetic to the view, but I will not entertain it here. Given that one of the key motivators underpinning the folk intuition is the perceived incompatibility between foreknowledge and free will, and that the folk intuition rejects the former, I will operate with the assumption that free will is a thing we're thought to have, and is important. Cf. Derk Pereboom, *Living Without Free Will,* (Cambridge: Cambridge University Press, 2001); O'Connor, Free Will.

[120] This will become important, as some accounts appear to give different results under the predictor's foreknowledge than God's, but often this arises not from the difference between determinism and fatalism, but global determinism (as it is usually discussed) and local fatalism (where certain propositions – those picked out as specifically known by God – are fated). See §3.4.2 as opposed to §3.5.3.1, for instance.

[121] And only those that offer a free will account that could be at odds with foreknowledge. Those that concentrate more on moral responsibility, or give an explanatory rather than ontological model of free will (that is, that concentrate on what we might mean by – or pragmatically on what might be usefully called – free will, rather than

although certain foreknowers are incompatible with specific theories, no account of free will is threatened by foreknowledge *in toto,* so we should reject the folk intuition in favour of the possibility of the latter.

3.2 FREEDOM AS ALTERNATE POSSIBILITIES

When introducing the folk intuition in Chapter 2, I motivated the discussion by presenting a series of excerpts from philosophy and fiction that demonstrated the seeming tension between foreknowledge and freedom (§2.1). Until now, I have left unexplored what that freedom consists in. The first possibility, and one which is in keeping with various instances of the folk intuition (as seen below), is that freedom hinges on having alternate possibilities; in the ability to act or will *otherwise*.[122]

Suppose I think I freely choose to eat toast for breakfast. What is required for that choice to be free? At minimum, it would be strange to think that if a third party had a gun to my head and threatened violence if I did not eat the toast, that in eating the toast I *acted* freely. Additionally, if I am a toast addict, and feel compelled to eat toast, then it looks my free *will* might be hindered. But beyond this, a common first reaction[123] is that I must have had options: I freely chose to eat the toast if I could have had cornflakes instead; I weighted up the alternatives and picked one over another, or others. One might think we are free then, to act or to will, if we have options. This is not a novel idea: as Aristotle succinctly sums, "when acting is 'up to us', so is not acting".[124] Alternate possibilities are the backbone of many accounts of free will: to will and act freely is to have options, to be able to do otherwise.[125]

There is significant debate concerning what both 'doing otherwise' and 'to be able' means here, and this will be important later on (and is discussed further in §§3.3, 3.4 and 3.5). For now, however, what seems

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positing a specific freedom-conferring characteristic or locus), I have omitted for the sake of brevity and focus. Nonetheless, none of the mainstream accounts, to my knowledge, are incompatible with foreknowledge *in toto*.

[122] NB. Accounts vary in terms of how they treat free 'action' and free 'willing', as do the excerpts that exemplify the folk intuition. I shall tend to use them interchangeably, unless a specific account treats them separately. Charitably, I think the folk intuition applies to both: if foreknowledge were to rule out either, then it would be problematic.

[123] Historically, as well as in philosophy classrooms.

[124] Aristotle, *Nicomachean Ethics* (Second Edition)*, trans. T. Irwin, (Indianapolis: Hackett, 1999), Book III, Ch. 5 §2.

[125] Ekstrom, for instance, describes alternate possibilities as one of the two crucial features of free will in the debate (the other is autonomy): Laura W. Ekstrom, "Free Will Is Not a Mystery" in Robert Kane (ed.), *The Oxford Handbook of Free Will* (Second Edition), (New York: Oxford University Press, 2011), pp. 366-380. Cf. Gary Watson, "Free Action and Free Will", *Mind,* Vol. 96 No. 382 (1987), pp. 145-172.

to be meant in the historical and fictional sources exhibiting the folk intuition about foreknowledge is something like the following: the statement 'I could have chosen the cornflakes over the toast' means 'I could have rendered the statement "I chose the toast" false.'[126] In Ginet's words:

> I have freedom of action at a given moment if more than one alternative action is then *open to me.* Two or more actions are *alternatives* if it is logically impossible for me to do more than one of them at the same time. Two or more alternatives are *open to me* at a given moment if which of them I do next is entirely up to my choice at that moment: Nothing that exists up to that moment stands in the way of my doing next any one of the alternatives.[127]

An account of free will that requires such options is often described in the literature as adhering to PAP: the Principle of Alternate Possibilities.[128] According to PAP, to be a free agent is to have the power or ability to act or will differently than you actually do. So, under PAP, what an agent *does* and what they *can* do, do not coincide.

So why consider PAP first when considering the folk intuition against foreknowledge? In Chapter 2 I described the folk intuition as making the assumption that foreknowledge entailed metaphysical fatalism – that foreknown events are now-necessary. I made the following claim (§2.2):

> It is this latter kind of predestination which is bundled up in the folk intuition about foreknowledge: that if the future was foreknown, events *must* happen, *no matter what;* that foreknown events are unpreventable, there are no possible defeaters for their occurrence. There is nothing we can do to change a metaphysically fated future, just as there is nothing we can do to change the past.

Another way to explain 'now-necessity' is in terms of a lack of alternate possibilities. For an event to be now-necessary, it now *cannot be otherwise.* So when Boethius writes,

> If God foresees all things and cannot be in any way mistaken, then what Providence has foreseen will happen must inevitably come to pass. So if God has prior knowledge from eternity not only of men's actions but also of their plans and wishes, there will be no freedom of will; for the only action and any sort of intention which can possibly exist in the future will be foreknown by divine Providence, which cannot be misled.[129]

What he is bemoaning, given God knowing the future, is a lack of alternate possibilities: events must unfold the way God foretells, there is no other option. Similarly, when Neo questions,

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[126] Peter Van Inwagen, "The Incompatibility of Freewill and Determinism" in Tim Crane and Katalin Farkas (eds.), *Metaphysics: A Guide and Anthology,* (Oxford: Oxford University Press, 2004), pp. 698-99.
[127] Carl Ginet, *On Action,* (Cambridge: Cambridge University Press, 1990), p. 90.
[128] The term was first introduced by Harry Frankfurt in "Alternate Possibilities and Moral Responsibility", *Journal of Philosophy,* Vol. 66 No. 23 (1969), p. 829.
[129] Boethius, Consolation (Walsh), Book V Ch. 3 p. 100.

> Oracle: Candy?
> Neo: Do you already know if I'm going to take it?
> Oracle: Wouldn't be much of an Oracle if I didn't.
> Neo: But if you already know, how can I make a choice?[130]

The implicature is that there is only one choice available (and perhaps, that the choice was not really his – that is, it did not belong to him in the right sort of way; see §3.4 and 3.5).

Further evidence that this is the account of freedom bundled up in our worries about foreknowledge is revealed in Zagzebski's formulation of the traditional argument for theological fatalism. This argument is meant to show that God's foreknowledge entails our lack of freedom, and is itself a paradigmatic instance of the folk intuition.[131] That alternate possibilities are the defining feature of freedom is contained as a premise in the argument ('T' substitutes a future-pertaining proposition, in this case, 'you will answer the telephone tomorrow at 9am'):

1. Yesterday God infallibly believed T   **[Supposition of infallible foreknowledge]**

2. If *E* occurred in the past, it is now-necessary that *E* occurred then.   **[Principle of the Necessity of the Past]**

3. It is now-necessary that yesterday God believed *T.*   **[1, 2]**

4. Necessarily, if yesterday God believed *T,* then *T*   **[Definition of 'infallibility']**

5. If *p* is now-necessary, and necessarily ($p \rightarrow q$), then *q* is now-necessary. **[Transfer of Necessity Principle]**

6. So it is now-necessary that *T.* **[3, 4, 5]**

7. If it is now-necessary that *T,* then you cannot do otherwise than *answer the telephone tomorrow at 9am*.   **[Definition of 'necessary']**

8. Therefore, you cannot do otherwise than answer the telephone tomorrow at 9am. **[6, 7]**

9. If you cannot do otherwise when you do an act, you do not act freely.   **[Principle of Alternate Possibilities]**

10. Therefore, when you answer the telephone tomorrow at 9am, you will not do it freely. **[8,9]**[132]

Other scholars have noted the importance of alternate possibilities if foreknowledge is to be vindicated: as Zagzebski notes, "virtually all discussants of the foreknowledge issue agree that the problem is not

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[130] Wachowski and Wachowski, The Matrix Reloaded.
[131] As seen in Boethius, Augustine, and others (discussed at length in Chapter 2).
[132] Zagzebski, Foreknowledge and Free Will.

solved unless the solution preserves free will in a sense that is incompatible with determinism."[133] That is, there is a prevailing thought in the literature that genuine alternate possibilities – and not just counterfactual ones like those posited under classical compatibilism (§3.4) – are the hallmark of freedom, and it is just this that foreknowledge precludes.

In §3.3, I consider whether alternate possibilities are compatible with each of the three types of predestination, and thus whether foreknowledge would undermine us having this kind of freedom. However, other accounts of free will reject the requirement for PAP, and others require more *in addition.* These, and their compatibility with predestination, are discussed in §3.4 and §3.5.

3.3 FOREKNOWLEDGE AND ALTERNATE POSSIBILITIES

In Chapter 2 I identified and defined three types of predestination, as follows:

Weak Predestination (WP): An event *x* is predestined now iff for some future time *t* it is true now that *x* will occur at *t.*

Causal Determinism (CD): An event *x* is predestined now iff *x* is necessitated by the conjunction of past states and the laws of nature.

Metaphysical Fatalism (MF): An event *x* is predestined now iff it is now-necessary that event *x* will occur.

I concluded that ordinary foreknowledge and that of the time traveller resulted only in weak predestination (which is a consequence of bivalence), the determined predictor trivially entailed causal determinism (since its foreknowledge is dependent on determinism), and God's foreknowledge minimally required weak predestination, but may also lead to metaphysical fatalism (but is the only foreknowledge to do so).

Having considered the connection between foreknowledge and predestination, I now move to the relationship between predestination and free will. In the sections that follow I consider each type of predestination and whether it is compatible with PAP.

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[133] Zagzebski, Recent Work, p. 48. Cf. Anthony Kenny, "Divine Foreknowledge and Human Freedom" in his *Aquinas: A Collection of Critical Essays* (London: Macmillan, 1969). However, as Zagzebski suggests, the lack of discussion could be because those with opposing views write on determinism rather than foreknowledge. This is part of the motivation for considering other accounts of free will in the sections that follow.

3.3.1 PAP & WEAK PREDESTINATION

Given the discussion of Chapter 2, it should be uncontentious that alternate possibilities are not precluded by weak predestination: it does not follow from something being true that it could not have been otherwise. In other words, if an action is weakly predestined, all that entails is that you did it, not that you had to do so. To think that the truth of future facts entails their necessity is a mistake (see §2.2.2). It being weakly predestined that I eat toast for breakfast tomorrow is compatible with there existing a possible world identical to this one (including its past, its laws, etc.) in which I eat cornflakes instead. In the actual world, at the point that I choose my breakfast, I have alternate possibilities (that there are true propositions describing my choice does not impede this: it just happens to be true that I eat toast, it is not necessary that I do so; if I refrain from eating toast, 'I refrain from eating toast' would be true instead). If the ordinary foreknower or the time traveller has knowledge that I eat toast, that knowledge reports something true. But their knowledge did not prevent my eating cornflakes; indeed, if I had, they either would not have had knowledge, or known that instead. (I consider this in further detail in Chapter 5: the open future – which posits alternate possible futures – is widely thought compatible with bivalence).

3.3.2 PAP & DETERMINISM

Traditionally, PAP has been defended by libertarians: incompatibilists who embraced alternate possibilities as the necessary condition for free will, and rejected its compatibility with determinism.[134] This makes sense, prima facie: under determinism, past states of the universe combined with the laws of nature entail future states, and this looks to preclude genuine alternatives. If my beliefs, desires, intentions, dispositions and so forth are determined, then it seems meaningless to say that I could have chosen the cornflakes. This is known as the Consequence Argument. It has several formulations, but the following is indicative:

> If determinism is true, then our acts are the consequence of the laws of nature and events in the remote past. But it is not up to us what went on before we were born; and neither is it up to us what the laws of nature are. Therefore, the consequences of these things (including our present acts) are not up to us.[135]

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[134] Libertarian can mean two different things in the free will literature: I shall use it to mean a view where freedom requires alternate possibilities and is incompatible with determinism (rather than the stronger version which asserts that we are free, and that determinism is therefore false). This is in keeping with B. Loewer, "Selection from 'Freedom from Physics; Quantum Mechanics and Freewill" in Crane and Farkas, Metaphysics, pp. 707-719.

[135] Van Inwagen, An Essay on Free Will, p. 16. Ginet, Wiggins, Lamb and Pike all have versions of the argument (see below); however, it arguably dates back to at least Epicurus, a generation after Aristotle. The early atomists,

If the world is determined such that I will choose toast, then to choose the cornflakes I would have to do at least one of the following: make a contradiction true, change the past, or break the laws of physics. As Lewis (and others) have noted, it is absurd to think I could do any of those things, and therefore, by *reductio,* I could not have chosen the cornflakes.[136] However, if I was not free to choose the cornflakes instead, or abstain from breakfast entirely, the incompatibilist claims that when I chose the toast I could not have done so freely.

So, historically, PAP has been the domain of the incompatibilist. However, there are some contemporary compatibilists who endorse it: that is, philosophers who think that free will requires alternate possibilities (and not just in a classical compatibilist sense (§3.4)), and yet attempt to reconcile this with determinism. These are the new dispositionalists, most notably Kadri Vihvelin, Michael Smith and Michael Fara.[137] Each tie the ability to do or will otherwise to dispositions; and according to them,

> [W]e hold fixed the relevant causal base or underlying structure of an agent's disposition to, say, wave hello to a friend, or tell the truth under interrogation, and we consider various counterfactual conditions in which that causal base or underlying structure operates unimpaired. Does the agent in an appropriately rich range of such counterfactual conditions wave hello or tell the truth? If she does, then even if in the actual world she does not wave hello or tell the truth, she was able to do so. She

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notably Democritus and Leucippus, posited that everything was made up ultimately of atoms, whose movements were dictated by causal laws (thus their first dogma: "nothing occurs at random, but everything for a reason and by necessity" – Leucippus, Fragment L1 in C. C. W. Taylor, *The Atomists: Leucippus and Democritus,* (Toronto: University of Toronto Press, 1999). Aristotle later argued that chance plays a role in the universe, setting up the notion of 'accidental chance' in opposition to necessity (Metaphysics, Books V and VI). Then, according to Lucretius (our best extant source for Epicurean philosophy), Epicurus argued that there was room for indeterminism in the universe. In a sort of precursor to quantum theory, he argued that the atoms posited by the atomists can spontaneously and randomly 'swerve', changing direction from their otherwise determined paths. Similarly, humans can transcend necessity and thus there's room for free will. Certainly the atomic picture looks like an impersonal case of alternate possibilities (the atom could go left or right). Lucretius, *De Rerum Natura,* trans. W. E. Leonard, *The Internet Classics Archive,* http://classics.mit.edu/Carus/nature_things.html, accessed 4 Aug. 2014. Cf. Carl Ginet, "Might We Have No Choice?", in K. Lehrer (ed.), *Freedom and Determinism,* (New York: Random House, 1966), pp. 87-104 and "The Conditional Analysis of Freedom" in Peter Van Inwagen (ed.), *Time and Cause: Essays presented to Richard Taylor*, (Dordrecht: Reidel, 1980), pp. 171-186; David Wiggins, "Towards a Reasonable Libertarianism" in *Essays on Freedom and Action,* Ted Honderich (ed.), (London: Routledge, 1973), pp. 31-62; James Lamb, "On a Proof of Incompatibilism", *Philosophical Review,* Vol. 86 (1977), pp. 20-35; Nelson Pike, "Divine Omniscience and Voluntary Action", *Philosophical Review,* Vol. 74 No. 1 (1965), pp. 27-46.

[136] Lewis, D. "Are We Free to Break the Laws?", *Theoria* Vol. 47 No. 3, 1981, pp. 113-121. See also Kadri Vihvelin, "Arguments for Incompatibilism", *The Stanford Encyclopedia of Philosophy* (Spring 2011 Edition), Edward N. Zalta, (ed.), http://plato.stanford.edu/archives/spr2011/entries/incompatibliism-arguments/, accessed 26 May 2014.

[137] Michael Fara, "Masked Abilities and Compatibilism", *Mind,* Vol. 117 No. 468 (2008), pp. 843-65; Michael Smith, "Rational Capacities, or: How to Distinguish Recklessness, Weakness, and Compulsion" in Sarah Stroud and Christine Tappolet (eds.), *Weakness of Will and Practical Irrationality,* (Oxford: Clarendon Press, 2003), pp. 17-38; Kadri Vihvelin, "Free Will Demystified: A Dispositional Account", *Philosophical Topics,* Vol. 32 (2004), pp. 427-50.

had at the time of action the pertinent agential abilities or capacities. And this is true even if that world is determined…because there is no basis for contending that when we test the relevant dispositions at other possible worlds, we have to restrict the worlds to ones in which we hold fixed the past and the laws.[138]

There is, as one might expect, considerable debate over the new dispositionalist position, particularly within the broader compatibilist camp.[139] If they are right, however, then the determined predictor does not undercut an alternate possibilities account of freedom (although it would be misleading to equate this with the traditional libertarian account, given how they flesh out alternate possibilities).

Returning to the traditional libertarian PAP view, the existence of a determined predictor, and the determinism enabling the latter, would preclude us being free. Of course, this is no reason to reject the possibility of foreknowledge: if the world is such that a determined predictor could exist, and we wish to define freedom in line with the traditional libertarian picture, then our freedom is illusory whether or not the predictor actually obtains. That is, the existence of the predictor does not deprive us of freedom; it just reveals a lack that already existed: we were already predictable, because everything was determined all along. If you wish to reconcile free will and determinism (and in turn foreknowledge and the determined predictor), then a compatibilist position is called for (§3.4). If you wish to retain a libertarian conception of freedom, then you will reject the possibility of a determined predictor, but a) still be able to reconcile the foreknowledge of the time traveller and ordinary agent, and b) will have to consider the intelligibility question (§3.5).

3.3.3 PAP & METAPHYSICAL FATALISM

Metaphysical fatalism rules out PAP by definition. I argued in Chapter 2 that two of the key mistakes implicit in the folk intuition are a conflation of metaphysical fatalism with weak predestination, and a conflation of types of foreknower, leading to the conclusion that all foreknowledge entails said problematic predestination. Nonetheless, the intuition is right insofar as any foreknowledge that entails metaphysical fatalism will preclude freedom based on the ability to do otherwise (conceived in libertarian fashion). As Ahern notes in his discussion of theological fatalism, the question of whether an

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[138] Michael McKenna, "Compatibilism", *The Stanford Encyclopedia of Philosophy* (Winter 2009 Edition), Edward N. Zalta (ed.), http://plato.stanford.edu/archives/win2009/entries/compatibilism/>, accessed 17 Jul. 2014. Cf. Vihvelin, Free Will Demystified, p. 437.

[139] See, for instance, the exchange between Fischer ("Freedom, Foreknowledge, and Frankfurt: A Reply to Vihvelin", *Canadian Journal of Philosophy,* Vol. 38 No. 3 (2008): pp. 327-42) and Vihvelin ("Foreknowledge, Frankfurt, and the Ability to Do Otherwise: A Reply to Fischer", *Canadian Journal of Philosophy,* Vol. 38 No. 3 (2008), pp. 343-372).

agent is capable of acting otherwise "gets an affirmative answer only if there is also an affirmative answer to the question of whether [the agent] was free to act in a way such that if she had acted in that way [the foreknower's] prediction would have been different."[140] This is fulfilled for foreknowledge entailing weak predestination: if the agent acts differently, the content of the knowledge is different as a result (the time traveller sees me wearing blue, rather than wearing red, for instance). It is likewise, although slightly differently, fulfilled for the determined predictor: there is a meaningful sense in which if I had worn blue, the world would have been determined such that I wore blue, and the predictor would have known this accordingly.[141] With metaphysical fatalism, however, the question seems ill-formed: there is no acting otherwise, no other counterfactual possibilities. If, then, you think God's foreknowledge entails metaphysical fatalism (and as previously suggested, you might not), your freedom on a PAP-view will be precluded. Either you give up libertarian freedom, or you give up the possibility of God's foreknowledge.

So, under PAP, causal determinism and metaphysical fatalism are ruled out, but weak predestination is compatible with our being free. Already we can see that there is no reason to forgo foreknowledge wholesale on the grounds that it precludes our having free will. But the discussion does not end here: as mentioned throughout, the libertarian PAP account is not the only way to flesh out what is meant by free will, even if it is a popular condition for freedom in discussions of foreknowledge. Now I turn to compatibilist accounts given in response to the consequence argument, and consider whether they fare better against the three types of predestination.

3.4 FOREKNOWLEDGE AND COMPATIBILISM

In the free will and determinism debate, the compatibilists responded to the incompatibilist challenge (the consequence argument) in two main ways:

   i.   By arguing that libertarians were wrong in how they fleshed out alternate possibilities –
         either in terms of their incompatibility with determinism, or how they defined possibilities
         and the power or ability to act on them (as seen in §3.3.2, and further in §3.4.1).

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[140] Dennis M. Ahern, "Foreknowledge: Nelson Pike and Newcomb's Problem", *Religious Studies,* Vol. 15 No. 4 (1979), p. 487.
[141] See J. T. Saunders, "The Temptation of Powerlessness," *American Philosophical Quarterly*, Vol. 5 (1968), pp. 100–108; Lewis, Are We Free, pp. 113-21.

ii.   By arguing that alternate possibilities are not what is required for free will; that something else is the freedom-conferring characteristic (§§3.4.2 and 3.4.3).[142]

The paradigmatic examples that motivated (ii) and continue to be influential today come from Frankfurt, and are designed to show a tension between alternate possibilities and our intuitions about freedom.[143] They depict circumstances that leave an agent with no alternate course of action, but where we would still consider her responsible, and thus free, for instance:

> Black wants Jones to perform a certain action (φ), but would prefer to remain uninvolved unless it becomes absolutely necessary. Black is aware of whether Jones will decide to φ, and is able to ensure that he does φ, even if Jones would have decided otherwise. As it turns out, Jones decides to φ, and Black has no need to intervene.[144]

Many philosophers have argued that in this scenario Jones should be considered free, even though he could not have done otherwise.[145] There are many compelling objections and responses to the Frankfurt cases, and there is an on-going dialogue between Frankfurt-supporters and PAP-defenders.[146] As seen in the previous section, weak predestination does not threaten PAP-based freedom, but determinism can, and metaphysical fatalism does. But, as the Frankfurt cases and the compatibilist accounts below demonstrate, alternate possibilities are not uncontroversial as a condition for free will. There are many different compatibilist accounts, but I will consider foreknowledge's compatibility with 3 types – chosen because they a) are historically (and continue to be) important in the debate, and b) as overarching

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[142] McKenna (Compatibilism) argues that the consequence argument, Frankfurt's counter-example to PAP and Strawson's highlighting of morally reactive attitudes were the three most influential factors in motivating contemporary compatibilism. The first is addressed in §3.3.2, and the second here. I will not consider Strawson, but this is not to diminish his contribution: rather he focuses more on moral responsibility than even Frankfurt, and thus is less relevant to this discussion.

[143] Specifically they hinge on and question the link between two assumptions: 1. We are free only if we can do otherwise (PAP) and 2. We are morally responsible only if we are free. Frankfurt, Alternate Possibilities. Cf. R. M. Chisholm, "Human freedom and the self" in Crane & Farkas, Metaphysics, p. 720. Most scholars have accepted (2) and thus, if convinced by Frankfurt's examples, rejected (1). There are exceptions, most notably Fischer, who acknowledges contra Frankfurt that free will might require PAP, but thinks that moral responsibility does not – thus the two can come apart. J. M. Fischer, "Frankfurt-type Examples and SemiCompatibilism" in Robert Kane, *Oxford Handbook of Free Will,* (Oxford: Oxford University Press, 2002), pp. 283-310.

[144] Adapted from Frankfurt, Alternate Possibilities.

[145] Note that the new dispositionalists would disagree: they think that in the Frankfurt case Jones is free *because* he could have done otherwise (Fara, Masked Abilities, pp. 854-5; Smith, Rational Capacities, p. 19; Kadri Vihvelin, "Freedom, Foreknowledge, and the Principle of Alternate Possibilities", *Canadian Journal of Philosophy,* Vol. 30 (2000) and Free Will Demystified, pp. 445-8. Generally, though, this is the reading.

[146] Widerker and Copp, for instance, both refute the Frankfurt examples and defend PAP: David Widerker, "Frankfurt's Attack on the Principle of Alternate Possibilities: A Further Look", *Nous,* Vol. 34 No. 14 (2000), pp. 181-201; David Copp, "Defending the Principle of Alternate Possibilities: Blameworthiness and Moral Responsibility", *Nous,* Vol. 31 No. 4 (1997), pp. 441-456.

types they encompass various accounts.

3.4.1 CLASSICAL COMPATIBILISM

The classical compatibilist view hinges on the notion that the Consequence Argument can, in Kane's words,

> [B]e defeated by giving a proper analysis of what it means to say that agents *can* (or have the *power* or *ability* to) do something… To be free, [the classical compatibilists] have insisted, means in ordinary language (i) to have the *power* or *ability* to do what you will (desire or choose or try) to do, and this entails (ii) an absence of *constraints* or *impediments* preventing you from doing what you will to do.[147]

Returning to the breakfast example, according to a classical compatibilist, I am free to choose toast if I have the power or ability to choose toast, and no one or nothing is stopping me making that choice efficacious. In other words, I am internally capable of making the decision to eat toast, and not externally prevented by, for instance, a lack of bread or the presence of a cornflake-favouring gunman. Sometimes this is spelled out in terms of a combination of ability and opportunity.[148] Importantly, classical compatibilists tend to offer a conditional or hypothetical analysis of the freedom to do otherwise:

> Given that you could have acted in a certain way, to say that you could have done otherwise, is to say that nothing would have prevented you from doing otherwise, had you will to do so.[149]

So I may have eaten cornflakes over toast if I had willed to do so (since there were no external factors hindering me), even though I did not in fact will to eat cornflakes, and even if my choosing toast was determined. In other words, if my beliefs, desires and intentions had been different, then I would have chosen the cornflakes instead, so there is a sense in which I could have chosen the cornflakes.[150] As long as the desires are mine and unencumbered, even if they are determined, then I am a genuine source of

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[147] Robert Kane, "Introduction: The Contours of Contemporary Free Will Debates (Part 2)" in R. Kane (ed.), *The Oxford Handbook of Free Will,* (Oxford: Oxford University Press, 2007), p. 12. Cf. Gary Watson, "Free Agency", *Journal of Philosophy,* Vol. 72 (1975), pp. 205-220. Hobbes, Hume, Mill, Ayer, Schlick and Davidson are considered classical compatibilists – see McKenna, Compatibilism.

[148] Kane, Introduction, p. 12; Daniel Speak, "The Consequence Argument Revisited" in R. Kane (ed.), *The Oxford Handbook of Free Will,* (Oxford: Oxford University Press, 2007), p. 121.

[149] Kane, Introduction, p. 13; see also McKenna, Compatibilism; David Hume, *An inquiry concerning human understanding,* (Indianapolis: Bobbs-Merrill, 1977), p. 73; R. E. Hobart, "Free will as involving determination and inconceivable without it", *Mind,* Vol. 43 (1934), pp. 1-27.

[150] The obvious response to this has been 'but if my desires, beliefs and intentions are all determined, and have been determined since before I was born, how are the choices really mine?' (which has undoubtedly influenced the more sophisticated compatibilist and incompatibilist accounts). Nonetheless, I shall leave the evaluations to others, and consider only compatibility with predestination.

my actions: "not an ultimate source, only a mediated one" but nonetheless "sufficient to satisfy the kind of freedom required for free will and moral responsibility."[151]

Like the standard libertarian PAP view, classical compatibilism is compatible with weak predestination: my ability and opportunity to act is not precluded by there now being true propositions describing said actions. However, it is also, by definition, compatible with determinism: that the predictor knows what I will choose to consume for breakfast, and knows infallibly based on his knowledge of past states and the laws of nature, does not undermine my freedom. What is important is that had I believed or desired differently – which he also would have known – I would have chosen differently (and this too would be foretold). Metaphysical fatalism, on the other hand, would preclude freedom of this kind: a future that is metaphysically fated has a single outcome, no matter how my desires, beliefs or intentions might have been different (see §2.2.3). In other words, the counterfactuals for determinism and metaphysical fatalism have different truth values: for instance, the counterfactual 'had I desired cornflakes I would not have eaten toast' may[152] be true if my breakfast choice is determined, but will be false if it is fated. Although the counterfactual 'if God had believed differently, I would not have eaten toast' might be true, this does not satisfy the 'will' requirement of the conditional analysis: to say I could have done otherwise is to say that nothing would have prevented me from doing otherwise, had I "*will[ed] to do so*".[153] If my breakfast choice is fated, my will makes no difference.

3.4.2 MESH/HIERARCHICAL ACCOUNTS

There are a variety of more sophisticated compatibilist accounts that require some sort of meshing or reconciliation between various mental states for an act or willing to be considered free. These seek to address a common intuition in the free will debate that a free agent should, in some sense, be the source of their action (see also §3.5). Of these, Frankfurt's model is the most discussed (at least in part because it has spawned many others): he argues that people "have the capacity for reflective self-evaluation that is manifested in the formation of second-order desires", that is, desires to have or not to have various first-order desires.[154] For Frankfurt, free will and responsibility require that we access our first-order desires or motives and form 'second-order volitions' about which of the former should move us to action. Our wills – that is, the first order desires that move us to act – are free when they mesh

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[151] McKenna, Compatibilism. This is contra source incompatiblism, see §3.5.
[152] Where the 'may' is here only to accommodate cases of overdetermination.
[153] Kane, Introduction, p. 13 (emphasis mine).
[154] Harry Frankfurt, "Freedom of the Will and the Concept of a Person", *Journal of Philosophy,* Vol. 68 No. 1 (1971), p. 7.

with our second-order volitions.[155] So, for instance, suppose I have two opposing first order desires: I desire to smoke a cigarette, and I desire to quit smoking. If I reflect on these desires and come to think 'I really want to quit smoking, and I want that desire to be action-guiding, so I am not going to smoke', I form a second-order volition. If I refrain from smoking, I am free. If, however, my volitions do not match my first-order desires – so for instance I have the volition not to smoke, but impulsively do so anyway – my will is not free.

Another account in the same vein is Gary Watson's valuational (or 'structural') model, which requires a mesh not between first- and second-order desires, but rather between an agent's valuational system (that is, her beliefs about what is good or ought to be done, which comes from her reason), and her motivational system (including her desires and other motives).[156] Watson defines the former as "that set of considerations which, when combined with [her] factual beliefs (and probability estimates), yields judgments of the form: the thing for me to do in these circumstances, all things considered, is *a*"; while the latter is "that set of considerations which move [her] to action."[157] For a being to be free it must make valuational judgments, and those judgments must coincide with its motivational system. Although there is inherently an overlap between the two, one can have motivations that are not value-based, and this leaves room for unfree action.[158] Other mesh accounts highlight different internal states or systems. For instance, Michael Bratman proposes a 'planning theory' in which free will requires a mesh between desires and general intentions, where the latter are our broad self-governing policies of practical reasoning.[159]

As with all the accounts considered thus far, free will under mesh accounts is compatible with weak predestination: it can be true now that I will freely eat toast for breakfast tomorrow. Note that there is no requirement for alternate possibilities in these accounts as what is necessary for freedom is for the action or willing to belong to the agent in the right way: that is, for it to mesh with the agent's values and be motivated accordingly (for Watson), to mesh with second-order volitions (for Frankfurt) or with our desires and intentions (for Bratman). This means (as one might expect) that mesh freedoms are

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[155] *Ibid.,* p. 10f.
[156] Watson, Free Agency. This has echoes of the Platonic tripartite soul, and particularly the dichotomy of reason and desire (an ordered soul is one in which desire conforms to reason, and the goal of reason is the good); see Watson, p. 209 and Plato, *The Republic,* Book IV.
[157] *Ibid.,* p. 215
[158] *Ibid.,* p. 216
[159] Michael Bratman, "Responsibility and Planning", *Journal of Philosophy* Vol. 1 No. 1 (1997), pp. 27-43 and *Structures of Agency,* (New York: Oxford University Press, 2007).

compatible with determinism. Surprisingly, they are not obviously incompatible with metaphysical fatalism. A metaphysically fated event is one which is now-necessary, which is inevitable. But my eating toast could simultaneously be fated, and also the result of a mesh between my first- and second-order desires, or my desires and intentions, or motivations and values. Unlike classical compatibilism, mesh compatibilism does not hinge on the truth of counterfactuals under which I have different desires, beliefs or intentions and thus behave differently. If it is fated, then I will eat whether or not such a mesh occurs, but if it does occur, my action is free. This strikes me as sufficiently counter-intuitive to motivate the rejection of such views as sufficient accounts of free will (certainly this is in keeping with the folk intuition – if foreknowledge is problematic because it entails metaphysical fatalism which seems to clash with free will, then a free will that does not clash is not quite what was envisaged). Nonetheless, if you subscribe to such an account, any of the foreknowledge cases discussed thus far will be unproblematic.[160]

Before considering a third variety of popular compatibilism, I wish to briefly outline a final mesh account which operates slightly differently.

3.4.2.1 WOLF'S MESH ACCOUNT

One popular mesh account which differs from the others in two important respects is Susan Wolf's 'Reason View', according to which free will requires a mesh between actions and values.[161] The first key difference is that the mesh does not exist just between internal (mental) states; values are spelled out in terms of the True and the Good, which are external to the agent.[162] The agent is free when she acts upon moral reasons.[163] The second difference, and the most pertinent for the foreknowledge discussion, is that Wolf argues for an asymmetry between praiseworthy and blameworthy actions, in terms of the sort of control required (drawing on Frankfurt she thinks that to be morally responsible one must be free, so the actions for which we are blameworthy or praiseworthy are hallmarks of free action).[164] While the former requires only this mesh (or guidance control – §3.4.3), blameworthy conduct requires alternate possibilities: if the agent's actions or will are determined such that they cannot act in

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[160] Although first-person cases might put a spanner in the works; see §4.3.2.

[161] Susan Wolf, *Freedom within Reason,* (Oxford: Oxford University Press, 1990); also "Asymmetrical Freedom", *Journal of Philosophy,* Vol. 77 (1980), pp. 157-66.

[162] Wolf, Freedom within Reason, pp. 79-81; Asymmetrical Freedom.

[163] Susan Wolf, "Sanity and the Metaphysics of Responsibility", in F. Schoeman (ed.), *Responsibility, Character and the Emotions,* (Cambridge: Cambridge University Press, 1987), pp. 45-64. Nonetheless this tends to be characterised as a mesh account rather than a reason-responsive account, although evidently there is some overlap.

[164] See McKenna, Compatibilism.

accordance with the True and the Good, then she cannot be reasonably deemed blameworthy. Wolf writes,

> [R]esponsibility depends on the ability to act in accordance with the True and the Good. If one is psychologically determined to do the right thing for the right reasons, this is compatible with having the requisite ability…But if one is psychologically determined to do the wrong thing, for whatever reason, this seems to constitute a denial of that ability. For if one *has* to do the wrong thing, then one *cannot* do the right, and so one lacks the ability to act in accordance with the True and the Good.[165]

An agent is praised for doing a good thing for the right reasons (that is, there is a mesh between her action and moral reason), but blamed only when she does the wrong thing and could have done otherwise. What this seems to entail is that some free actions are compatible with determinism (the praiseworthy ones), but that others are not, unless Wolf gives a response to the consequence argument: either by giving a conditional account of the ability to do otherwise like the classical compatiblists, or a more substantial compatibilist account of alternate possibilities (like the new dispositionalists). As it stands, Wolf concedes that freedom is incompatible with psychological determinism – which she characterises as "the thesis that all psychological events are uniquely and wholly determined by a conjunction of laws and states of affairs that are capable of description at the psychological level of explanation"[166] – but not necessarily with phsyical determinism. She thus considers her account to be compatiblist, meaning reason-view freedom would not be precluded by the existence of a determined predictor.[167] Although Wolf also claims that her account is compatible with theological determinism, which she cashes out in terms of God preordaining everything that happens, this does not seem equivalent to compatibity with metaphysical fatalism.[168] The fact that some free actions (the blameworthy ones) require alternate possibilities – even under Wolf's psychological construal – seems to suggest that at least some fated actions would not be free. Specifically, blameworthiness is precluded by metaphysical fatalism as under the latter there are no alternate possibilities (after all, if God is omniscient, psychological states will among the things known and thus fated). In this the Reason View differs from the other mesh accounts considered: it is compatible both with weak predestination and causal determinism, but not metaphysical fatalism.

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[165] Wolf, Freedom within reason, p. 79.
[166] *Ibid.,* p. 101.
[167] (Whether you think the psychological and physical come apart in the way Wolf envisions is another matter).
[168] *Ibid.,* p. 104f.

3.4.3 REASON-RESPONSIVE ACCOUNTS

Other popular compatibilist accounts are reason-responsive: they require that for agents to be free and responsible they must be aware of and reflective towards their reasons for acting (and adjust their behaviour accordingly).[169] John Martin Fischer is the most notable proponent of an account of this kind; he distinguishes between guidance and regulative control, and thinks the former rather than the latter is what is necessary for free will. If an agent has guidance control, her actions proceed "from a 'weakly' reasons responsive (deliberative) mechanism" which obtains "just in case there is some *possible* scenario where the agent is presented with a sufficient reason to do otherwise, and the mechanism that led to the actual choice is operative and it issues in a different choice, one appropriate to the imagined reason".[170] This is elaborated upon and refined later by Fischer and Ravizza, where the mechanism is stipulated to be the person's own, and must be 'moderately' responsive to reasons: it is "regularly receptive to reasons, some of which are moral reasons, and at least weakly reactive to reason."[171] Regulative control, by contrast, would require alternate possibilities: an agent with such control is one who thus regulates between them, whereas one with guidance control "guides or brings about her conduct even if she has no other alternatives to the course she takes."[172] The mistake the incompatibilists and classical compatibilists make, for Fischer, is thinking the latter is what is necessary for free will.[173]

Again, this kind of freedom is compatible with weak predestination – for there can now be true propositions describing your freely chosen, reason-responsive future actions – and also with determinism. Unlike the mesh cases however, it is incompatible with metaphysical fatalism, because the reason-responsiveness requires certain counterfactuals to come out true: those that describe scenarios in which different reasons bear upon the guidance control mechanism, leading to different actions on the part of the agent. So, if I were to discover that the bread at my disposal was infested with a toxic

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[169] For instance Daniel Dennett, *Elbow Room: The Varieties of Free Will Worth Wanting,* (Cambridge, MA: MIT Press, 1984); Herbert Fingarette, *The Meaning of Criminal Insanity,* (Berkeley: University of California Press, 1972); Bernard Gert and Tim Duggan, "Free Will as the Ability to Will", *Nous,* Vol. 13 (1979), pp. 197-217; Alisdair MacIntyre, "Determinism", *Mind,* Vol. 66 (1957), pp. 28-41; Wright Neely, "Freedom and Desire", *Philosophical Review,* Vol. 83 (1974), pp. 32-54. I concentrate on Fischer because, as McKenna notes, his account is considered by many to be "the gold standard for cutting edge defenses of compatibilism" (McKenna, Compatibilism).

[170] McKenna, Compatibilism; J. M. Fischer, *The Metaphysics of Free Will,* (Oxford: Blackwell Publishers, 1994).

[171] John Martin Fischer and Mark Ravizza, *Responsibility and Control: An Essay on Moral Responsibility,* (Cambridge: Cambridge University Press, 1998), p. 82. Cf. pp. 69-73.

[172] McKenna, Compatibilism.

[173] Note that although the terminology comes from Fischer ("Responsibility and Control", *Journal of Philosophy,* Vol. 89 (1982), pp. 24-40), the claim is true of Frankfurt's account as well (although the details of guidance control obviously vary between mesh and reason-responsive cases).

mould, I would have reason not to eat it. As it turns out, that is not the case, and I have no such reason, but it makes sense to think I would have adjusted my behaviour accordingly. However, if my eating toast is fated then my having different reasons makes no difference to the outcome, and thus I could not be free.

Having considered three popular types of compatibilism, this is the current state of play (Table 2):

	Weak Predestination	Causal Determinism	Metaphysical Fatalism
ALTERNATE POSSIBILITIES			
Libertarian PAP	✓	X	X
New Dispositionalists	✓	✓	X
ABILITY + OPPORTUNITY			
Classical Compatibilism	✓	✓	X
MESH			
Internal Mental States	✓	✓	✓
Wolf's Reason View	✓	✓	X
REASON-RESPONSIVENESS			
Fischer & Ravizza	✓	✓	X

Table 2. Free Will and Predestination (PAP + Compatibilism)

Compatibilist accounts of free will provide, at minimum, room for the foreknowledge of the ordinary agent, time traveller and determined predictor. But, some have argued, this is not enough: what is required for free will *really is* concrete alternatives, and more than that, that the agent is the source of their actions in the right sort of way – a way compatibilism does not allow, since our beliefs, desires, intentions and so forth could be determined from the beginning of time. The penultimate section of this chapter considers the compatibility of foreknowledge with accounts that try to accommodate both: a freedom that requires alternate possibilities and additionally that the agent be the source, origin or in control of the action in a meaningful way. If even these accounts – with their more stringent conditions – are compatible with foreknowledge, then we have a compelling reason to abandon the folk intuition as a sweeping dismissal of the latter.

3.5 FOREKNOWLEDGE AND INCOMPATIBILISM

Compatibilist accounts and libertarian PAP are not the only two options in the free will debate; indeed, in recent decades there have been a flurry of new positive incompatibilist accounts (i.e. accounts that posit the requirement of additional freedom-conferring characteristics, rather than merely dwelling on the lack of alternate possibilities under determinism). These have arisen particularly in response to the intelligibility question (free will might be intuitively incompatible with determinism, but it does not seem to be compatible with indeterminism either):

> An event that is undetermined might occur or not occur, given the entire past. Thus, whether or not it actually occurs…would seem to be a matter of chance. But chance events are not under the control of anything, hence not under the control of agents. How then could they be free and responsible actions?[174]

Many of these accounts incorporate alternate possibilities somewhere along the line: a genuine choice only arises when there is more than one possible option, action, or conclusion to our deliberation. While determinism may be consistent – as the compatibilists argue – with our making choices and these choices being causally effective, the incompatibilists contend that this is not enough for those choices to be free. As they are incompatibilist, these accounts will preclude the existence of a determined predictor from the outset. However, their compatibility with weak predestination and metaphysical fatalism respectively is still up for grabs, as is the fate of foreknowledge.

Contemporary incompatibilist accounts are usually divided into three categories, each of which I will discuss briefly:

1. Non-causal/Simple Indeterminist Theories
2. Agent-causal theories (AC)
3. Causal Indeterminist/Event-Causal theories (EC)

3.5.1 NON-CAUSAL INCOMPATIBILISM

Non-causal or simple indeterminist theories hold that free choices or actions are uncaused events. The latter are explicable in terms of an agent's reasons or purposes, but either not strictly caused by them,

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[174] Kane, Introduction, p. 19. See also Dennett, Elbow Room; 1984; Ted Honderich, *A Theory of Determinism,* (Oxford; Clarendon Press, 1988).

or not deterministically caused by them.[175] Non-causal accounts are concerned with the nature of actions and intentions, generally holding that choices or decisions are basic mental actions with intrinsic intentionality that bring about complex actions (such as bodily movement). As Clarke and Capes note, the basic action is a "volition, which is said to be the agent's willing, trying, or endeavouring to move a certain part of her body in a certain way."[176] The intentionality of the action is important: for McCann, for instance, intrinsic to any free decision is the agent's intention to make that decision.[177] Ginet describes it as the 'actish phenomenal quality' of the basic act, which is the sense "as if I directly make it occur, as if I directly determine it."[178] Neither Ginet nor McCann posit further necessary or sufficient conditions for free will, all that is required is a lack of determinism, and for the former, that the agent is free of insurmountable compulsion.[179] Nonetheless, they advocate a non-causal account of freedom for the same two reasons motivating other incompatibilist views: recognition of the importance of alternate possibilities, and the agent being the *source* (in some appropriate way) of her action. Non-causal theorists think that neither ordinary nor agent-causation (§3.5.2) are the correct way to spell out the latter. For instance, Pink argues that we should think of freedom as a non-causal power like normative powers (such as promise forgiving), because when a free agent chooses between A and not-A, the choice can be neither random nor undetermined even though the alternatives are not ruled impossible, in contrast to ordinary causation:

> As we ordinary conceive it, the power of freedom (i.e. being in control) still allows it to be the agent who determines that he does A rather than not-A, so that which he finally does is not a matter of pure chance. But… [a]n ordinary cause determines its effects and excludes randomness only when its

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[175] Carl Ginet and Hugh McCann have set out the most fully developed non-causal theories of free will (in various places, including Ginet, On Action; "Reasons Explanations of Action: Causalist versus Noncausalist Accounts" in Kane (ed.), *The Oxford Handbook of Free Will,* (Oxford: Oxford University Press, 2002), pp. 386-405; "In Defense of a Non-Causal Account of Reasons Explanations", *Journal of Ethics,* Vol. 12 (2008), pp. 229-37; and McCann, *The Works of Agency: On Human Action, Will, and Freedom,* (Ithaca: Cornell University Press, 1998); "Making Decisions", *Philosophical Issues,* Vol. 22 (2012), pp. 246-63). Other recent accounts of this type have been advanced by Stewart Goetz ("A Noncausal Theory of Agency", *Philosophy and Phenomenological Research,* Vol. 49 (1988), pp. 303-16 and "Naturalism and Libertarian Agency" in William Lane Craig and J. P. Moreland (eds.), *Naturalism: A Critical Analysis,* (London: Routledge, 2000), pp. 156-86), E. J. Lowe (*Personal Agency: The Metaphysics of Mind and Action,* (Oxford: Oxford University Press, 2008), Chapters 6-9); Storrs McCall (*A Model of the Universe,* (Oxford: Clarendon Press, 1994), Chapter 9), and Thomas Pink (*Free Will: A Very Short Introduction,* (Oxford: Oxford University Press, 2004), Chapters 7-8).
[176] Randolph Clarke and Justin Capes, "Incompatibilist (Nondeterministic) Theories of Free Will", *The Stanford Encyclopedia of Philosophy* (Spring 2014 Edition), Edward N. Zalta (ed.), http://plato.stanford.edu/archives/spr2014/entries/incompatibilism-theories/, accessed 30 Jul. 2014.
[177] McCann, The Works of Agency, pp. 163-4.
[178] Ginet, On Action, p. 13.
[179] This minimalism is typical for non-causal accounts (see Clarke and Capes, Incompatibilist Theories).

presence leaves alternatives impossible – with no chance of occurring. But a free agent determines his actions and excludes randomness in a different way. Why then suppose that way is causal too?[180]

Ginet makes a stronger claim, arguing that not only is it possible to conceive of the will as uncaused, to think the opposite is "*necessarily* false… it is conceptually impossible that the will be caused."[181]

As would be expected from an incompatibilist account, non-causal free will is incompatible with determinism. Given the requirement for alternate possibilities and for the agent playing an efficacious role (albeit a non-causal one), it is also incompatible with metaphysical fatalism. However, it does not preclude foreknowledge entailing weak predestination – such as that of the time traveller or ordinary foreknower.

3.5.2 AGENT-CAUSAL INCOMPATIBILISM

Agent-causal (AC) theories postulate a special kind of causation by an agent or substance that is not reducible to causation by states or events. That is, the source or ultimate explanation for a free choice is the agent themselves.[182] AC theories are the most common example of a type of approach that posits an extra or special factor to account for agents acting *otherwise* in an intelligible, deliberate fashion despite identical causal histories and laws of nature. AC accounts are lauded by some as highly intuitive, because they endorse PAP and include the notion that one determines oneself which alternative one pursues: in AC accounts, the agent is quite literally the ultimate source or origin of her action. On the other hand, it is frequently objected that AC proponents perpetuate the view that indeterministic accounts are mysterious and fall outside a standard scientific picture.[183] Certainly it is hard to pin down in the science what this special kind of causation that only belongs to agents might be, and where we would find it. Additionally, it has been suggested that AC requires one be committed to an endurantist picture of

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[180] Thomas Pink, "Freedom and Action without Causation: Noncausal Theories of Freedom and Purposive Agency", in Robert Kane, *Oxford Handbook of Free Will* (Second Edition), (Oxford: Oxford University Press, 2007) pp. 364-5.
[181] Carl Ginet, "Can the will be caused?", *Philosophical Review,* Vol. 71 No. 1 (1962), p. 50.
[182] Proponents include Roderick Chisholm ("The Agent as Cause" in Myles Brand and Douglas Walton (eds.), *Action Theory,* (Dordrecht: Reidel, 1976), pp. 199-211); Randolph Clarke ("Toward a Credible Agent-Causal Account of Free Will", *Nous,* Vol. 27 (1993), pp. 191-203 and "Agent Causation and Event Causation in the Production of Free Action", *Philosophical Topics,* Vol. 24 No. 2 (1996), pp. 19-48), and Timothy O'Connor ("Agent Causation" in T. O'Connor (ed.), *Agents, Causes, and Events: Essays on Indeterminism and Free Will,* (New York: Oxford University Press, 1995), pp. 173-200; "Why Agent Causation?", *Philosophical Topics,* Vol. 24 No. 2 (1996), pp. 143-58, and "Agent-Causal Theories of Freedom" in R. Kane (ed.), *The Oxford Handbook of Free Will* (Second Edition), (Oxford: Oxford University Press, 2007), pp. 309-328; and elsewhere).
[183] See for instance Clarke and Capes, 'Incompatibilist Theories'.

persistence through time, causal antireductionism and the notion that agents are compositionally irreducible substances, each of which is controversial.[184]

Again, as an incompatibilist account of free will, if this account is correct and obtains then it precludes the existence of a determined predictor. It does not rule out weak predestination: the fact that it is now true that I will eat toast for breakfast tomorrow does not stop my being the agential cause of my eating toast (and it thereby being a free choice). Given the strongest appeal of AC is its attributing the source of free action to agents, it is unsurprising that it is incompatible with metaphysical fatalism. Metaphysically fated actions by their very nature conflict with efficacious agent causation, and with the alternate possibilities over which the agent exercises the latter.

3.5.3 EVENT-CAUSAL INCOMPATIBILISM

Causal indeterminist or event-causal (EC) theories differ from AC accounts as they do not require the termination of causal chains at the agent or source. EC theories maintain that agents cause their "free actions via their reasons for doing so, but indeterministically".[185] As Clarke notes,

> The simplest event-causal incompatibilist theory takes the requirements of a good compatibilist account and adds that certain agent-involving events that cause the action must non-deterministically cause it. When these conditions are satisfied, it is held, the agent exercises in performing her action a certain variety of action control (which is said to consist in the action's being caused, in an appropriate way, by those agent-involving events), the action is performed for a reason, and there remains, until she acts, a chance of the agent's not performing that action [or performing a different one].[186]

EC theories seek to remedy the apparent flaws in non-causal and agent-causal accounts. Common objections to non-causal theories focus on control and reason: an important part of an action being free, it seems, is that the agent has some control over it, and without a causal picture it is difficult to envisage quite how control might work. Similarly with reasons, it is difficult to flesh out the connection between

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[184] O'Connor, Agent-Causal Theories, pp. 312-313.

[185] O'Connor (ed.), *Agents, Causes, and Events: Essays on Indeterminism and Free Will,* (New York: Oxford University Press, 1995), p. 7. Proponents include Bob Doyle ("Jamesian free will: The two-stage model of William James", *William James Studies,* Vol. 5 No. 1 (2010), pp. 25-50); Laura Ekstrom ("Indeterminist free action" in L. Ekstrom (ed.) *Agency and responsibility: Essays on the metaphysics of freedom*, (Boulder, Colo.: Westview Press, 2001), pp. 138-57; "Free will, chance, and mystery", *Philosophical Studies,* Vol. 113 (2003), pp. 153-80; Free will is not a mystery); and Robert Kane (*Free will and values,* (Albany, N. Y.: State University of New York Press, 1985); "Rethinking Free Will: New Perspectives on an Ancient Problem" in R. Kane (ed.) *The Oxford Handbook of Free Will* (Second Edition)*,* (Oxford: Oxford University Press, 2007), pp. 381-406; "Some Neglected Pathways in the Free Will Labyrinth", in R. Kane (ed.), *The Oxford Handbook of Free Will,* (Oxford: Oxford University Press, 2002), pp. 406-440).

[186] Clarke, 2013 (SEP Indeterminism). Kane notes that his account does exactly that: p. 426f

your reasons to φ and your φ-ing if one did not cause the other. EC accounts allow for reasons to cause choices, just not deterministically. But because they do not posit a special kind of causation limited to agents, they are thought less mysterious. Clarke divides them into two types: 'centred' EC theories, in which there is indeterminism at the moment of choice, and 'deliberative' theories which locate the indeterminism earlier in the process of deliberation.[187]

Like the other indeterministic accounts considered, EC is compatible with weak predestination, but not with determinism or metaphysical fatalism – the former due to the inherent indeterminism required, and the latter due to the counterfactual possibilities: had I so chosen, given an identical causal history up to the choice, I could have had toast or cornflakes – that is, either eventuality could arise from identical circumstances. This is the opposite of fatalism, under which I would make the same choice regardless of my reasons, desires and so forth.

There is however one popular EC account that is worth considering in more detail, as unlike EC accounts generally, it seems to allow for free choices under local (although not global) fatalism.

3.5.3.1 KANE AND ULTIMATE RESPONSIBILITY

One of the most interesting and oft-discussed EC accounts is Kane's, who thinks that PAP is necessary for free will but not sufficient, one needs to be ultimately responsible for the action in question, and certain plurality conditions must be met. Consider the following scenario:

> An assassin is contracted to kill a certain person, but is not told who it is, only that the target will be at a certain place at a certain time. Once she arrives, the assassin realises that the target is an exceptionally good person (saint-like, even) and feels morally obliged to abstain from fulfilling the contract. On the other hand, she needs the money and values her reputation as an assassin.[188]

For Kane, the first requirement for free will is ultimately responsibility (UR), which he defines as follows:

> To be ultimately responsible for an action, an agent must be responsible for anything that is a sufficient reason (condition, cause, or motive) for the occurrence of the action. If, for example, a choice issues from, and can be sufficiently explained by, an agent's character and motives (together with background conditions), then to be *ultimately* responsible for the choice, an agent must be at

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[187] Clarke, Libertarian Accounts of Free Will. Kane's account is deemed 'centred' (see §3.5.3.1), and Ekstrom's and Doyle's 'deliberative' (see footnote 185). Others have proposed EC accounts without fully endorsing them, such as Alfred Mele in *Autonomous agents,* (New York: Oxford University Press, 1995).

[188] This is not one of Kane's scenarios, but it is analogous to the ones he uses. It was inspired by Etgar Keret's short story "Good Intentions" from *The Bus Driver Who Wanted to be God & Other Stories,* (Sydney: Pan Macmillan, 2003), pp. 85-92.

least in part responsible, by virtue of choices or actions voluntarily performed in the past, for having the character and motives she has now.[189]

For the assassin to be free in her choice whether or not to shoot, she must be ultimately responsible for it. This entails that she settle her own will on the matter by making reasons for preferring one option over the other at the moment of choice (that is, by choosing). This requires certain plurality conditions: the choice must be plural rational (she has reasons to shoot and reasons to not shoot), plural intentional (roughly, she knows what she is doing either way, neither would be an accident), and "more than one way voluntary" (she wishes to shoot and also not to shoot). Combined, this gives her alternate possibilities (AP), because "a fortiori, if you are able to do otherwise voluntarily, intentionally, or rationally, you are able to do otherwise."[190] Kane's account of free will can thus be depicted as a sequence of connected notions where each implies the next and which, in sum, account for free will (and free action):

(1) Acting of one's own free will → (2) UR → (3) Will-settling → (4) Plurality conditions → (5) AP

Note that most incompatibilist accounts go from (1) to (5) directly, while Kane argues more is needed.[191]

However, being ultimately responsible does not require the agent to have alternate possibilities for every free act (which allows the agent in Frankfurt cases to still be considered free). What is required instead is that there are some choices or actions in which we do have alternate possibilities that lead to the formation of our character, and thus our beliefs, desires and intentions. Kane calls these 'self-forming actions' (SFAs).[192] So although alternate possibilities are a crucial aspect of Kane's account, he grounds UR not strictly in AP, but in the sources of what we do – our causes and motives – rather than in our ability to do otherwise. Kane argues that the core of the free will problem lies in these, the sources or grounds of our characters, desires, beliefs and intentions:

Where did our characters, motives and purposes come from? Who produced them, and who is responsible for them? Was it we ourselves who are responsible for forming them, or someone or

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[189] Kane, Some neglected pathways, p. 407.
[190] *Ibid.,* p. 413.
[191] *Ibid.,* p. 406.
[192] So, for instance, in the case mentioned in §3.4, assume that what (counterfactual interferer) Black wants Jones to do is murder Sally. Under Kane's view, Jones can freely choose to kill Sally even though he couldn't do otherwise (in the libertarian sense), so long as he is ultimately responsible for his murderous character, "by virtue of earlier struggles and self-forming choices (SFAs) that brought him to this point where he could do no other" (*Ibid.,* p. 408).

something else – God, fate, heredity and environment, nature or upbringing, society or culture, behavioural engineers or hidden controllers?[193]

Only if we can answer 'from we ourselves', according to Kane, are we free.

So what about foreknowledge?

Like EC accounts generally, Kane's model is compatible with weak predestination but incompatible with determinism. Indeed, there is indeterminism built into Kane's account: it comes into play when the agent is torn between her competing motivations and inclinations, such as when the assassin is torn between shooting and not shooting – her reputation and bank balance on the one hand and her moral compass on the other. Kane argues that under conditions of uncertainty, the outcome is not determined but can be willed (rationally, voluntarily and intentionally) either way in what he calls will-settling choice-making.[194] Consider the assassin: she has to try to overcome the financial temptation by making an effort of will. If she succeeds, it is the result of this effort, but if she fails, says Kane,

> It will be because she did not *allow* her effort to succeed. And this is due to the fact that, while she wanted to overcome temptation, she also wanted to fail, for quite different and incommensurable reasons. When agents… decide in such circumstances, and the indeterminate efforts they are making become determinate choices, they *make* one set of competing reasons or motives prevail over the others then and there *by deciding.*[195]

It is also incompatible with global metaphysical fatalism, since alternate possibilities are required in at least the will-settling instances (and as shown in §3.3, PAP is precluded by fatalism). Interestingly, Kane's account allows for free choices under local (although not global) metaphysical fatalism and determinism. For instance, suppose that God only foresees events that occur on Tuesdays, and as a result of his infallibility, all events on Tuesdays are metaphysically fated. So long as an agent engages in self-forming actions on other days of the week, and has the alternate possibilities to do so, some Tuesday choices will still be free as they will be in line with the self-formed character of the agent. This is surprising, as it is the most complex, developed incompatibilist account considered, and yet is the only one to leave room for events that are fated but free.

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[193] *Ibid.,* pp. 408-9.
[194] Kane posits a dubious scientific explanation for this: "the uncertainty and inner tension we feel at such soul-searching moments of self-formation would thereby be reflected in the indeterminacy of our neural processes themselves" (Kane, The significance of free will, p. 130f.).
[195] Kane, The significance of free will, pp. 126-7.

3.6 CONCLUSION

We are now in a much better position to refute the folk intuition: not only does foreknowledge fail to inevitably entail problematic predestination; it need not preclude free will. Having surveyed the most popular accounts in the debate and thereby identified a broad range of freedom-conferring characteristics, the results are as follows (Table 3).

	Weak Predestination	Causal Determinism	Metaphysical Fatalism
ALTERNATE POSSIBILITIES			
Libertarian PAP	✓	X	X
New Dispositionalists	✓	✓	X
ABILITY + OPPORTUNITY			
Classical Compatibilism	✓	✓	X
MESH			
Internal Mental States	✓	✓	✓
Wolf's Reason View	✓	✓	X
REASON-RESPONSIVENESS			
Fischer & Ravizza	✓	✓	X
PAP + UNCAUSED ACTION			
Non-Causal Accounts	✓	X	X
PAP + AGENT CAUSATION			
Agent-Causal Accounts	✓	X	X
PAP + NON-DETERMINISTIC CAUSATION			
Event-Causal Accounts	✓	X	X
Kane's UR Account	✓	X	X[196]

Table 3. Free Will and Predestination Summary

All of the accounts considered are compatible with weak predestination – and thus the foreknowledge of the ordinary agent and time traveller – and many are compatible with a determined predictor. Mesh compatibilist accounts (with the exception of Wolf's Reason Account) are even compatible with

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[196] As noted in §3.5.3.1, Kane's account allows for some compatibility with local determinism or local fatalism (but not if everything is determined/fated).

metaphysical fatalism, and thus God's foreknowledge (should you be swayed by the arguments that the latter entails the former). We now have answers to two of the major guiding questions for this thesis:

1. Does the possibility of foreknowledge entail problematic predestination?
2. Does predestination preclude free will?

The answer to both is 'no' (although the latter is qualified: some accounts of free will preclude some types of foreknowledge, as shown above). The folk intuition, though pervasive, is wrong: not all foreknowledge entails a problematically fixed future, and our best accounts of free will are all compatible with at least some of the former.

However, before putting the final nail in the coffin of the folk intuition, there is one more piece of the puzzle to consider. So far I have been concerned only with third-person foreknowledge – that is, where the object of the foreknowledge has been unaware of the existence of the foreknower. In Chapter 4 we turn to first-person knowledge and consider whether it entails problematic predestination, precludes free will, or results in other consequences sufficiently problematic or counter-intuitive as to vindicate the spirit of the folk intuition and thereby give us reason to reject the possibility of foreknowledge.

CHAPTER FOUR: KNOW THYSELF

"Knowing too much of your future is never a good thing" – Rick Riordan[197]

4.1 INTRODUCTION

Chapters 2 and 3 were each devoted to answering a key question, respectively:

Does the possibility of foreknowledge entail predestination?

And,

Does predestination preclude free will?

In answering these questions, I considered different foreknowers: an ordinary agent, a future-visiting time traveller, a determined predictor, and an omniscient God. I spelled out three different senses of 'predestination' and discussed the relationship between these and the knowledge of the different foreknowers, seeking to diagnose and debunk the folk intuition linking the possibility of foreknowledge with a loss of free will. The emphasis in these prior chapters was on the knower and their mode of knowledge: where they were located in space-time, how they came to acquire their knowledge *et cetera*. I did not dwell on the content of their knowledge in any great detail, nor consider reflexivity. Indeed, each foreknowledge case was in the third-person: there was a degree of separation between the foreknower's knowing and the subject or objects of their knowledge.[198] Before moving on to considering the consequences of foreknowledge beyond predestination and free will – as will be the focus of Chapter 5 – here I will zero in on the under-discussed issue of first-person foreknowledge, rectifying its deliberate omission in the earlier chapters. Here I am concerned with a seemingly small part of the puzzle: the distinction between first-person and third-person foreknowledge, or more specifically, between:

1. *S* having foreknowledge regarding your actions
2. You knowing *S* has foreknowledge
1. You knowing the content of *S's* foreknowledge.

The purpose of the chapter is three-fold:

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[197] Rick Riordan, *The Lightning Thief,* (London: Puffin, 2008), p. 371.
[198] With the exception of the ordinary foreknowledge cases.

a.   To articulate and make clear the aforementioned distinction (§4.2);

b.   To explore the consequences of first-person foreknowledge in terms of predestination (§4.3.1), free will (§4.3.2), and the generation of causal loops (§4.3.3);

And,

c.   To sketch and discuss two key dilemmas which are arguably unique to first-person foreknowledge:

   i.   The problem of self-fulfilling prophecy (§4.4.1)

   ii.   The intention problem (trying when you know you will fail) (§4.4.2).

In particular, I shall show that the same conclusions regarding predestination reached in Chapter 2 hold in first-person cases: first-person foreknowledge does not, solely in virtue of its reflexivity, entail metaphysical fatalism. Nonetheless, first-person foreknowledge may cause problems for some accounts of free will, for psychological (internal to the agent) if not external metaphysical reasons (conflation of the two may further explain the intransigence of the folk intuition).

By chapter's end, it should be clear that the content of the knowledge, especially regarding to whom it pertains, matters; and matters to a greater degree than has previously been spelled out. While Chapter 2 sought to save the possibility of foreknowledge from the wholesale rejection threatened by the folk intuition, the following discussion will show that the consequences for first-person foreknowledge have the potential to be more problematic than the relatively benign third-person variety: in other words, somebody having foreknowledge of your actions or decisions is less problematic if you remain unaware of it, while learning the content of such knowledge can hamper your ability to choose and act freely, deliberate and form intentions. The latter may also engender other puzzling side-effects, such as the formation of causal loops or the requirement for long strings of coincidences, and these are discussed in the latter sections and in Chapter 5. Nonetheless, as shall become clear, we should not reject the possibility of first-person foreknowledge, for its consequences are puzzling rather than paradoxical.

To begin, it is worth precisely articulating the three-fold distinction which underpins the chapter, and it is to this I now turn.

4.2 THE THREE-FOLD DISTINCTION

Recall the distinction given above:

1. *S* having foreknowledge regarding your actions
2. You knowing *S* has foreknowledge
3. You knowing the content of *S's* foreknowledge.[199]

In order to illustrate the differences between these cases, let us consider two scenarios. The first draws a distinction between the first case and the latter two, while the second highlights a finer-grained distinction between cases (2) and (3). Note that these cases are not mutually exclusive: (3) entails (2) which entails (1). Nonetheless, given that the consequences of each differ, I will speak about them as isolated cases. Finally, there may be a finer-grained distinction to be drawn in (3), as will be borne out in §4.4.1.

4.2.1 SMITH & THE DATED OBJECTS

The first scenario is adopted from Nicholas J. J. Smith's "Bananas Enough for Time Travel?".[200] Although it was used in its original context quite differently, I employ it here because it serves as a useful analogy for the tripartite distinction, and helps narrow in on the crucial issues spelled out in more detail in the scenarios that follow.

Smith asks us to suppose that "every object has written upon it the date on which it will cease to exist."[201] The dates, he notes, do not cause the destruction of the object, they merely report the date on which it will – as it happens – cease to exist. To use the predestination terminology introduced in Chapter 2, the dates entail that the destruction is weakly predestined but not metaphysically fated or causally determined. The dates report, as it were, the destruction; they do not bring it about. Smith writes,

> [P]erhaps a time traveller travelled into the future, observed the demise of objects, and then travelled back and wrote the dates… The fact that my pen has '2015' on it does not prevent me destroying it,

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[199] NB. These are formulated in the second-person, grammatically, but (2) and (3) are still cases of first-person foreknowledge. The term 'first-person' refers only to the object of the foreknowledge being aware of that knowledge, i.e. having knowledge pertaining to their future. So, Oedipus, upon learning of the prophecy (see below), has first-person foreknowledge, although when referring to 'Oedipus' we speak of him in the third-person.

[200] Nicholas J. J. Smith, "Bananas Enough for Time Travel?", *British Journal for the Philosophy of Science,* Vol. 48 (1997), pp. 376-378.

[201] *Ibid.,* p. 376.

does not make its destruction prior to 2015 impossible. My destruction attempts are not required to fail in order that the date remains correct. Rather, the date is only there because the attempts fail.[202]

There are several interesting things going on here, but it strikes me that there is a subtle but significant difference depending on a seemingly minor variable in the story; that is, whether the date is:

- Written in invisible ink
- Invisible, but known to be there (or conversely, visible, but not understood)
- Visible, and its implications understood

What I propose is that whether you know what the date is, and what it means, will not only affect your behaviour but potentially impede your free will and ability to make effective choices. The options above can be seen as analogous to each part of the three-fold distinction, but it may be possible to say something stronger: arguably the date could be interpreted as not only factual information about the pen, but also as foreknowledge concerning the owner's actions (as it reflects, for example, whether one's destruction attempts will succeed or fail). After all, if the date on the pen is 2015, then either you do not try to destroy the pen before this time, or if you do, you fail.[203] The following sub-sections discuss each of the above options in turn.

4.2.1.1 INVISIBLE INK (*S* HAS FOREKNOWLEDGE)

Smith's objects having dates inscribed in invisible ink is arguably analogous to a case of third-person foreknowledge: for instance, a time traveller from the other side of the world happening to observe you from a distance getting married ten years from now, only to return to the present and never interact with you again. A date written in invisible ink will be unobserved by the object's owner and those who come into contact with it, much like the objects of third-person foreknowledge are unaware of the existence of knowledge pertaining to them and their futures. In both cases the agent in question is ignorant of the outcome of future events, be they weddings or pen destruction attempts, and it is at least conceivable that neither the knowledge nor the date will have significant bearing on their actions.

(Certainly there are potentially interesting implications of the time traveller's journey and her acquiring said foreknowledge, just as there are potentially interesting implications of the existence of someone who can go around writing expiry dates on objects. However, such implications are the focus of other

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[202] *Ibid.,* p. 377.
[203] Otherwise a different date would be written on the pen. Why you must (and do) fail are considered in greater depth in §4.2.2 and (particularly) Chapter 5.

sections (such as Chapter 5), and here the example serves only as a baseline against which to compare the other two cases.)

4.2.1.2 INVISIBLE, BUT KNOWN (YOU KNOWING *S* HAS FOREKNOWLEDGE)

In this case you are aware that God, or the Time Traveller, or some other entity has written the expiry date on your pen, but you are not aware of the precise date; that is, you are not aware of what has been written. This is a more nebulous case than the other two: while the predestination it entails will depend on the 'knower distinction'[204] to the same extent as the other cases, whether it impedes your free will depends additionally on your reaction and behaviour.

This will become clearer in §4.2.2, however, it should be apparent that your knowledge might plausibly have an impact: knowing might result in you trying to find out the date, perhaps by making a series of destruction attempts, or making you more careful than you would usually be, in fear of what the date might be. Conversely, if the date is visible but not understood, one might alter one's usual behaviour in trying to determine what the date signifies (imagine waking up one morning to find every object suddenly has a date on it: might you not try to work out why?). Either way, this case is notably different from the third-person case, as the knowledge, or lack of knowledge, may directly impact the causal chain of events. Unless we believe that writing the date caused some fundamental change to the pen, or otherwise influenced its future causal history (as opposed to merely reporting it), then the latter does not apply equally to the third-person case.[205]

4.2.1.3 VISIBLE AND IMPLICATIONS UNDERSTOOD (YOU KNOWING THE CONTENT OF *S*'S FOREKNOWLEDGE)

The date being visible, and its significance understood, may result in drastically different pen-related actions on my part than if I had no awareness or knowledge of the expiry dates. For example, usually I employ a pen for writing, tapping, clicking, portable drumming; I am not commonly inspired to build a pen grinder, drop my possessions in vats of acid, etc. If, however, I took the date to be a challenge – which is not inconceivable, considering the vast amount of literature concerning hypothetical people going back in time to kill their grandfathers or earlier selves (i.e. changing things that are seemingly

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[204] Introduced in chapter 2, and summarised briefly in §4.3.1.
[205] If you think that the date-writing does have a significant causal impact, this becomes a predestination loop (§4.3.3). Even so, your knowledge may have a further, additional impact (thus distinguishing this case from purely 3rd person cases).

fixed)[206] – then the knowledge will have contributed directly to the causal chain of events leading ultimately to the pen's destruction, in the year noted on the object itself. Conversely, imagine that an object precious to you is dated to expire tomorrow: would you not act more carefully, trying to prevent its destruction, than you might usually?[207] The point, then, is that knowing conceivably influences the string of events leading up to the pen's destruction. Provided we give the date the same status as we do knowledge, that is, if we think it reflects something true, then this impact on the causal chain must have been taken into consideration when the date was originally written.[208] Indeed, one might think, the pen may have had the benefit of increased longevity if only the time traveller had been in possession of some invisible ink.

This dates-on-objects scenario was intended to motivate our thinking of third person and first person foreknowledge cases as importantly different, where the latter are more likely to have feedback effects and influence the causal chain of events leading to the foreknowledge being true. The second scenario, which I turn to now, draws a further distinction between the latter two cases: where you know there is foreknowledge but not its content, and where you know both.

4.2.2 NEWCOMB'S PROBLEM

Newcomb's Problem, which was mentioned in Chapter 2 as the paradigm case of a predictor, can also be used to demonstrate the distinction in question. In its standard formulation, the problem goes as follows:

> You are standing in front of two boxes: Box A, which is transparent and contains $1000; and Box B, which is opaque and contains either $1,000,000 or nothing. A predictor has predicted whether you will take both boxes, or just Box B. If she predicts the former, than she has left Box B empty, but if the latter, she has put $1,000,000 in the box.[209]

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[206] Indeed, this is the focus of Chapter 5. See in particular Sider's Institute for Auto-Infanticidal Assassins (T. Sider, "Time Travel, Coincidences and Counterfactuals", *Philosophical Studies,* Vol. 110 No. 2 (2002), p. 117).

[207] 'But', you might ask, 'What if I have a destruction date?' You would be seemingly immortal up until that date. You shall have your answer – but not until Chapter 5 (§5.6.2.2).

[208] This may put the reader in mind of Scriven's problem, which I do not deal with (given my focus is on logical possibility and the consequences of foreknowledge, rather than empirical limitations). Nonetheless, it's interesting. Cf. Lawrence D. Robert, "Scriven and MacKay on Unpredictability and Free Choice", *Mind,* Vol. 84 No. 334 (1975), pp. 284-288; David Lewis and Jane Shelby Richardson, "Scriven on Human Unpredictability", *Philosophical Studies,* Vol. 17 No. 5 (1996), pp. 69-74; Peter Cave, *Can a Robot be Human?,* (Oxford: Oneworld, 2007), p. 55f.

[209] See Robert Nozick, "Newcomb's Problem and Two principles of Choice," in Nicholas Rescher (ed.), *Essays in Honor of Carl G. Hempel,* (Dordrecht: D. Reidel, 1970) pp. 114-146.

Under the classic Newcomb problem, there are four possible eventualities (Table 4):

	Prediction: Both	**Prediction: One**
Take Box A & B	$1000	$1,001,000
Take just Box B	$0	$1,000,000

Table 4. The Newcomb Problem: Four Outcomes

Originally this problem was formulated to demonstrate a tension in decision theory, and indeed, at first glance there seem to be two different options for what constitutes the rational choice. The first relies on the reliability of the predictor: given that so far she has always been accurate, it is better to pick just Box B, as she will have foreseen your choice and put $1,000,000 in the box. Alternatively, it is argued, the prediction has already been made, and thus the contents of the box are *already there,* regardless of your decision. Thus you should take both boxes to maximise your potential winnings.

However, as in Chapter 2, here I am stipulating not merely a highly reliable predictor, but an infallible one. Still, presuming that either of the following is true, then each of the four options seems open (from your perspective), and this is a third-person foreknowledge, or 'Type 1' case:

1. You are not aware that the predictor is part of the game (perhaps you are just told to pick one of two options in a game-show like environment), or
2. You do not know that the predictor is infallible (in which case you do not know that the predictor has *foreknowledge,* but simply *forebelief)*.

If the predictor is, in fact, infallible, the possible outcomes drop from four to two, as the predictor cannot be wrong (Table 5):

	Prediction: Both	**Prediction: One**
Take Box A & B	$1000	Impossible
Take just Box B	Impossible	$1,000,000

Table 5. The Newcomb Problem: Two Outcomes

If you know the predictor is infallible, or have sufficient justification to believe this, then there are still two possible options, but taking just Box B is the most desirable.[210] This is a Type 2 scenario: you know that the predictor has foreknowledge, but you do not know its content. As noted by Ahern,

> There is no point in considering that the prediction and choice might be different. Given [the predictor's] ability, the only possibilities are a prediction of box *B* and a subsequent choice of box *B,* or a prediction of boxes *A* and *B* and a subsequent choice of boxes *A* and *B…* The choice of boxes *A* and *B* together is unwise because one who favours that choice must ignore the infallible correlation between predictions and choices.[211]

Bar-Hillel and Margalit argue similarly that one should choose Box B:

> It is not justified by arguing that it *makes* the million dollars more likely to be in that box, although that is the way it appears to be, but because it is inductively known to correlate remarkably with the existence of this sum in the box, and though we do not assume a causal relationship, there is no better alternative strategy than to behave as if the relationship was, in fact, causal.[212]

This is a clear case where knowing that someone has foreknowledge, even without knowing the content of that foreknowledge, clearly has the potential to impact the causal chain of events. If you are aware that the predictor *knows* what you will pick, in advance, then you should pick Box B. Without such knowledge there is genuine tension between the two decision theories the problem was originally posed to deal with, but with such knowledge there is a clear path to profit.

If, however, you know not only that the predictor is infallible, but also what the content of the prediction is, something puzzling happens. Suppose you know the predictor has predicted that you will take only Box B, and has thus put $1,000,000 in that box. Given you know this, you might decide to choose to take both boxes, and thereby gain an additional $1,000 (giving you a total of $1,001,000). Something must stop you from doing so, or you must change your mind (perhaps you do not wish to be greedy), in order for the prediction to still be true, and you to have knowledge of it. Of course, this raises

this question: what would stop you taking both? This is the crucial difference between the Type 2 and 3 cases, the "You know *S* has foreknowledge*"* and "You know the content of S's foreknowledge" scenarios respectively: although both might result in impacts to the future chain of events (unlike the third person case), the latter additionally seems to allow for conscious and targeted attempts to prove the foreknowledge wrong (also known as bilking attempts – discussed at length in Chapter 5, and also in §4.4.2).[213]

4.3 THE CONSEQUENCES

There are at least three interesting consequences tied to the three-fold distinction, manifesting in a difference between cases either in character or degree:

(1) An impediment to free will

(2) The possibility of causal loops

(3) The occurrences of chains of coincidence as a result of bilking attempts.

I will cover (1) and (2) in turn, before turning in §4.4 to two additional dilemmas potentially unique to (or, at minimum, more common in) first-person foreknowledge: the self-fulfilling prophecy and the intention problem. (3) will be covered in depth in Chapter 5. However, before discussing these, it is important to consider the relationship between the folk intuition debunked in Chapter 2 and cases of first-person foreknowledge: firstly, to show that the conclusions arrived at in the former are (mostly) unaffected by the reflexivity of the knowledge, and secondly, to add a third potential symptom to the diagnosis of what might be going wrong in the folk intuition, in addition to the previously-identified conflation of a) types of foreknowers and b) types of predestination.

4.3.1 FIRST-PERSON FOREKNOWLEDGE & PREDESTINATION

In Chapter 2 I concluded that third-person foreknowledge of the ordinary agent and time traveller entailed only weak predestination, while the determined predictor additionally required determinism. Only the foreknowledge of God (at worst) was shown to lead to metaphysical fatalism.

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[213] One could respond that bilking attempts are still possible in the type-2 cases, perhaps where an agent attempts to act unpredictably (that is, in such a way opposed to how she assumes the predictor will predict). I concede the point, but bilking attempts seem more likely in the type 3 cases (in the context of the Newcomb case in particular, there is less motivation to bilk in the type-2 case). More importantly, failure to bilk in the type-3 cases seem to require further explanation: in the type-2 case I may just be wrong in my guess as to what the predictor predicted (or what the date on my pen means), but in the type-3 case, my inability to do something that I am ordinarily able to do seems striking (and perhaps freedom-impairing). This is discussed at length in Chapter 5.

The same conclusions hold in the first-person cases. What changes when the foreknowledge becomes reflexive are how people react, and sometimes the chain of events leading up to the knowledge in question. The fixedness of a foreknown future, however, does not change according to the object of the knowledge. For instance, in the time travel case I argued that the time traveller knowing I will wear a red dress next Friday does not fix it so that I wear the dress, determine that I wear the dress, or prevent me wearing blue instead – it just reports, if really knowledge, that I happened to wear red. The same is true if I myself am the time traveller, or have been informed of my attire choice by the time traveller. If I travel forward in time and happen to see myself at a soiree on Friday wearing a red dress and then return to the present, my wearing red is no more necessary than it would have been if the time traveller had been a third party. That is not to say that my witnessing the event is consequence-free. Indeed, any of the following may occur:

- Not liking red, I may try to ensure that I could not possibly end up in red next Friday – packing only black clothes in my suitcase, double-checking that the event is not red-themed, being extra careful with my washing, and so forth. If this is the case then either I did not wear red, and was mistaken; or I do wear red, for some as yet unforeseen reason (the banana peels of Chapter 5, perhaps; see also §4.3.3).

- I might struggle to deliberate freely regarding what to actually wear, feeling as if my choice is compromised by my knowledge (see §4.3.2), or find my forming the intention to wear blue frustrated by my contrary knowledge (§4.4.2).

- I may note how stunning I look in red, and thereby decide to shop for the red dress, a choice I never would have made otherwise, red not being my typical colour. If I stop to think about this, I might be puzzled about where the idea to wear red originally came from (§4.4.1).

All of these are a bit strange, but none of them are logically impossible, and more importantly, none entail either that my wearing red is causally determined, or that my choice of dress is metaphysically fated. If the world in which these events take place is not determined, then in a close possible world with an identical past history and laws of nature, I may wear blue instead (that I could ever wear blue instead suggests it is not fated).

The same can be said for the determined predictor and God. If God's knowledge leads to metaphysical fatalism, then it cannot get any more fated because I know about it. Similarly, if there exists a determined predictor, then the world (and my future) is determined whether I know about it or not. So

the folk intuition is still incorrect in assuming that foreknowledge inevitably entails problematic predestination, even when the knowledge under consideration is first-person.

4.3.2 FREE WILL

Chapter 3 dealt with the overarching problem of foreknowledge and predestination and the challenge it poses to various accounts of free will. The distinction driving this chapter may seem to present an even clearer challenge to the most popular conditions thought to be crucial for the latter. So, for example, it seems in the last Newcomb case – in which you know the content of the infallible predictor's prediction – that you cannot do otherwise (at least in the robust sense): there is only one possible eventuality; otherwise the predictor is not infallible.[214] (Of course, in third-person cases you similarly have all other empirical and metaphysical possibilities ruled out, the difference is that in first-person cases you also rule out other epistemic possibilities). There are also doubts about whether you could adequately have control over, responsibility for, or be the origin of your choice of boxes; as no matter how many times you tried to choose both boxes, if the predictor had predicted otherwise you could not have succeeded. This is different to a third-person case: for example, suppose a time traveller you never meet happened to see you get married 10 years in the future, and then she returned to the present. She has foreknowledge of what will happen, but it is not as if this foreknowledge causes you to get married, it just reports the fact that you happen to. She has access to the future, but that does not rule out the possibility that you freely choose to arrive at that eventuality. In the first-person cases, however, if your desires and decisions are in conflict with the knowledge you are privy to, then it is unclear how you can effectively and freely choose the outcome which suits you best. At minimum, it is not clear that someone with foreknowledge of their own actions will be able to choose otherwise, and effectively act in the manner we think we can – that is, this kind of foreknowledge seems to hinder, if not entirely preclude, one's having freedom.

In actuality, the cases are not so clear-cut. Some accounts of free will are equally compatible with third- and first-person foreknowledge, whereas others treat them differently. To recap, here is the compatibility of the free will accounts discussed in Chapter 3 with different types of predestination, assuming third-person foreknowledge:

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[214] You might respond, 'but you can, it's just that you don't'.

	Weak Predestination	Causal Determinism	Metaphysical Fatalism
ALTERNATE POSSIBILITIES			
Libertarian PAP	✓	X	X
New Dispositionalists	✓	✓	X
ABILITY + OPPORTUNITY			
Classical Compatibilism	✓	✓	X
MESH			
Internal Mental States	✓	✓	✓
Wolf's Reason View	✓	✓	X
REASON-RESPONSIVENESS			
Fischer & Ravizza	✓	✓	X
PAP + UNCAUSED ACTION			
Non-Causal Accounts	✓	X	X
PAP + AGENT CAUSATION			
Agent-Causal Accounts	✓	X	X
PAP + NON-DETERMINISTIC CAUSATION			
Event-Causal Accounts	✓	X	X
Kane's UR Account	✓	X	X[215]

Table 6. Free Will and Predestination Summary (Recap)

As seen in Table 6, all mainstream free will accounts are compatible with weak predestination. There is a divide between accounts in terms of compatibility with determinism (thus the 'compatibilist'/'incompatibilist' dichotomy in the literature), and almost all accounts are incompatible with metaphysical fatalism, the exceptions being some compatibilist mesh views, and Kane's incompatibilist event-causal account (in cases of local fatalism). But are they equally compatible in first-person cases? I shall consider each in turn, concentrating specifically on the freedom of actions foreknown in the first-person (although the discussion could equally be framed in terms of the freedom of agents in such scenarios).

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[215] As noted in §3.5.3.1, Kane's account allows for some compatibility with local determinism or local fatalism (but not if everything is determined/fated).

4.3.2.1 ALTERNATE POSSIBILITIES

Let us begin with libertarian PAP accounts of freedom. These require, minimally, that I have alternate possibilities open to me when I make a free choice. Suppose the choice is between wearing red and wearing blue. I argued that if a third-party time traveller knew my choice of attire in advance, this merely reports – rather than necessitating – the outcome of my choice. It weakly predestines it, but this does not preclude my having alternate possibilities: I could, in the present, choose blue over red, and the content of the time traveller's knowledge in the future would correspond accordingly (that is not to say that I can change what I wear, as discussed in Chapter 5, but only that it is in a sense up to me to choose which of a variety of possible future becomes the actual one).[216]

If I know that my choice of outfit is foreknown by a time traveller, but do not know the content of the prediction – the second option in the tripartite distinction – then I am likewise free (if God or the predictor knows it, then I do not have alternate possibilities, but that would be true whether or not I knew of their existence). I know that if I choose red, the time traveller will have seen me wear red, and likewise, if I wear blue, she will have seen me wear blue.

If however I know the content of the choice, that looks like it might make a difference. Not metaphysically, of course: to think that I no longer have alternate possibilities in the present because I have seen myself wear red in the future is to privilege my own knowledge over anyone else's. Why should it matter to the fixedness of the future if I am the one who witnesses the party rather than someone else? What changes are my epistemic possibilities: in knowing that I wear red, it is no longer epistemically possible that I wear blue. Further, if I wear red *because* of what I have seen, then we might think that my choice is no longer attributable to me in the right kind of way. Nonetheless, neither of these clash with PAP (to think that they do is to make the same mistake the fatalist does).[217] In the third person case, I remarked that the third party time traveller's foreknowledge does not impede my freedom, because what she witnesses could be the result of a free choice. Further, it does not preclude my having options, as there is nothing necessary about the time traveller's knowledge being *knowledge,* rather than merely belief; or its content being my wearing red, rather than my wearing blue. The same applies in the first-person case, albeit harder to get one's head around. Depending on how one fleshes out the ability to choose between alternate possibilities, however, there may be a problem for the compatibility of first-person foreknowledge and freedom: the intention problem, discussed in §4.4.2.

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[216] Lewis, Paradoxes, p. 150.
[217] See §2.2.2 and §3.3.1.

Nonetheless, at a purely metaphysical level – at which at least some libertarian accounts operate – first-person foreknowledge is compatible with having alternate possibilities.

4.3.2.2 COMPATIBLIST ACCOUNTS

In Chapter 3 I considered three main types of compatibilism: classical, mesh and reason-responsive. In very rough and ready terms, under classical compatibilism, I freely choose the red dress if I had the ability and opportunity to do so, and had I desired or intended differently (even if those desires and intentions were determined), I could have chosen the blue instead. Under mesh compatibilism my choice is free if my mental states cohere in the right way: my first- and second- order desires, my desires and intentions, or my values and motives. Finally, under reason-responsive accounts my choice is free if it is appropriately responsive to reason – that is, I freely choose the red dress if, had my reasons been different, I might have chosen the blue.[218]

If I know that my choice of dress is foreknown by the time traveller (or the determined predictor), then whether or not I know the content of that knowledge, I will be free according to a classical compatibilist. In either case it will be true that if the past had been different – including my beliefs, desires and attire-based dispositions – my choice may have been different, and this is enough (combined with a lack of external manipulation and limitations on dress availability) to allow me freedom. The same is true of reason-responsive accounts like Fischer's. If I do not know the content of the foreknowledge, but only that a prediction has been made, then I am just as free as I was in the PAP case. If I know the content of the knowledge, that changes the scenario, but not my freedom necessarily. For instance, if I am the time traveller, and see myself in the future wearing red, then the fact that I have seen myself wear red might become one of the reasons I dress that way (if my choices are reason-responsive). That is fine, so long as we think that had I seen blue I would have responded accordingly.

The mesh views potentially come out differently. While you get the same result in the 'knowing but not the content' case, once you know the content of the foreknowledge, it is possible that your ability to get a mesh of appropriate mental states might be hindered – that is, the feedback of the knowledge (knowing the outcome in advance) might affect your ability to deliberate. If, for instance, we posited an account requiring a mesh between intention and desires, then the feedback effect of the knowledge on intention formation might preclude our choice being free (see §4.4.2 on why knowledge might impede contrary intention formation). More work would need to be done fleshing out how the mental states

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[218] These are described in more detail in §§3.4.1, 3.4.2, and 3.4.3 respectively.

need to arise, and to what degree they need to be under the control of the agent, to give a decisive answer regarding compatibility with first-person foreknowledge. As it stands, for instance, Frankfurt's mesh account would not be impeded, even if the foreknowledge in first-person cases played havoc with the agent's desires. As McKenna notes, under Frankfurt's view, "agents act of their own free will and are morally responsible so long as the appropriate psychological mesh is in place, no matter what sort of (merely apparent) freedom and responsibility-undermining history gave way to an agent's having that particular mesh."[219] In short, depending on the psychological requirements for a choice to be free, if foreknowledge affects our psychology – which it would seem to, in at least some first-person cases – then it could affect our freedom. You might think that this is evidence to reject such a free will account, or you might think that gives reason to reject the possibility of such foreknowledge: it depends which you are willing to give up first (although the latter seems somewhat arbitrary).

4.3.2.3 OTHER INCOMPATIBILIST ACCOUNTS

As seen above, first-person foreknowledge does not clash with an alternative-possibilities account of freedom, but it may become problematic for incompatibilist accounts that go further than PAP: that posit extra requirements for the agent being appropriately in control of, or the source of, free choices or actions. The three main types of incompatibilist account I considered in the previous chapter were non-causal (where free choices are uncaused or indeterministically caused, though explicable in terms of an agent's reasons), agent-causal (where agents are the ultimate source of free choices thanks to a special kind of causation irreducible to causation by states or events) and event-causal (where reasons indeterministically cause an agent's free choices), including a particular EC account from Kane.[220] Each of these accommodated weak predestination, but precluded determinism and metaphysical fatalism (except for limited cases of the latter under Kane's account).

As with the above, an agent not knowing the content of the foreknowledge but only that the latter exists will not be any less free than an agent in a third-party foreknowledge scenario. In a non-causal account, at most, that 'there is a foreknower who knows what I will do' may be added to your reasons to act (imagine a Newcomb variation where the predictor is a time traveller: the fact that the time traveller has seen in advance what you will choose may influence your choice), but it does not prevent its being free (and similarly in the EC case). In an agent-causation case, a time traveller knowing in advance what you will do will not affect your being the one to cause that action or choice.

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[219] McKenna, Compatibilism.
[220] Discussed at more length in §§3.5.1, 3.5.2 and 3.5.3 respectively.

Again, however, once you know the content of the foreknowledge things are less clear cut. I noted in previous sections, for instance, that knowing what you will do in advance may affect the causal chain leading up to the event. This would seemingly not affect non-causal freedom, as the control or power an agent exercises over a free event is not causal.[221] Agent-causation likewise does not seem to be impeded: your reasons for acting or the circumstances leading up to your acting may be influenced by your foreknowledge, but this does not, prima facie, preclude your being the source of the foreknown actions (this is not to say that a clash is impossible, just that given the basic requirements of AC views it does not seem inevitable). EC accounts are similar to reason-responsive accounts, insofar as first-person foreknowledge may add to the corpus of reasons influencing one's decisions (for EC theorists, reasons indeterministically cause free choices). In the Kane account, more is said about intention and the mental processes inherent in a free decision and thus first-person-foreknowledge might preclude freedom if it interfered with these processes. However, this would not be problematic unless all your future choices were known to you in advance – certain choices being interfered with (as in the Frankfurt cases, for instance) would not preclude your being free (see §3.5.3.1).

In summary, generally speaking we can give the same answer to 'does predestination preclude free will?' in the first-person cases as the third-person cases. Under every account, knowing that *S* has foreknowledge of your future action (but not knowing the content), where S's foreknowledge entails weak predestination only, is compatible with your being free. Where you know the content of the foreknowledge, you are just as free under all but the mesh accounts (depending on how you flesh out the mental states required for the latter). First-person foreknowledge may have other consequences, such as the dilemmas discussed below, but it does not save the folk intuition. Before turning specifically to the dilemmas, it is worth considering one of the potential structural consequences of foreknowledge: the generation of causal loops.

4.3.3 CAUSAL LOOPS

As noted previously, in cases of first-person foreknowledge there is the possibility that the knowledge itself would influence actions in the present: that is, the knowledge would bear on the causal chain. For example, knowing that your pen will not be destroyed until 2015 might lead to your trying to destroy it earlier, and knowing that the predictor has placed a million dollars in Box B might lead you to try and take both boxes for the monetary advantage. Your possession of this knowledge, and the actions that

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[221] Although what it might be is admittedly mysterious. Cf. Pink, Freedom and Action.

result, are part of the causal chain of events. In at least some cases, this seems to lead to a causal loop.[222]

Causal loops crop up frequently in the time travel literature, and are described by Lewis as,

> [C]losed causal chains in which some of the causal links are normal in direction and others are reversed… Each event on the loop has a causal explanation, being caused by events elsewhere on the loop. That is not to say that the loop as a whole is caused or explicable. It may not be.[223]

Such loops come in several varieties, but the most pertinent for this discussion are the predestination loops: for instance, French and Brown write of an archaeologist who travels back in time by several millennia to investigate the origins of a recently discovered human skeleton, "only to die and become that very skeleton."[224] These loops are generally considered quite puzzling.

To see how they relate to foreknowledge, take Goldman's Book of Life thought experiment, in which he finds on a shelf a dusty tome that spells out every detail of his life:

> While browsing through the library one day, I noticed an old dusty tome, quite large, entitled "Alvin I. Goldman". I take it from the shelf and start reading. In great detail, it describes my life as a little boy. It always gibes with my memory and sometimes even revives my memory of forgotten events. I realise that this purports to be a book of my life… I look at the clock and see that it is 3:03… I turn now to the entry for 3:03. It reads: *"he is reading me. He is reading me. He is reading me.*[225]

We can modify this example to reflect the three-fold distinction mentioned above, as follows:

1. The book exists on a shelf somewhere, but Goldman never hears of it;

2. The book exists and Goldman is aware it exists, but does not know what it says (perhaps he resists getting a copy, or tries and fails, or it is written in a language he does not understand);

3. The book exists and Goldman reads it.

In the third case there is a causal loop: at t_0, Goldman reads a page in the book of life that describes events taking place at t_1. At t_1, after the reading has taken place, Goldman performs an action ϕ. Suppose that the author of the book gains knowledge of Goldman's ϕ –ing (there are various ways to

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[222] To think that the relationship between foreknowledge and foreknown events always results in such a loop is what Craig calls "a misunderstanding in which the causal relation between an event or thing and its effect is conflated with the semantic relation between a true proposition and its corresponding state of affairs" ("Divine Foreknowledge and Newcomb's Paradox", *Philosophia,* Vol. 17 (1987), pp. 337.
[223] Lewis, Paradoxes, pp. 148-9.
[224] P. A. French and C. Brown, "Time Travel", in P.A. French and C. Brown (eds.), *Puzzles, Paradoxes and Problems*, (New York: St Martin's Press, 1987), p. 208.
[225] Goldman, Actions, p. 144.

conceive of this, from time traveller to fortune teller) as a result of Goldman's ϕ –ing. That is, the book records that Goldman does ϕ because he does ϕ. But Goldman may, at least in part, ϕ as a result of this knowledge (or in defiance of the knowledge if it is a bilking case – see §4.2 and Chapter 5), and thus the knowledge is a contributing factor in the causal chain of events. To make this clearer, consider the following:

> I now turn to the entry for 3:28. It reads, "He is leaving the library, on his way to the President's office." Good heavens, I say to myself, I had completely forgotten about my appointment with the President of the University at 3:30… Since I do have a few minutes, however, I turn back to the entry for 3:22. Sure enough, it says that my reading the 3:28 entry has reminded me about the appointment.[226]

The loop in this scenario has two important elements. The first is the predestination: the fact that Goldman reads a book which truthfully describes his future actions seems to make those actions predestined (as with the archaeologist's time travelling). This is just weak predestination, however: it is true at 3:22pm that Goldman will leave the library at 3:28pm. He did not have to, but the fact that he does makes the book true (and report that detail, instead of a variation). The second is the apparent lack of origin of the knowledge content: Goldman reads that he remembers he has an appointment. If he had not remembered, it would not have been recorded in the book. But it was reading what was recorded in the book that prompted him to remember. This is also unproblematic, but it is strange, and is a key element of self-fulfilling prophecies, discussed in §4.4.1.

While some have disputed the possibility of causal loops depending on their accounts of time and causation,[227] most philosophers of time travel (where they are most often discussed) think them merely weird.[228] As Lewis remarks,

> Strange! But not impossible, and not too different from inexplicabilities we are already inured to.[229]

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[226] *Ibid.*

[227] For example, D. H. Mellor, *Real Time* (Cambridge: Cambridge University Press, 1981), p. 123; pp. 175-7. Cf. Mellor, *Real Time II* (London and New York: Routledge, 1998), Ch. 12; and *The Facts of Causation* (London and New York: Routledge, 1995), Ch. 17; Joseph Berkovitz, 'On Chance in Causal Loops', *Mind,* Vol. 110 No. 437 (2001), p. 4 footnote 1. Mellor's arguments (and similar) have been challenged in various places, including Phil Dowe, "Causal Loops and the Independence of Causal Facts", *Philosophy of Science,* Vol. 68 No. 3 (2001), pp. S89-S97 and P. J. Riggs, "A Critique of Mellor's Argument against 'Backwards' Causation", *The British Journal for the Philosophy of Science,* Vol. 42 No. 1 (1991), pp. 75-86.

[228] For example, Richard Hanley, "No End in Sight: Causal Loops in Philosophy, Physics and Fiction", *Synthese,* Vol. 141 No. 1 (2004), pp. 123-152; Jenann Ismael, "Closed Causal Loops and the Bilking Argument", *Synthese,* Vol. 136 No. 3 (2003), pp. 305-320; Murray Macbeath, "Who Was Dr. Who's Father?", *Synthese,* Vol. 51 No. 3 (1982), pp. 397-430.

Given that causal loops are generally considered puzzling but not paradoxical, that foreknowledge might give rise to them should not lead us to reject it as impossible or counter-intuitive. And even if you think such loops are unlikely to occur, this does not undermine the possibility or probability of foreknowledge generally.[230] After all, most third-person foreknowledge cases do not generate causal loops: they entail predestination of the weak sort, but the knowledge need not causally influence the events it describes (and thus there is no causal loop). As will be discussed in §4.4.1, the same can be said of some first-person foreknowledge.

Having discussed first-person foreknowledge in relation to predestination, free will, and causal loops – and demonstrated that it is not, *in toto,* problematic or counter-intuitive – I now turn to two dilemmas that do seem, at least prima facie, more troubling.

4.4 THE DILEMMAS

In the following sections I explore two dilemmas that are, if not unique to first-person foreknowledge, then at least most likely to occur in first-person cases. The first is the self-fulfilling prophecy: throughout this chapter I have noted that first-person foreknowledge can causally influence the chain of events. Now I turn to this in detail, considering scenarios where the foreknowledge itself leads to its coming true. This raises problems of origin: as in the Goldman case discussed above, we are left asking 'how and why did the events get started in the first place?' I suggest that this, insofar as it is a problem (and it does not seem to be, after consideration), is not unique to foreknowledge cases. Additionally, while self-fulfilling prophecies have in some contexts been used to lend strength to fatalist arguments, I suggest the opposite: that in many of these cases it is the very fact that the agent believes the content of the foreknowledge that leads to its status as knowledge – that results in its reporting something true.

The second dilemma also arises as a result of knowing the future: the intention problem posits that not only will rational agents fail to 'bilk' – that is, change – a foreknown future, they will fail to form the intention to do so. If this is correct, then first-person foreknowledge might hinder our ability to act in a way that third-person foreknowledge does not.

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[229] Lewis, Paradoxes, p. 149.
[230] For a discussion of probability and causal loops of this kind, see Hanley, No end in sight; and Macbeath, Who was Dr Who's Father?.

4.4.1 SELF-FULFILLING PROPHECY

"One often meets his destiny on the road he takes to avoid it." – Master Oogway[231]

There is a surprising scarcity of literature concerning self-fulfilling prophecy, at least in the context of the foreknowledge and free-will debate. The term most often appears in ethics, social science, or in discussions of bad scientific methodology, and occasionally in theology. Where it does crop up more frequently – and in the sense in which I am interested – is in fiction and mythology. Such self-fulfilling prophecies occur when knowledge or awareness of a prophecy or prediction is a crucial factor in future events occurring as the prediction describes. For example, Oedipus kills his father and marries his mother as a result of actions to avoid fulfilling a prophecy in which it is foretold that he will kill his father and marry his mother. He knows the content of the prophecy and by trying to thwart it inadvertently ensures its veracity.[232] Self-fulfilling prophecies are particularly vivid examples of how first-person foreknowledge can impact the causal chain of events: had he not heard the prophecy, it seems unlikely that Oedipus would have behaved as he did.

SFPs can take the form of a particularly counter-intuitive type of causal loop: one involving information 'from nowhere', that is, created *ex nihilo.* Because of this special feature, loops of this kind are treated differently in the time travel literature; indeed, some have gone so far as to suggest that so long as they are not inevitable, we should refrain from building them in to our time travel tales.[233] Similarly, where such loops have been discussed in relation to foreknowledge, the consensus seems to be that causal loops are a bad explanation for how events could come about, and thus if foreknowledge were to entail such loops, we should (or at least would have reason to) reject the possibility of such foreknowledge.[234] Thus they are considered a dilemma over and above causal loops generally (§4.3.3). Here I seek to give a better understanding of SFPs, and argue through appeal to the time travel literature that we should not reject the possibility of foreknowledge even if it were to give rise to such loops.

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[231] Jonathan Aibel & Glenn Berger, *Kung Fu Panda,* Script (2008)*,* http://www.imsdb.com/scripts/Kung-Fu-Panda.html, accessed 12 Jul. 2014.

[232] Sophocles, "King Oedipus" in *The Theban Plays,* E. F. Watling (ed.), Harmondsworth: Penguin Classics, 1947, pp. 25-70. For a particularly explicit example see the conversation between Harry and Dumbledore on Voldemort's actions in J. K. Rowling, *Harry Potter and the Order of the Phoenix,* (London: Bloomsbury, 2003), pp. 740-41.

[233] Macbeath, Who was Dr Who's Father.

[234] As noted above, the literature on SFPs generally is limited. The texts I have in mind here concern molinism and the structure of divine foreknowledge (a debate which goes beyond the type of foreknowledge identified in the folk intuition). See for instance David P. Hunt, "Providence, Foreknowledge, and Explanatory Loops: A Reply to Robinson", *Religious Studies,* Vol. 40 No. 4 (2004), pp. 485-491; Dean Zimmerman, "The Providential Usefulness of 'Simple Foreknowledge', (Rutgers University, 2010), http://fas-philosophy.rutgers.edu/zimmerman/Providence.Simple.Forek.6.pdf, accessed 10 Aug. 2014, esp. pp. 7-11.

There are several interesting elements to the self-fulfilling prophecy, perhaps the most important being the significance of the weight or credence attached to it by its subject (§4.1.2), and the possible generation of causal loops as mentioned above (§4.1.4). Before exploring these, however, it is worth making the following caveats: firstly, many examples of self-fulfilling prophecies are vague, misunderstood or incomplete, and it is this quality that makes them self-fulfilling (this is discussed in §4.1.1). Secondly, it is not clear that self-fulfilling prophecies are always strictly first-person, although they can be interpreted as such (§4.1.3). Finally, the self-fulfilling prophecy does not require actual foreknowledge per se, but only a belief about the future: the latter has sufficient psychological weight to impact the choices one makes. What is important when identifying self-fulfilling prophecies (SFPs) is that knowledge or awareness of the content of the prophecy, together with belief or knowledge concerning its veracity, leads to its coming true (which makes these a special kind of causal loop). In the Oedipus case, for example, we are led to believe that Oedipus would never have killed his father and married his mother if he had never heard or believed the prophecy in the first place: it is the prophecy that provides the impetus, and serves as a catalyst, for the events that follow.[235]

4.4.1.1 MISUNDERSTOOD, VAGUE, DECEPTIVE, INCOMPLETE

Many fictional self-fulfilling prophecies are vague or misunderstood: they lend themselves to two or more possible interpretations and it is this quality that makes them self-fulfilling. For example, Oedipus assumes that the couple that raised him are his "parents", and the ones to whom the prophecy pertains. In fact, he was adopted, and his biological parents are the focus of the foretelling.[236] This dual

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[235] The conundrum resulting from the feedback of foreknowledge on present action is vividly depicted in the following interaction from *The Matrix:*
The Oracle: […] And don't worry about the vase.
Neo: What vase?
[Neo knocks a vase to the floor]
The Oracle: That vase.
Neo: I'm sorry.
The Oracle: I said don't worry about it. I'll get one of my kids to fix it.
Neo: How did you know?
The Oracle: What's really going to bake your noodle later on is, would you still have broken it if I hadn't said anything.
(L. Wachowski and A. Wachowski, *The Matrix,* Script (1996), http://www.imsdb.com/scripts/Matrix,-The.html, accessed 5 Aug. 2014.
[236] Others are downright deceptive, such the prophecy of the Witches in *Macbeth,* foretelling that the eponymous hero "need fear none of woman borne". Macbeth is killed by Macduff, who was delivered via caesarean section (William Shakespeare, *Macbeth,* A. R. Braunmuller (ed.), (Cambridge: Cambridge University Press, 1997), §4.1.78-80. Cf. J. R. R. Tolkien, *The Return of the King,* (London: HarperCollins, 1995), Ch. VI p. 823.

interpretation makes for interesting plot twists, but it is not an inherent feature of the self-fulfilling prophecy as a philosophical puzzle.

Other SFPs occur because their content is incomplete, rather than vague. When agents try to foil such prophecies, their limited information leaves room for their effort and failure (after all, if their information were complete, and true, it would describe their failure if an attempt to foil the prophecy was going to be made). For instance, in "Prophecy Girl", Buffy is prophesied to fight the Master, which she does, but only because she heard the prophecy and went to his location in an attempt to prevent his escape (thereby giving him access to her blood):

> **The Master:** You tried. It was noble of you. You heard the prophecy that I was about to break free and you came to stop me. But prophecies are tricky creatures. They don't tell you everything. *You're the one that sets me free.* If you hadn't come, I couldn't go.[237]

If all self-fulfilling prophecies were inherently misunderstood, vague, deceptive or incomplete, then they would pose less interest for this discussion; after all, in each of these cases it is the limitation on one's knowledge that allows (or directly brings about) the prophecy being true, rather than the knowledge itself. There are, however, examples of SFPs that are not flawed in this way. The clearest cases are those in which the agent does not try to thwart the prediction, but rather complies (after all, if the prophecy is true, then any attempt to thwart it must fail, and such failure is most easily explicable in terms of incomplete knowledge or incorrect interpretation of its content). These still count as self-fulfilling where, had the prophecy not been made (or heard by the agent in question), the events would not have come about. Sometimes this compliance is voluntary, for instance, in Garth Nix's *Old Kingdom Trilogy,* the future-seeing Clayr induct new members into their ranks upon 'Seeing' themselves do so.[238] Alternatively, the agent in question may feel they must comply, such as Marcus Opellius Macrinus, Praetorian-prefect of the Roman Empire, who received an oracle that he would become the emperor and – lest he be executed as a threat –was forced to assassinate the sitting emperor Caracalla.[239]

So, while many fictional examples of SFPs may be vague, incomplete, deceptive or misunderstood; there are sufficient examples to the contrary such that we should be concerned about the possible

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[237] Joss Whedon, "Prophecy Girl", *Buffy the Vampire Slayer,* (The WB Television Network, 1997). Similar examples can be found in Macbeth (fn 236); Harry Potter (fn 232); Arthur Dent's death in Douglas Adams, *Mostly Harmless,* (New York: Random House, 1993) and Blackbeard's death in Rob Marshall's *Pirates of the Caribbean: On Stranger Tides* (Walt Disney Pictures, 2011).

[238] Garth Nix, *Lirael: Daughter of the Clayr,* (Sydney: HarperCollins, 2001), p. 15f.

[239] Pat Southern, *The Roman Empire from Severus to Constantine,* (London: Routledge, 2001), p. 54.

consequences of SFPs arising from foreknowledge. First, though, it is worthwhile examining another prominent feature of SFPS: the epistemic position of the agent.

4.4.1.2 WEIGHT & CREDENCE

In many cases, the subject of the prophecy giving weight or credence to its content is what ensures it ultimately comes true, so belief is an important component of this kind of causal loop. A classic example comes from "Sheppey", a retelling of an old Arab fable by W. Somerset Maugham, which goes as follows:

> There was a merchant in Baghdad who sent his servant to market to buy provisions and in a little while the servant came back, white and trembling, and said, Master, just now when I was in the market-place I was jostled by a woman in the crowd and when I turned I saw it was Death that jostled me. She looked at me and made a threatening gesture; now, lend me your horse, and I will ride away from this city and avoid my fate. I will go to Samarra and there Death will not find me. The merchant lent him his horse, and the servant mounted it, and he dug his spurs in its flanks, and as fast as the horse could gallop he went. The merchant went down to the market-place and he saw me standing in the crowd, and he came to me and said, "Why did you make a threatening gesture to my servant when you saw him this morning?" "That was not a threatening gesture", I said, "it was only a start of surprise. I was astonished to see him in Baghdad, for I had an appointment with him tonight in Samarra.[240]

Traditionally this has been cited as an example of fatalism at work, but it is really the opposite: rather than future events happening no matter what the servant does, these events occur *because* of what he does. He sees Death, forms a belief that Death will soon take him, and acts on that belief in such a way that results in his dying. It is possible that if he had not been so certain, and thus fled, he might have been safe. There are three common epistemic positions adopted by agents in self-fulfilling prophecy scenarios: scepticism, acceptance, and an intermediate state where characters believe the prophecy will come to pass, *unless they try to thwart it.* Many of the aforementioned examples – Buffy, Oedipus, the merchant's servant (as well as Shifu, below) – fall into this latter category; they believe either that it is highly likely the prophecy will prove true, or that it will prove true unless they act to prevent it, but they do not believe it *simpliciter*. SFPs are most likely to come to pass when an agent accepts the prophecy in question (either wholeheartedly, or as the outcome of events should they not intervene), revealing the

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[240] W. Somerset Maugham, "An Appointment in Samarra" from *Sheppey* (1933), as cited in D. Dennett, "True Believers: the Intentional Strategy and why it works" in John Haugeland (ed.), *Mind Design II: Philosophy, Psychology, Artificial Intelligence,* (Cambridge, MA: MIT, 1997) p. 57. A (particularly interesting given the current discussion) parody occurs in *The Colour of Magic*: Rincewind the wizard runs into Death, who comments that they have an appointment elsewhere soon and asks if Rincewind would mind going there. Rincewind declines. Terry Pratchett, *The Colour of Magic,* (London: Transworld, 1983), pp. 77-78.

importance of the credence given. I shall mostly focus on the former – SFPs where the agent accepts the prophecy as true – because they are the most relevant to questions about foreknowledge: knowledge is generally thought to require belief (§1.3), so if the agent does not believe the events in question will come to pass, she cannot know they will.

4.4.1.3 A FIRST-PERSON PROBLEM?

Not all self-fulfilling prophecies are strictly first-person, insofar as it is the stated object of the foreknowledge whose actions bring the prophecy to fruition. For instance, in *Kung Fu Panda,* Master Oogway has a vision in which the villain, Tai Lung, escapes his prison. Tai Lung is not privy to the content of the prophecy. In an attempt to thwart the villain, Shifu sends a bird to the prison to increase security, thereby providing Tai Lung with the means of escape: a feather for a lock pick. There are a couple of ways to respond to this. Firstly, one could accept that there are third-person self-fulfilling prophecies, and thus if they prove sufficiently problematic to undermine the possibility or likelihood of foreknowledge, accept the charge entirely (although it does appear that first-person cases are the most common and vivid in the literature). Alternatively, one could argue that all self-fulfilling prophecies are implicitly first-person, even if this is not stated. In the *Kung Fu Panda* case, Shifu is not aware of the role he plays in Tai Lung's escape because he does not have complete information. If a complete prophecy had existed describing the full set of events, then his actions would be contained therein. I find the second explanation more compelling, but as will become clear shortly, even if SFPs arise from both first- and third-person foreknowledge, their generation does not pose an insurmountable problem.

4.4.1.4 ARE THEY A PROBLEM? (INFORMATION LOOPS)

As seen above, there are various ways to carve up the corpus of self-fulfilling prophecies (complete/incomplete, vague/explicit, compliant agents/thwarting agents and so forth). Determining whether they cause a problem for foreknowledge requires making another divide: this time between those prophecies linked to the events they describe via a linear causal chain (where the prediction is a cause of the events, but not vice versa) and those linked in both directions (i.e. in a causal loop). The latter are more clearly foreknowledge cases than the former: whether some former cases count as instances of knowledge will depend on your epistemology, and specifically on what kind of connection you think the truth must have to the prophecy or belief in order for it to count as knowledge. Even should you think these count as instances of foreknowledge (perhaps in a similar way to ordinary foreknowledge cases discussed in Chapter 2), it does not seem that such SFPs would be problematic,

otherwise every instance of ordinary intentional foreknowledge would be a self-fulfilling prophecy.[241] The *Avatar: The Last Airbender* episode "The Fortuneteller" is full of SFPs of this kind: the town's fortune teller, Aunt Wu, makes a series of predictions that turn out to be correct, although the villagers fail to recognise that her accuracy is the result of their actions, rather than her having actual foreknowledge. For instance, Wu tells an old man that on the day he meets his true love he will be wearing red shoes, and as a result, he dons red shoes every day.[242] This is a standard causal chain: the man's actions result from what he perceives to be foreknowledge,[243] but they do not influence Wu's prophecy:

Wu predicts red shoes → Man dons red shoes[244]

However, loops are significantly weirder, as the information contained in the prophecy may not have an identifiable causal origin. For instance, in the aforementioned Garth Nix example, the prophetic Clayr, in the present, have visions of inducting new members; then in the future, they induct those members based on the previous vision.[245] But they only have the vision because the new members will be inducted (as depicted in Figure 1):
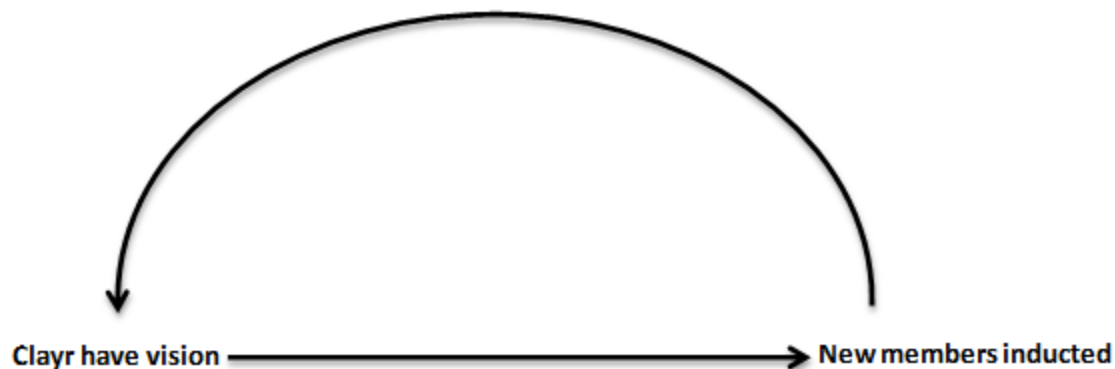
Figure 1. A Causal Loop

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[241] And we do not treat them as such. When I know that I will eat yoghurt for breakfast tomorrow, we do not think that impinges my free will, or has other baffling consequences. However, structurally they are similar to SFP cases where the agent accepts the prophecy as true. The difference seems to be a causal one. Firstly, in the Clayr case, the foreknowledge causally affects the foreknown events: the vision leads to the induction. In this particular scenario it is backwards causation, but it does not have to be: if the Clayr gained their foreknowledge from a determined predictor, it would likewise causally affect their actions, but the causation would be forwards-directed (like in the modified Newcomb case, §4.2.2). However, in the ordinary foreknowledge cases, the foreknowledge does not causally impact the events: if I eat yoghurt for breakfast tomorrow, it will not be because I knew I would or even because I believed I would – it will be because I intend to.

[242]Aaron Ehasz and John O'Bryan, "The Fortuneteller", *Avatar: The Last Airbender,* (Nickelodeon, 2005).

[243] Note that had he not believed the prophecy – had he not given it sufficient credence – it would not have been self-fulfilling (see §4.4.1.2).

[244] The arrow here denotes causation.

[245] Nix, Lirael.

There is not a clear predestination loop (§4.3.3) in this scenario: while the vision being true predestines the induction of new members, the reverse is not the case – the Clayr may have decided to make such an induction absent a vision (although as a matter of fact, they did not). In other words, the vision being true necessitates the induction, but the induction resulting in a vision is a contingent fact, not a necessary one. However, there is still a loop here: the vision causally explains the induction, and the induction explains the vision. So as not to confuse these with other causal loops (such as those involved in the Predestination Paradox), I call them 'C-E-N' loops: loops that involve information or objects that are seemingly created *ex nihilo*.[246] They are usually discussed in the context of time travel scenarios, where all sorts of objects, information, and even people, can have a loopy causal origin.[247] However, they are not limited to time travel; I suggest that the loop in the Clayr example is a kind of information C-E-N loop, where the foreknowledge or decision is the content created *ex nihilo.* As this example demonstrates, self-fulfilling prophecies can be constituted by such loops, leaving us with a puzzling causal origin for the events to which the foreknowledge pertains (and the content of the foreknowledge itself). Note that while each event in the loop has a causal explanation, as it is caused by other events in the series (for instance, the new initiates are inducted because of the vision), the loop as a whole has no cause, and is apparently inexplicable.

Consider the following:

> Billy is a contestant on a game show with very similar mechanics to the Newcomb Problem (see §2.2): he has a choice between one box and two boxes, and a highly-accurate predictor will predict his choice in advance. However, this particular predictor has access to the future (by time travel, or a crystal ball), and this is why she is so accurate – she witnesses the future choice, and thereby knows what Billy will choose. Billy is a stalwart two-boxer: in every conversation with friends and colleagues prior to the game he has insisted he will pick both boxes, he dreams at night of picking both boxes etc. However, the tables are turned when the predictor reveals her prediction to him prior to his choice: she says he will pick one box. As a result of this revelation, Billy decides to pick one box – after all, he reasons to himself, he now knows he will (see Figure 2).[248]

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[246] They are rarely given a name, but are mostly (including by Lewis) bundled together under the generic name 'causal loops'. Occasionally they are called 'ontological loops', a specific type of 'closed causal loops', or the 'ontological paradox'. Cf. Lewis, Paradoxes, p. 149.

[247] See, for instance, Lewis, Paradoxes; Hanley, No end in sight; Macbeath, Who was Dr Who's Father?.

[248] A similar line of thinking occurs in J.K. Rowling's *Harry Potter and the Prisoner of Azkaban,* with Harry's confidence in casting the Patronus (London: Bloomsbury, 1999), p. 301. Cf. S. Rennick, "Harry Potter and the Time Travel Paradox", *Cogito,* Vol. 4 No. 3 (2009), pp. 38-52.
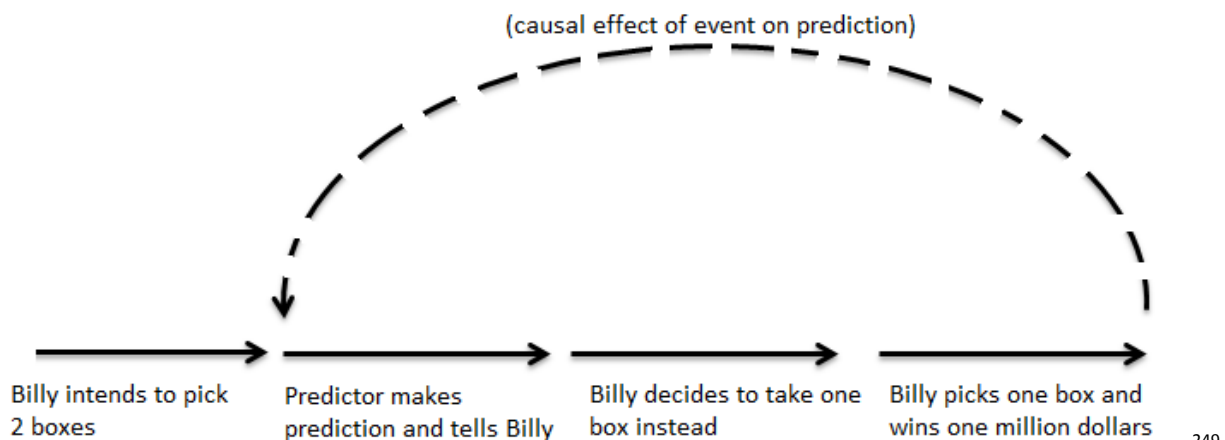
Figure 2. A C-E-N loop

Where does the content of the knowledge come from? Well, the predictor knows that Billy will pick one box, because Billy picked one box. But Billy picked one box, because the predictor knew he would pick one box. If you do not like the word 'know' here, replace with believe: the predictor believed Billy would pick one box, as she witnessed Billy pick one box. But Billy picked one box, because she believed he would (or more long-windedly, Billy picked one box because he believed that she believed he would pick one box). Each link on the chain is explicable in terms of the previous link, but the loop as a whole, and the information contained in the foreknowledge (i.e. the outcome of Billy's decision), is not.[250] Such an example leaves us asking: how does the series of events come about? How and where did it start?

In order to fully understand the extent to which such loops affect the logical possibility of foreknowledge, we must consider two questions:

i.   Are such loops inevitable, given foreknowledge?

ii.   Do such loops pose an insurmountable obstacle for the possibility of foreknowledge? That is, are they paradoxical?

I shall argue no to both, but even should you think such loops would be ubiquitous given foreknowledge, this does not undermine the possibility of the latter.

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[249]If the foreknowledge arises from a determined predictor and does not involve backwards causation, there is an explanatory feedback loop between the events and the foreknowledge, but perhaps not a causal one.

[250] Lewis describes a similar case, but where the content of the loop is a tangible object: a time traveller goes back in time and gives his earlier self the plans for a time machine. The earlier self grows up, builds the time machine, and goes back to give himself the plans (Lewis, Paradoxes, p. 149). As with the Billy example, the quandary lies in the blueprints' origin: where did they come from in the first place?

4.1.4.1 Inevitable Loops?

We should not expect that all foreknowledge would give rise to C-E-N loops: there are interesting, consistent foreknowledge scenarios that do not conjure loops of this kind. Most third-person foreknowledge cases, for instance, seem to be exempt, as the foreknowledge is merely the result of the events being as they are, not a cause of the events. For example, if a time traveller knows I will wear a red dress next Friday because she saw me wearing it in the future, then my wearing the dress causes her foreknowledge (in addition, presumably, to other causes). However, if I remain unaware of her knowledge, then it seems unlikely that the latter will causally influence my choice of attire, thus there is no loop.

Nonetheless, that such loops would not be inevitable in all foreknowledge scenarios does not automatically make their possibility unproblematic or unworthy of discussion. After all, there is no reason to assume that if foreknowers existed, they would have access only to third-person foreknowledge and a) not inform the subjects, or b) try to intervene. If we allow for the possibility of first-person foreknowledge, then some sort of feedback from the knowledge to the agent's decision-making or actions is likely (§4.2.2f). This could give rise to self-fulfilling prophecies, which can, as shown above, be loopy. Given that such loops are at least a potential side-effect of foreknowledge, it is worth considering whether they generate contradictions, for if they do, foreknowledge would not be possible after all.

4.1.4.2 Insurmountable Loops?

As mentioned previously, the main discussion of C-E-N loops has taken place in the time travel literature, so it makes sense to begin there (although even there it has been scarce). Lewis mentions these loops, but is not perturbed: he describes their possibility as merely 'remarkable', arguing that an object or information arising from nothing is no different to the many other inexplicable phenomena we manage to accept, such as the "decay of the tritium atom".[251] Nonetheless, he considers those with information for content especially remarkable, asking

> Where did the information come from in the first place? Why did the whole affair happen?

And concluding,

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[251] Lewis, Paradoxes, p. 149.

There is simply no answer.[252]

Hanley disagrees, arguing that the question 'Where did it come from in the first place?' is malformed: it is unanswerable, but only because there is no first place to talk about, as it is a loop. Instead, he suggests, "the well-formed question 'Where did the information come from?' has a straightforward answer: from itself, by completely ordinary causal means."[253] He continues that although C-E-N loops are intuitively bizarre, their oddity does not entail their impossibility. Specifically, Hanley notes that under one cosmological theory, the universe in its entirety might be a causal loop, and whether this theory corresponds to the actual universe, it is logically possible:

> In cosmology, this doesn't particularly count against the conjecture, partly, I suppose, because all the alternatives have oddities of their own. Yet it would be specious reasoning to reject the very possibility of local loops on grounds that apply equally to the admitted possibility of a global one.[254]

Perhaps the best articulation of the problem of C-E-N loops, and their apparent bizarreness, is found in Levin, who argues that questions about the origin of objects or information caught in a loop are

> no different from questions about where *anything* originally came from. We can ask about the origin of the atoms that make up [the time traveller]; their timeline is not neatly presented to us. The atoms either go back endlessly, or if the universe is finite, they just start. In either case the question of ultimate origin is as unanswerable as the question of the [loop contents'] origin. What makes us think that when such questions are asked about the loop they are different and *ought* to be answerable is that the entire loop is open to inspection. *Sub specie aeternitatis* this difference disappears.[255]

That is, we do not expect to be able to explain the causal history of the atoms which make up the objects surrounding us as they stretch back so far in time, perhaps even ultimately to the Big Bang. By contrast, in a causal loop of this type, we have the entire causal history of the information (the foreknowledge content) open to us. Thus we expect to be able to determine how or why it came about. But the possibility of creation *ex nihilo* clearly extends well beyond the scope of the metaphysics of foreknowledge or time travel; if it is a problem, it is one the universe seemingly faces as well. If, as it

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[252] *Ibid.*

[253] Hanley, No end in Sight, p. 137. Hanley additionally argues that the bizarreness of such loops lies not in their existence but their utility: the fact that they contain intelligible, useful information. He attributes the latter to coincidence. That these particular loops contain useful information doesn't seem overly improbable; it's weird, but not completely far-fetched (unlike, say, loops that contain an entire person's genetic information, rather than just the outcome of a choice – such as in Heinlein's All You Zombies). Perhaps here the coincidence lies in the events forming a loop; after all, the predictor could have gotten things wrong, and then it would not have been.

[254] *Ibid.,* p. 134

[255] Margarita R. Levin, 'Swords' Points', *Analysis,* Vol. 40 No. 2 (1980), p. 70.

seems, certain pieces of information (such as the content of the foreknowledge in some SFPs) have untraceable origins, they do not seem especially problematic due solely to their being 'uncreated'.

C-E-N loops containing objects or complex genetic information have other potential consequences, but regarding SFP foreknowledge loops, Levin and Hanley are right. Information loops are mysterious, and perhaps we might think as a result would only happen rarely,[256] but they do not impede the possibility of foreknowledge: they are contradiction free. Of course, if things were to start popping out of nowhere in regular and obvious fashion, then we would no longer have to argue about whether such occurrences were logically or scientifically possible; but just because they do not seem, to us, to be doing so at the moment, does not mean that foreknowledge (or even first-person foreknowledge) should be written off as hopeless, unlikely or impossible. At most, it is counter-intuitive, but that is to be expected given that it is not a phenomenon most of us think we experience.

4.4.2 THE INTENTION PROBLEM

"You thought to change history…Yet, if you knew this is the way it was, you must have known it is the way it would be." – Galactus[257]

In many foreknowledge scenarios, fictional or otherwise, an agent riles against the prophecy or prediction. This implies some doubt in the veracity of the foreknowledge, as the agent thinks the foreknower can be proven wrong. But what happens if you accept the prophecy as true, but do not like the foretold outcome? What if you have reason to believe the foreknower – perhaps a time-travelling version of yourself, or a prophet whose deity you worship – are you then free to try to change your destiny? If the prophecy is true then you will fail to succeed, but are you free to try?

In the time travel literature, attempts to change the past (or future) are thought to engender contradictions, and are referred to as 'bilking attempts'. Any attempt to frustrate a predestination loop or true prophecy will likewise fall into this category. Bilking attempts are the focus of Chapter 5: why they must fail, why they do fail, and what consequences this has for the likelihood of foreknowledge and our understanding of coincidence. However, this assumes that bilking attempts are possible – that they get off the ground – even if they cannot succeed. First-person foreknowledge poses a challenge to this assumption by giving rise to what I shall call the *Intention Problem.* Underpinning this dilemma is the question: can you genuinely try to do something when you know you will fail? Putting to one side for a

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[256] See §5.6 for an argument of this kind.
[257] Alan Davis and Terry Kavanagh, *X-men (Second Series) #90*, (Marvel, 1999).

moment the logical impossibility of changing the future or past – as discussed in the next chapter – if you *believe* you will eat toast for breakfast tomorrow, can you *intend* to eat cornflakes instead? If the answer is 'no', then conscious bilking will be impossible in (at least some) first-person foreknowledge cases, and this might, in turn, serve as a *reductio* for the possibility of such foreknowledge (and have impacts for time travel as well). This has serious ramifications for any account of free will that hinges on our mental states (such as the mesh accounts discussed in §4.3.2.2): if access to knowledge of the future impedes our ability to will freely – where that is constituted by our forming the intention to act in a given way – then this might undermine not only our ability to bilk, but to freely conform with the content of a prophecy or prediction.

So, can I intend to φ if I know, or merely believe, that φ-ing is impossible? A central question underpinning the intention problem is whether intending to φ entails that I believe I can φ. Relatedly, when I avow an intention to perform an action φ, does this constitute a prediction that I will, or at least might, φ? If I cannot rationally hold contradictory beliefs – which is widely thought to be the case – and I cannot form an intention that is at odds with my beliefs (which, as shown below, is widely accepted), then it seems I cannot intend to do something where I know, or believe, I will fail.

The problem is, at its heart, a psychological one, although it has epistemological and metaphysical components and ramifications. In what follows I will outline and respond to the problem, with lessons drawn from various strands in the literature, including action theory, a variety of paradoxes, and time travel. Although I do not think the intention problem poses a challenge to the possibility of foreknowledge, it may limit its palatability given its counter-intuitive conclusion (the more you know, the less you can do).

4.4.2.1 THE PROBLEM

Suppose you know now that you will get married in 2020, perhaps because you have read a Goldman-style Book of Life, or because you travelled into the future and witnessed it. Additionally, suppose you strongly wish to refrain from getting married, and if you could, would try to avoid it. There seems a tension between knowing (or believing) that you will fail, and being able to try anyway. If you have some doubt as to the possibility of success, or regarding what or who you actually witnessed in the future (or the veracity of the tome), then it is easier to conceive of how you might try to affect the outcome, but

not if you know to the contrary. The problem extends beyond the action of trying, to the formation of the intention to do so.[258]

There is almost no discussion connecting foreknowledge, bilking and the difficulty of forming intentions, but several other areas of philosophy prove fruitful starting points for dissecting the problem. The first is the action theory literature, the second the discussion of the toxin puzzle, and finally, excerpts from the philosophy of time.

4.4.2.1.1 Action Theory

4.4.2.1.1.1 INTENTIONS AND BELIEFS

The intention problem hinges on the following claim, which is widely accepted in the literature: that what is required, minimally, in intending to φ (or intentionally φ-ing) is merely the absence of a belief that you will not φ. Indeed, this is a particularly weak condition: while intentions are widely thought to require some sort of belief condition, many actions theorists make stronger claims. Some have held, for instance, that if one intends to φ, one believes one will indeed φ.[259] This seems too restrictive: there are plenty of cases where we would want to say we intend to do something (or act intentionally) while simultaneously being uncertain of our chances of succeeding. For instance, I intend to get to work on time, but know there is any number of reasons I might be frustrated: an unexpected phone call, traffic congestion, misplaced keys, and so forth. Davidson and Harman describe analogous cases respectively:

> [I]n writing heavily on this page I may be intending to produce ten legible carbon copies. I do not know, or believe with any confidence, that I am succeeding. But if I am producing ten legible carbon copies, I am certainly doing it intentionally.[260]

And,

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[258] Whether one can try to do something when one knows one will fail has caused much dissent in conversation. Whereas many colleagues think that they would try to jump out of a 30-ft deep pit if being attacked by lions, they are less convinced that they could genuinely intend to eat a star (thanks to John Donaldson for the example). This seems to lend strength to the notion that once you are sure you won't or can't do something, it becomes incoherent to talk of intending to (but where there is doubt, intention-formation might be possible). Of course, as will become clear, if I am wrong in supposing that the lack of contrary beliefs are a necessary condition of intention formation, much of action theory will also need to be revised.

[259] H. P. Grice, "Intention and Uncertainty", *Proceedings of the British Academy,* Vol. 5 (1971), pp. 263-279; Stuart Hampshire and H. L. A. Hart, "Decision, Intention, and Certainty", *Mind,* Vol. 67 (1958), pp. 1-12; Monroe Beardsley, "Intending"*,* in A. I. Goldman and J. Kim (eds.), *Values and Intentions,* (Dordrecht: D. Reidel, 1978), pp. 163-184.

[260] Donald Davidson, *Essays on Actions and Events,* (Oxford: Clarendon Press, 2001), p. 82.

A sniper shoots at a soldier from a distance, trying to kill him, knowing that the chances of success are slim… If he succeeds, despite the odds, the sniper kills the soldier intentionally…[261]

Given this, many have argued that should intention require belief at all – and it may not – what is required is merely "the belief that there is some chance one will do what one intends."[262] For instance, Carl Ginet writes,

…it is necessary for S's having V-ed intentionally that S was aware at the time of undertaking her action that she would or might thereby V: S committed herself to acting in full knowledge that V-ing was among the things she would or might thereby do. It is this expectation, instead of the stronger condition that she intended of her action that she thereby V, that is necessary for her having V-ed intentionally. No belief that she *will* thereby V, no stronger belief than that she *might* thereby V, is required.[263]

Similarly, in Moya we find,

I think, first, that one cannot have the intention to do something one believes it is completely impossible for one to do; in order to have an intention to do something one has to believe there is some possibility of succeeding, even if a minimal one…[264]

Other accounts, as Mele notes, "include the requirement that the agent believe to some *non-zero* degree… that he will *A* and the requirement that the agent believe that there is a chance that he can *A.*"[265]

Under my weaker claim, we can be agnostic regarding whether a positive belief is required; perhaps it is sufficient that I desire to φ, or have the appropriate commitment to φ, without having any beliefs on the matter. But it is incoherent to intend to φ and believe you won't (more on this in §§4.4.2.1.2 and 4.4.2.1.3). Suppose then, thanks to your Book of Life, you believe you will get married in 2020. If you are

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[261] Gilbert Harman, "Practical Reasoning", *Review of Metaphysics,* Vol. 79 (1976), p. 433.

[262] Gilbert Harman, "Willing and Intending" in R. E. Grandy and R. Warner (eds.), *Philosophical Grounds of Rationality,* (Oxford: Oxford University Press, 1986), p. 364 footnote 5. Cf. Bruce Aune, *Reason and Action,* (Dordrecht: D. Reidel, 1977); Donald Davidson, "Intending" in Y. Yovel (ed.), *Philosophy of History and Action,* (Dordrecht: D. Reidel, 1978) pp. 41-60; Davidson, Essays on actions and events, p. 83.

[263] Ginet, On Action, p. 77.

[264] Carlos Moya, *The Philosophy of Action: An Introduction*, (Oxford: Polity Press, 1991), p. 137.

[265] Alfred Mele, "Intention" in T. O'Connor and C. Sandis (eds.), *Companion to the Philosophy of Action,* (Oxford: Wiley-Blackwell, 2010), pp. 108-109. Note that not only is my weaker belief requirement compatible with these stronger claims, it may even be entailed by them. If believing you will φ is a necessary condition for intending to φ, and it is irrational to hold conflicting beliefs (which is often take for granted), then believing you will not φ will preclude your forming the intention to φ (because it will preclude your rationally believing φ). Likewise, if the belief that you might φ is necessary for intending to φ, then believing you will not/cannot φ will likewise undermine your rational intention formation, and so forth for the other formulations. Even if you do not hold one of these stronger requirements, however, the weak belief requirement is independently plausible: see §§4.4.2.1.2 and 4.4.2.1.3.

rational you cannot simultaneously believe that you might not get married in 2020, and must believe that either you will not attempt to avoid getting married, or if you make such an attempt you will fail. If so, you cannot intend to avoid getting married. But, you could object, surely one can intend to *try,* even where one doubts one will succeed.

4.4.2.1.1.2 INTENDING TO TRY VERSUS INTENDING TO DO

A problem arises when thinking about intentions to *try* to φ, and how they differ from intentions to φ. After all, we often use 'try' to express an effort where there is doubt in terms of the outcome: I might try to get home on time, knowing that I have a busy schedule and public transport is unreliable, or try to get a strike while bowling; while I am unlikely to describe myself as 'trying' to make a cup of tea (unless something prevents me from doing so: "well I was trying to make a cup of tea, but…").

It has been suggested that a difference in belief might underpin the distinction between intending to try and intending to do. For instance, Harman writes,

> [S]uppose Herbert's boat sinks. The nearest land is five miles away and Herbert is a poor swimmer. Nevertheless, Herbert sets out with the aim of swimming ashore. Does he intend to swim ashore? He certainly intends to try – but it would seem that more is required if he is flatly to intend to swim ashore. What more? Here again perhaps belief is needed. If Herbert is to intend to make it, he must get himself to believe he will make it.[266]

Of course, given the weak belief condition I endorsed above, there is no difference between Herbert's intending to make it and intending to try – it is a bit of red herring: all that is required for the intention to do (the stronger commitment) is the absence of a belief in the attempt's futility. Still, we can make some sense of what Harman is getting at: there is something strange about the idea, for example, "that people who believe that their chance of winning today's lottery is about one in a million intend to win the lottery, no matter how strongly they desire to win."[267] Given this, there might be something useful we can get out of the distinction. Jennifer Hornsby attempts to flesh out the latter by considering three cases involving a mismatch between what an agent tries to do and what she actually does, as follows:

I.   Someone tries to unlock a door, wrongly supposing that the key in her hand is the key to its lock.

II. Someone tries to buy a ticket; she calls the ticket office, but isn't surprised to discover that there are actually no longer any tickets available.

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[266] Harman, Willing and Intending, pp. 364-365.
[267] Mele, Intention, pp. 108-109.

III. Someone manifestly makes a great effort to lift a block in order to demonstrate that it is impossibly heavy to lift; she says to her companion, who had thought that the block was made of polystyrene: "See, I can't lift it."[268]

Case (I) echoes the point made above: one possible understanding is that we only consider ourselves to be *trying* to perform an action if we end up failing, or there is a reasonable chance from the outset that we will fail. So, when I typically try to unlock my door, or make a cup of tea, I do not consider my actions *trying,* just *doing*: I think "I'm making a cup of tea", or "I'm about to make a cup of tea", not "I'm about to try to make a cup of tea". If intending to try is different to intending to do, we can make sense of the above; as Hornsby notes, "[u]nless someone is cognizant of a possibility of failure, or of an actual failure, the idea of themself as trying to do something usually doesn't enter into their thoughts."[269]

In case (II), it seems reasonable to say that the agent is trying to buy a ticket, rather than that she is buying a ticket; not only because she fails, but because she does not expect to succeed. Of course, by phoning the ticket office she is displaying her intention to buy. If she strongly believed that there were no tickets left, she would have no reason to call, and then we might have doubts about saying she intended to purchase a ticket. This case seems to fall in the middle ground between thinking you will succeed (as in case I), and knowing you cannot succeed (as in case III): in case II the agent doubts the chances of her success, but implicitly acknowledges the possibility of success by making the phone call. In both (I) and (II), it is in accordance with the weak belief requirement to describe the agent as *intending to do*, not merely *intending to try* (for the two do not come apart).

Case III is interesting: the agent knows she will fail, but there seems to be a mismatch between *trying* and *intending.* That is, although the agent *tries* to move the block – "For to *try to lift the block* is exactly what she has a reason to do, wanting to demonstrate how very heavy the block actually is"[270] – she does not *intend* to move the block, indeed, she knows (or at least believes) that it would be impossible. Hornsby notes that although usually an agent's trying to φ is describable in terms of her intending to φ, the two can come apart:

> [W]e may try to do something without either intending to do it or doing it intentionally… The person who tried to lift a block in order to show that it was impossibly heavy to lift did not intend to lift it

[268] Jennifer Hornsby, "Trying to Act" in T. O'Connor and C. Sandis (eds.), *Companion to the Philosophy of Action,* (Oxford: Wiley-Blackwell, 2010), p. 18.
[269] *Ibid.,* p. 19.
[270] *Ibid.*

presumably: if she had been wrong about the weight of the block, so that actually she did lift it when she did what she could to lift it, then she would not have lifted it intentionally. What she intended to do was only to try to lift the block.[271]

Another way to formulate this might be to say that the agent is not *trying to lift the block* but *trying to show that the block cannot be lifted,* but if we were to ask: 'how does she intend to show that it cannot be lifted?', the answer seems to be something along the lines of 'by trying to lift it and failing'.

So what bearing does this have on the intention problem? Employing Hornsby's distinction, and the weak belief requirement mentioned above (the absence of a belief that an attempt to ϕ will or must fail), then if you know you will get married in 2020, you can *desire* not to get married, but not *intend* to refrain. You can likewise *try* not to get married, but only where in doing so you are not trying with a view to succeeding: avoiding the ceremony is analogous to lifting the impossibly heavy block. The difference between the two cases is one of reasons: in Hornsby's scenario, you have a reason to try to lift the block (to show it cannot be lifted), rather than a reason to actually lift it.[272] It is harder to see how the same might apply in the marriage case. Analogous to the block-lifting case is the toxin puzzle, discussed below, and Sider's Institute for Auto-Infanticidal Assassins (§5.6.1). However, as mentioned above, given the weakness of my epistemic requirement on intention forming, generally to speak of 'trying' would be misleading – intending to try is just intending to do, except in these special cases where what you try is different to what you intend.

Given this, I shall assume throughout that a genuine attempt is one with a view to succeeding; that is, where you intend to actually lift the block, not just to try to lift the block, or to show that the block cannot be lifted. A genuine bilking attempt, then, will be one where the intention guiding the attempt is an intention to successfully bilk.

4.4.2.1.2 TOXIN PUZZLE & RELATED PARADOXES

There are a series of related paradoxes (using the word loosely) that bear on the intention problem and highlight the plausibility of the weak belief requirement. The most pertinent of these is the Toxin Puzzle, which Michael Clark formulates as follows:

> You are offered a million dollars to form the intention of drinking a vile potion which, though not
> lethal, will make you unpleasantly ill. Once you have formed the intention the money is handed over,

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[271] *Ibid.,* p. 23.
[272] *Ibid.*

and you are free to change your mind. The trouble is that you know this, and it will prevent you from forming the intention, since you cannot intend to do what you know you will not do.[273]

As with Hornsby's block-lifting case – in which there was a mismatch between the agent's reason for trying and reason for doing – in the Toxin Puzzle your reasons to form the intention to drink come apart from your reasons to drink.[274] Mele diagnoses our inability to intend the drink the toxin in line with my formulation of the intention problem, deeming it the result of a "completely general connection between intention and belief, not a completely general connection between intention and reasons: having an intention to A is inconsistent with being convinced that one will not A."[275] Of course, one can intend to drink the potion, as soon as you stop believing you will not (see §4.4.2.2).

Clark suggests the statement 'I intend to drink the potion but I won't drink it' is "as self-defeating a belief or utterance as one of the form '*p* but I don't believe it'".[276] He sees a connection, then, between the Toxin Puzzle and Moore's Paradox (which concerns statements of the latter sort). Putting aside whether this is the best way to interpret the Toxin Puzzle, there is a noteworthy connection between the two problems, reflecting the core theme of this chapter: a first-person/third-person asymmetry in terms of how we arrive at assertions concerning belief. There is nothing inconsistent in my asserting '*p* but you don't believe it', just as there nothing inconsistent in my asserting 'You intend to drink the potion but you won't drink it' (if, for instance, I intend to prevent you from drinking it). It is only when the assertion is in the first-person, and the statement of belief reflexive, that the case becomes puzzling.[277]

In addition to this asymmetry is a common thread concerning our formation of beliefs and intentions. There is nothing strange about *p* being true but believing ¬*p*, but Moore's Paradox points to the tension between asserting *p* while believing ¬*p.* Likewise, while there is nothing problematic about intending to φ and then not φ-ing, the Toxin Puzzle shows, at minimum, that there is something puzzling about intending to φ – or at least, trying to intend to φ – while intending to not φ (or believing that you will

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[273] Clark, Paradoxes, p. 220; based on G. Kavka, "The Toxin Paradox", *Analysis,* Vol. 43 (1983), pp. 33-36.
[274] *Ibid.*; cf. Hornsby, Trying to Act, p. 23. Frankfurt employs a similar case – the physician who wishes to feel what it's like to take a given drug, but doesn't actually wish to take the drug (Freedom of the Will, p. 9).
[275] Mele, Intention, pp. 112-113.
[276] Clark, Paradoxes, p. 220.
[277] Clark gives the following explanation for this asymmetry: "I know what you believe by listening to what you say and watching how you behave, but I do not need to observe myself before I can express my beliefs. If asked why I believe [not *p*], I will not normally talk about myself but about [*p*]. If I have any reasons for that belief and don't just hold it as a hunch, my reasons for *believing* [¬*p*] will be reasons why [¬*p*]. I will not have separate reasons for [¬*p*] and my beliefs in it" (p. 131). Other paradoxes contain this asymmetry, see for instance Peter Cave, "Too-self-fulfilling", *Analysis,* Vol. 62 No. 2 (2001), p. 143.

not φ). In the former case at least, a realisation – for example, that it would be irrational to *actually* drink the potion – can destroy one's ability to form intentions.[278] In terms of foreknowledge, genuinely trying to pick two boxes when the predictor has foretold that you pick one, or destroying your pen before its known destruction date, is at least similar to intending to drink a potion that you believe you will not drink. "I know I will φ tomorrow but I am not going to φ" is not something a rational agent can sincerely assert, and if the first clause is true, then the intention to refrain will not be formed.

4.4.2.1.3 TIME TRAVEL & THE INTENTION PROBLEM

A related psychological problem has been raised by Smith in the time travel literature, although he does not take it far enough. He gives several thought experiments in which a time traveller goes back in time and interacts with her younger self and notes what a strange experience that would be for the time traveller: after all, she has already experienced each of these interactions from the perspective of her younger self. If the two engage in conversation, then whatever the traveller says "will sound oddly familiar: for she will remember hearing those words when she was young", and unlike an actor who can depart from the script,

> "if the time traveller is about to fall silent, she remembers that too; if she is about to run screaming from the room because she is totally freaking out, she remembers that too. There is no escape: *whatever* she does next, she knows what she will do, before she does it."[279]

Smith argues, and I tend to agree, that the problem with this scenario is not one of free will (at least in a way that would cross-cut all accounts of the latter – see §3.2).[280] He draws the comparison between this case and one in which a time traveller brings back a videotape showing what your friend will eat for lunch tomorrow. Such a tape would merely report the (potentially free) choice your friend makes; it does not restrict it (as shown in Chapter 2, the existence of such a tape entails only weak predestination). However, where the two come apart, as noted above when discussing the first-/third-person foreknowledge distinction, is in the causal chain of events leading up to the choice. Smith writes,

> The difference is one of psychological mechanisms. Your knowledge of what your friend will choose for lunch does not figure in the causal processes leading up to that choice. In the time traveller's case, however, the knowledge of the outcome is not isolated from the process leading to that outcome: what one knows plays a role in one's decisions about what to do next. There is thus feedback between

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[278] Laurence Goldstein and Peter Cave, "A unified pyrrhonian resolution of the toxin problem, the surprise examination, and newcomb's puzzle", *American Philosophical Quarterly,* Vol. 45 No. 4 (2008), p. 365.
[279] Nicholas J. J. Smith, "Why Would Time Travelers Try to Kill their Younger Selves?", *The Monist,* Vol. 88 No. 3 (2005), p. 389.
[280] *Ibid.*, pp. 389-90.

the outcome – the time traveller's decision about what to do next – and the causal processes that produce it.[281]

Whether or not Smith is right in asserting that the problem here is not one of fatalism or free will, there is indeed a further oddity that arises as a result of the first-person foreknowledge. Smith makes a similar point as that which arose from the discussion of action theory and the toxin puzzle above:

> It would seem that it is psychologically impossible for someone to both know exactly what she is going to do next, and also deliberate in the normal way about what to do next: this is what sets our problem.[282]

However, Smith thinks that such a problem only arises in cases of self-interaction; indeed, he explicitly states that "the psychology of self-interaction is essentially different from that of interaction with others – because the former, but not the latter, involves the problem of agents knowing what they will decide to do, before they decide to do it."[283] But the problem is much broader than this. After all, foreknowledge scenarios are not limited to time travel scenarios, and even if we are talking about time travellers specifically, they may have sufficient foreknowledge on other matters to frustrate the formation of intentions. For instance, if I know that Hitler died in 1945, then I can reason that I did not kill him when I travelled to 1940, and thereby form a belief that I did not (or will not, depending on my temporal location). Further, if I understand that Hitler could not simultaneously be killed in 1945 and not killed in 1945 (because he was killed in 1940) – i.e. that this would be a contradiction – then I can rationally believe it is impossible for me to kill Hitler in 1940. How then can I form the intention to kill him, knowing (or at minimum, believing) that I will not and cannot succeed? I may desire to kill Hitler, or in Hornsby's sense, intend to *try* to kill Hitler (perhaps because I'm curious as to what will foil my attempt), but if I am rational, it seems I cannot intend to kill Hitler, and thus my bilking attempt will not get off the ground. Note that given my very weak belief requirement – demanding only the absence of a belief that you will or must be unsuccessful – to speak of 'trying' is something of a red herring: it is the intention to act that is important, and it is the intention that the rational bilker cannot have.

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[281] *Ibid.,* p. 390.

[282] *Ibid.*, p. 391. In footnote 4, Smith notes "By 'deliberating in the normal way' I mean weighing up a range of options, all of which seem open to one, and then choosing which of these actions to perform" (p. 39). Riggs makes a similar point (see §5.2.1f), that the agent's knowledge that he will fail might weaken the effort with which he makes a bilking attempt. Although he does not limit this to self-interaction cases, he does not recognise the full extent of the problem – i.e. that it would preclude intention formation, not just undermine the effort (P. J. Riggs, "The Principal Paradox of Time Travel", *Ratio,* Vol. 10 No. 1 (1997), p. 55).

[283] Smith, Why Would Time Travelers, p. 394.

4.4.2.2 POSSIBLE RESPONSE I: THE SURPRISE EXAMINATION

As demonstrated above, beliefs are broadly agreed to play a crucial role in the formation of intentions. Although there is considerable debate on the precise nature of that role, my very weak belief requirement is compatible with a broad range of accounts. A potential response to the intention problem is likewise focussed on beliefs, and comes from the paradox literature, inspired by discussions of the Surprise Examination. In short, it is 'if you give up the belief that you will fail, the problem does not arise.' But voluntarily and deliberately adopting and abandoning beliefs is arguably not so simple.[284] In the Surprise Examination, a student is told by a reliable teacher that there will be an examination one day of the following week, and also that it will be a surprise. The student rules out Friday as a possibility on the basis that if the exam has not occurred by the end of Thursday, she would not be surprised should it occur on Friday. Likewise, if "it hasn't come by Wednesday evening, [she] will rule out Friday for the reason just given: but then it won't be a surprise on Thursday and so that day is ruled out too."[285] By reasoning backwards, each day is thus ruled out. But surely there can be such an exam.

A fairly popular response to the surprise examination paradox has been to posit an oscillating, unstable circle of belief. Given that Friday is the last (school) day on which the exam could fall, come Thursday evening the student

> [W]ill think, 'So either there will be an exam which I expect or there will be no exam. But in that case I can no longer be sure there'll be an exam, since the teacher's announcement cannot be fulfilled. So it could be a surprise after all. But then I must expect it, so it won't be a surprise.' This could go round and round indefinitely. In such an unstable position the pupil cannot be sure there will be an exam, so that if an exam does take place it will be unexpected."[286]

Cave echoes this point:

> "Such reeling means that no stable belief can be reached. The reasoning loops round and round."[287]

One way out of the Intention Problem may be just such a reeling. Take the Newcomb example mentioned earlier, when you know the infallible predictor knows you will take one box but you desire to take two to maximise your profits. The belief that you will take one box (and thereby fail to take both) will, under the intention problem, preclude your forming the intention to take both boxes. But, choosing two boxes instead of one is the sort of thing one is usually able to do: all the required actions – such as

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[284] See, for instance, Goldstein and Cave, A unified pyrrhonian resolution, p. 373.
[285] Clark, Paradoxes, p. 231.
[286] Clark, Paradoxes, pp. 231-2.
[287] Cave, Can a robot be human?, p. 64; Cf. Goldstein and Cave, A unified pyrrhonian resolution, p. 371.

travelling across the room, pointing to the box or otherwise indicating your choice – are usually within one's ability. So you might start to believe you can choose both boxes, and doubt the predictor really has foreknowledge, or doubt its infallibility. Once you give up the belief that you will fail to actualize your choice, the intention problem dissipates (as Goldstein and Cave remark regarding the surprise examination: "one need only extricate oneself from the reasoning, doomed to be futile"[288]). Of course, if the predictor really does have foreknowledge, then you will fail. And if this is a game repeated on many occasions, then your doubt might lessen to the point that you do believe, in stable and persistent fashion, that any time you try to take two boxes (where the predictor has predicted otherwise) you will fail. And then the intention problem rears its head again. So, as a potential solution, it is limited.

Interestingly, there are other parallels between the intention problem and the surprise examination. The first is the role of belief: as Cave notes, the former results neither from the teacher telling the pupil of the surprise examination, nor from there being a surprise examination, but from the student *believing* what the teacher tells her.[289] Additionally, both problems only affect rational agents – they hinge on the agent's inability to hold directly conflicting beliefs.[290]

4.4.2.3 POSSIBLE RESPONSE II: BUT THOU CAN

The intention problem is not limited to cases where an action is indeed logically impossible – such as the time travel or foreknowledge bilking cases – but may arise whenever anyone believes, rightly or wrongly, that they cannot (or certainly will not) perform a given action. Nonetheless, the former are the cases I am most interested in, and come about because the bilking attempt seemingly must fail; the bilker *cannot* succeed. After all, a successful bilking attempt generates a contradiction: if I know *p,* then by factivity *p* is true, so I cannot bring about ¬*p.* Similarly, if the time traveller wishes to kill her earlier self, then given she was not killed as a child (and thus grew up to be a time traveller), she cannot succeed in her attempt.[291]

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[288] Goldstein and Cave, A unified pyrrhonian resolution, p. 374.
[289] Cave, Can a robot be human?, p. 65.
[290] Clark, Paradoxes, p. 231.
[291] I am assuming immutability here, as discussed in Chapter 5. This is compatible with mainstream theories of time (see §5.5 for explanation and exceptions). Note that the inevitable failure mentioned here is the failure of the *bilking attempt* (i.e. the attempt to do the logically impossible – bring about a contradiction). One can make it the case that a proposition has a certain truth value (in this case *p,* but recall there is nothing necessary about my knowing *p* rather than ¬*p*), but given that truth value at a particular time, one cannot then reverse it *at the very same time.* This is not an impediment to our free will (at least no more than our inability to do other logical impossible things, like square the circle), nor does it entail that *p* is metaphysically fated.

However, Lewis argues that there is a real sense in which the time traveller *can* kill her earlier self, although she never in fact will.[292] Although this 'can' does not entail the possibility of success (for success would engender a contradiction), it is nonetheless a meaningful 'can', and indeed, is a 'can' that corresponds to our everyday assessments. When I consider whether I *can* read a novel on a Sunday afternoon, it is not relevant whether I do, in fact, read it: what is important is that I have the afternoon free; that I am able to read at a certain pace; that I have access to the book and a comfy sofa; that the book is written in a language I comprehend, etc. Similarly, an auto-infanticidal time traveller 'can' succeed, if we only consider facts concerning her ability and opportunity: her accuracy with a pistol, her knowledge of where her baby self will be on a particular day, and so on. This interpretation of 'can' offers a potential solution to the intention problem: if the time traveller believes that she can at least in some sense kill her earlier self, then perhaps this will be sufficient for intention formation.

Of course, it is not clear that Lewis is right; specifically it is not clear that there is a substantive sense in which it can be said that an agent *can* do something that she will consistently fail to do. Vihvelin makes this point specifically in regards to auto-infanticide attempts, arguing that "no time traveller can kill the baby who in fact is her younger self, given what we *ordinarily* mean by 'can'",[293] and giving the following account of the latter:

> …what we ordinarily mean when we say that someone can do something is that she has both the ability and opportunity to do it. More precisely, we mean that she has the ability to do an act of the relevant kind and that nothing prevents her from exercising this ability.[294]

So far, this is in keeping with Lewis's account, and with the example of my reading a novel on Sunday afternoon. However, Vihvelin adds,

> We should agree that someone can do something, in the *relevant* sense, only if it's true that if she tried to do it, she would or at least might succeed. And everyone should agree that if someone would fail to do something, no matter how hard or how many times she tried, then she cannot do it.[295]

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[292] Lewis, Paradoxes, p. 150f.

[293] Kadri Vihvelin, "What Time Travelers Cannot Do", *Philosophical Studies,* Vol. 81 No. 2/3 (1996), pp. 316-317; Note she is ruling out time travel taking place in possible worlds allowing for people to come back from the dead etc. (i.e. with different laws in the relevant respects). Vihvelin notes: "Of course, it's *logically possible* for Suzy to kill Baby Suzy; that is, there are worlds at which Suzy tries to kill Baby Suzy and her attempt succeeds… Either way we are talking about possible worlds very different from our own. So different, it seems to me, that they are not relevant to counterfactuals about what would have been the case had Suzy tried to kill Baby Suzy" (p. 321).

[294] *Ibid.,* p. 318.

[295] *Ibid.,* p. 318.

For Vihvelin, a defender of the claim that the time traveller has the ability and opportunity to kill her baby self, and thus *can* kill her baby self, must likewise defend the claim that "there is at least one occasion on which it's true" that had the time traveller tried, she would or might have succeeded (despite her consistent failures).[296] It is difficult to see how one might defend this claim, especially in cases of auto-infanticide in a world like our own, where the very existence of the time traveller hinges on the failure of any and all attempts. Vihvelin's claim, and it seems plausible, is that in all the closest possible worlds in which the time traveller tries to commit auto-infanticide, the following counterfactual is false:

(S) If the time traveller had tried to kill her younger self, she would or at least might have succeeded.

And (F) is invariably true:

(F) If the time traveller had tried to kill her younger self, she would have failed.

If this is the case, and Vihvelin is correct in her analysis of what we mean by 'can', then it will always be false that:

(C) The time traveller can kill her younger self.[297]

Importantly, the impossibility in question, for Vihvelin, is nomological:

> Given our laws, no one can kill her younger self. Laws sustain counterfactuals, and one of the counterfactuals sustained by our laws is this one: If anyone tried to kill the baby who is her younger self, she would fail.[298]

Vihvelin thinks that her argument extends only to auto-infanticidal time travellers, would-be grandfather killers and the like; that is, cases where the action involved is nomologically impossible. She is less certain with regards to other intentional bilking scenarios, for instance, if a time traveller – having

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[296] *Ibid.,* p. 319.
[297] *Ibid.,* p. 320.
[298] *Ibid.,* p. 323. Vihvelin concentrates on nomological possibility on the basis that there may be possible worlds in which you could consistently kill your earlier self given different laws, for instance, worlds in which resurrection is possible, or where there are 'standby' versions of you waiting in the wings to take up the mantle of your identity. The vast majority writing on the subject talk of logical possibility, but depending on how you frame the paradox, certain laws may indeed be required. Specifically, if it is built into the scenario that your earlier self never died, then it would be a straightforward contradiction to bring it about that you did. But if your earlier self's not dying is merely to be inferred from your later existence, then there are certain nomological assumptions taking place (see fn 293).

read about Hitler – travels back in time with the intention of killing him as a baby.[299] Given that Hitler did not die as a baby (and instead grew up to perform acts of the sort that motivate time travel murder attempts), no matter how many times the time traveller tries to kill him, she will fail. She must fail, or a contradiction would ensue. Following Vihvelin's argument then, it seems that the time traveller *cannot* kill baby Hitler. Similarly, if I know I will wear a red dress on Friday, and knowledge is factive (thus it is true I will wear a red dress on Friday), then I will wear a red dress. If I try not to, I will fail. I must fail, lest there be a contradiction. There is no possibility of success, and thus, following Vihvelin, I *cannot* avoid wearing red. Vihvelin herself would dispute this move, based on her account of closest possible worlds. She argues that worlds where a time traveller tries to kill Baby Hitler and succeeds – because it turns out she is mistaken about Hitler and his future actions – are closer than worlds in which the time traveller has true beliefs but is otherwise foiled, and if this is the case, "there is reason to believe that Suzy *can* kill Baby Hitler, even though we know that she never will."[300] This is unconvincing, for two reasons. Firstly, it is not clear that the Hitler exception cannot be applied back to the auto-infanticide case: why should we think worlds in which Suzy's baby self is killed and then resuscitated, or in which baby Suzy is killed but the adult time traveller turns out not to be Suzy (because she has unknowingly co-opted Suzy's identity) are farther than worlds in which Suzy's murder attempts are repeatedly foiled? Secondly, as Ira Kiourti argues, Vihvelin's argument is circular:

> [Vihvelin] argues that Suzy's attempt to kill Baby Suzy *fails at all nomologically possible worlds* by assuming that if there is an attempt on Baby Suzy by Suzy at all, then it is part of the causal chain of events which lies in Suzy's personal past (given Suzy's identity with Baby). But to assume that the attempt lies in Suzy's personal past is to assume that the attempt *fails at all nomologically possible worlds* at which Suzy makes it.[301]

Thus Vihvelin's argument amount to 'Suzy *must* fail because she *does* fail', which is the same modal fallacy noted in Lewis's original argument, and which underpins the folk intuition regarding foreknowledge: that because something is true, it is necessary.[302]

So, it seems, Vihvelin's argument against Lewis's context-sensitive 'can' is flawed. If it could be salvaged, then either rational agents would be precluded from performing intentional actions constituting bilking attempts, or – if Vihvelin was right about the limited applicability of the argument – then it would not be possible for the rational agent to consciously and knowingly intend to kill her baby self. However, even if

[299] *Ibid.,* p. 329.
[300] *Ibid.,* p. 329.
[301] Kiourti, Killing Baby Suzy, pp. 350-351.
[302] *Ibid.,* p. 351; Lewis, Paradoxes, p. 151; see §2.2.3.

we grant that Lewis is correct and there is a substantive sense in which a time traveller 'can' kill her younger self, it is not clear that the can/can dichotomy really undermines the intention problem. Consider again the time traveller who wishes to kill Hitler in 1940, knowing that Hitler did not die until 1945. Earlier I argued that given this knowledge (and by appropriate reasoning, the belief that she cannot succeed), the time traveller would be impeded in forming her murderous intention. A Lewis-style response would be to argue that there is a sense in which the time traveller *can* kill Hitler, and thus she would not possess the negative belief required to undermine her intention formation (at least, it might give her doubt, which may be enough). However, if she is rational, she will understand that even if she *could* kill Hitler, she *won't.* For if she does, she will bring about a contradiction, and that is impossible. A belief that you definitely *will not* succeed gives rise to the Intention Problem just as swiftly as one that you *cannot*, and thus even if Lewis is right, the problem is not circumvented.

Interestingly, if we count the ability to form an intention as requisite for the ability to act intentionally, then the Intention Problem – in addition to not being solved by it – might actually undermine Lewis's claim that the time traveller can kill their younger selves. If part of what it is to have the ability to φ – in the sense relevant to the would-be bilker – is to form the intention to φ, then the rational agent who understands the inevitability of their failure cannot be said to be able to φ.[303]

4.4.2.4 A FIRST-PERSON PROBLEM

When discussing the toxin puzzle, I alluded to the first-person/third-person asymmetry underlying the intention problem, but it is worth briefly spelling out why it is unique to first-person foreknowledge. After all, one might object, suppose I know you will φ tomorrow, and I do not wish you to φ. If I know you will, then you will, and that realisation will preclude my forming the intention to stop you. But the knowledge itself is third-person; it describes your action, not mine.[304]

However, this is indirectly first-person foreknowledge. If I know that you will φ tomorrow, then I can know based on this that I will not stop you (either because I cannot or I do not – either way, I will not). This will be true of anything I know about you or any other third party's actions: for me to know that *S* will φ, it must be the case that I do not prevent *S's* φ-ing. Thus I have (limited) foreknowledge as to my own future actions. If I did not, then I would have no reason to hold the belief that gives rise to the

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[303] For one repercussion of this, see S. Rennick, "What mere mortals *can* do, but philosophers can't", *Analysis,* Vol. 75 No. 1 (2015), pp. 22-26.

[304] I am grateful to Fiona Macpherson for first raising this objection. Again, the scenario is technically described in the second-person, but counts as 'third-person' following the terminology used throughout: the subject/object of the knowledge is unaware of its existence or content.

intention problem: that is, the belief that you will ϕ and *I will not stop you.* It is thus, at its heart, a first-person problem.

4.4.2.5 WHY IT'S NOT A DEAL-BREAKER

The intention problem does not affect the logical possibility of foreknowledge: it does not generate a contradiction (indeed, as suggested in Chapter 5, it might serve to foil them). Nor does it affect the type of predestination entailed by the foreknowledge that gives rise to it. However, if your account of free will hinges on the ability to form intentions – as specific mesh accounts might – then you may not be free to engage in bilking attempts (although given that under the intention problem you will not engage in bilking attempts (until you give up the contrary belief), that seems plausible). Overall though, the intention problem is just a bit weird. It will prevent us doing certain things – forming intentions and making attempts to do things we believe we will not or cannot do – but only if we are rational, and only until we give up the latter beliefs. And, as I have argued elsewhere,[305] it is not unique to foreknowledge (at least, not to the mysterious sort involving a divine, determined or time-travelling foreknower). The intention problem also stops us forming the intention to fly, leap tall buildings in a single bound, eat stars, or fulfil our childhood ambitions of growing up to be a strawberry. The more you know, the less you can do. Puzzling perhaps, but not paradoxical. (Possibly it speaks to a nugget of truth in the folk intuition – it seems to us there is less we can do, if someone knows the future in advance).

4.5 CONCLUSION

In conclusion, although first-person foreknowledge is notably different from the third-person variety – not least for the new dilemmas it generates – it does not redeem the folk intuition. First-person foreknowledge does not entail problematic predestination over and above the third-person kind: still only divine foreknowledge leads to metaphysical fatalism. Likewise, most accounts of free will are equally as compatible with the former as the latter – the only exceptions are the mesh accounts, and those only depending on how one fleshes out the mental states required. Although first-person foreknowledge may generate puzzling consequences such as the intention problem and the formation of several kinds of causal loop, neither of these is a deal-breaker for its possibility: they are puzzling, but do not entail contradictions.

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[305] Rennick, Mere Mortals.

At this point we can put the folk intuition to bed: foreknowledge need not entail a problematically fixed or freedom-precluding future, even if it is reflexive. Nonetheless, the discussion is not yet complete. In addressing first-person foreknowledge, two additional themes became evident, and these are worthy of further exploration: 1) bilking attempts, and their impact on the possibility and plausibility of foreknowledge, and 2) the parallels between backwards time travel and knowledge of the future. It is to these that the final chapter of this thesis is dedicated.

CHAPTER FIVE: BILKING THE FUTURE

"Among the things Billy Pilgrim could not change were the past, the present, and the future."
– Kurt Vonnegut[306]

5.1 INTRODUCTION

Up to this point, I have been concerned with two central questions:

1. Does foreknowledge entail predestination?

And,

2. Does predestination preclude free will?

Chapters 2 and 3 considered these questions in the context of third-person foreknowledge, and chapter 4 added in reflexivity and the additional dilemmas that follow from knowing your own future. This chapter has two main concerns: (1) it tackles questions introduced in Chapter 4 concerning why an agent must fail to change a foreknown future and how we account for such failures, and in doing so, (2) considers metaphysical consequences of foreknowledge other than predestination and free will, focussing particularly on coincidence. While Chapters 2-4 formed a linear narrative, here we depart slightly to explore the symmetry between backwards time travel and knowing the future, and what conclusions regarding the former can tell us about the latter.

The impetus for this chapter is as follows: backwards time travel seems to allow for the possibility of bilking attempts, and thus defenders of the possibility of such time travel must account for why and how bilking attempts fail, and also for why the persistent failure of bilkers does not undermine the probability of time travel. Foreknowledge would seem to allow for future-directed bilking attempts: that is, attempts to change a future that is known (and thus in some sense – even if just the weakly predestined sense – fixed). What I will show is that you cannot change the future any more than you can change the past, and that the same reasons for why you don't can be offered in both cases. Then I shall go on to consider the limitations of the symmetry.

The structure of the chapter is as follows: after introducing some basic parameters and assumptions in §5.1, I will turn to the Grandfather Paradox and past-directed bilking attempts, showing why and how

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[306] Kurt Vonnegut, *Slaughterhouse-Five,* Kindle Edition (Rosetta Books, 2010), Chapter 3.

such attempts fail (§5.2). Then I will consider the same issues in the context of foreknowledge and future-directed bilking attempts (§§5.3-4). Having shown that

a) Any attempts to change the past or future fail;

b) The same reasons for why you cannot, and why you do not, can be offered for both;

and,

c) That time travel and foreknowledge are logically possible;

I will turn to probability and whether the requirement for coincidence undermines the likelihood of time travellers or foreknowers existing in a world like our own (§5.6). I shall argue that Horwich's oft-discussed argument fails to demonstrate that time travel is improbable, and that an analogous argument against foreknowledge is likewise unsuccessful. Thus I shall conclude that both time travel and foreknowledge are logically possible, and at worst, only contingently improbable.

5.1.1 PARAMETERS

While in earlier chapters I have, where possible, deliberately refrained from restricting the discussion to a particular theory of time, for the bulk of what follows I will be assuming four-dimensionalism as described in Lewis's "The Paradoxes of Time Travel".[307] This is for ease of discussion: not only does the bulk of the philosophy of time travel assume this view; the parallels between time travel and foreknowledge are most transparent in a 4D universe (given the in-built symmetry and ontological reality of past and future). However, my conclusion would be stronger if it were more generally applicable, and so I shall consider the ramifications for other views in §5.5. As I shall demonstrate, most mainstream views of time are compatible with the conclusions drawn. A brief recap of four-dimensionalism and other important terms and assumptions is given below.

FOUR-DIMENSIONALISM

For Lewis, the universe is a four-dimensional manifold of events, where time is a dimension additional and analogous to the three spatial dimensions.[308] Entities are thus extended in four directions through space and time: they have length, breadth, width, and duration.[309] Just as Australia is thought to be equally real as Scotland, but spatially distant, so the past and future are as real as the present, but

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[307] Lewis, Paradoxes, p. 145f.
[308] *Ibid.*
[309] H. G. Wells, The Time Machine, pp. 193-4.

temporally distant: the various eras visited by a time traveller are *there* to be visited, existing at a temporal distance from us, rather than ceasing to exist as the present moves forward or time flows on. The notion that the present is special or privileged is illusory, merely a "reflection of our limited cognitive access to all of what exists".[310] It is within the assumed framework of a 4D universe that most time travel literature is set, and unless stated otherwise, it is the framework I am working with in the discussion that follows.

LEWIS'S DICHOTOMY OF PERSONAL AND EXTERNAL TIME

Lewis's dichotomy allows us to make sense of statements such as 'soon he will be in the past'; that is, in a short time in terms of the time traveller's personal chronology he will be in the external past. If he travels from the present to 1970, the time machine traverses forty-odd years, but the duration of the journey will register on the time traveller's wristwatch, or in the aging of his cells, only minutely. If I were to travel back in time tomorrow, then my destination would be earlier in external time, but I would reach it later in terms of my personal time. For Lewis, external time is 'time itself', and personal time can be functionally defined as playing the same role in the time traveller's life that external time plays in the life of the average person, or very roughly, that which is measured by the time traveller's watch.[311]

ONTOLOGY OF CAUSALLY-CONNECTED TEMPORAL STAGES

Although it is beyond the scope of this work to consider problems of identity and how they pertain to time travel, Lewis's ontology is useful insofar as it allows us to make sense of a time traveller being in two places at the one time: I could go back in time and talk to my younger self; each is a 'time slice' of the enduring space-time entity that is me.[312] Just as there is a part of me between my elbow and wrist, says Lewis, so there is a part of me between my 10th and 11th birthdays: the former is spatial, and the latter temporal. We are accustomed to various spatial parts of ourselves existing simultaneously: it will come as no surprise if my wrist and elbow are both in the same room as my head. Via time travel, later

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[310] Ken Perszyk and Nicholas J. J. Smith, "The Paradoxes of Time Travel", Hamish Campbell (ed.), *Maui and the White Rabbit: Maori and Pakeha concepts of time,* (Wellington: Te Papa Press, 2001), p. 4. (Page numbers taken from online version: http://myweb.lmu.edu/tshanahan/The_Paradoxes_of_Time_Travel.pdf, accessed 20 Jan. 2014).

[311] Lewis, Paradoxes, p. 146. It is not my intention to consider what exactly personal time might consist in; it is the vocabulary that is helpful for the purpose of the discussion. For a rare in-depth treatment see Talia Sellars, "Time-travel, causation, and the direction of time", PhD thesis, (University of Auckland, 2014), Ch. 5.

[312] This is a perdurantist view of persistence. So long as endurantism is equally compatible with time travel, the conclusions drawn will be unaffected (a temporal parts vocabulary is helpful and fairly ubiquitous when discussing time travel, but I make no claims as to its necessity). See Simon Keller and Michael Nelson, "Presentists should believe in time-travel", *Australasian Journal of Philosophy,* Vol. 79 No. 3 (2001), p. 341f.

and earlier temporal stages (or 'time slices') can simultaneously exist, allowing me, for example, to chat to my earlier self.[313]

BACKWARDS-DIRECTED, DISCONTINUOUS TIME TRAVEL

I will be describing time travel cases as if the mode of travel was discontinuous, that is, involving disappearance at one time and instantaneous reappearance at another, analogous to teleportation. None of my conclusions hinge on this, it is just for ease of discussion.[314] Given that most of the time travel cases outlined deal with travel into the past, I am assuming backwards causation is possible. I am not giving an account of how it might work, or what causation consists in, but without the minimal assumption of its possibility, the discussion does not get off the ground.

FACTIVITY OF KNOWLEDGE

As I have throughout, I will refrain from giving a particular account of knowledge when discussing foreknowledge, but will assume factivity: that is, if somebody knows *p,* then *p* is the case – it is true. One cannot know false things.

With these assumptions in mind, we now turn to the primary paradox posed to undermine the possibility of time travel: the grandfather paradox.

5.2 THE GRANDFATHER PARADOX

The grandfather paradox has been discussed in countless texts, but usually proceeds as follows:

> If I could travel back in time, I could kill my grandfather before my father was conceived, thereby preventing my own existence. But if I was not born, how could I travel back in time to kill my grandfather?[315]

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[313] Internally consistent fictional examples include Harry and Hermione watching earlier versions of themselves in Hagrid's Hut (Rowling, Prisoner of Azkaban) or Bill and Ted talking to earlier versions of themselves (Stephen Herek, *Bill and Ted's Excellent Adventure,* (Interscope Communications, 1989).

[314] Other modes discussed in the literature include continuous time travel and alternate path time travel. See, for instance, Bradley Monton, "Time Travel Without Causal Loops", *The Philosophical Quarterly,* Vol. 59 No. 234 (2009), p. 57; Jonathan Harrison, "Dr Who and the Philosophers or Time-Travel for Beginners", *Proceedings of the Aristotelian Society, Supplementary Volumes,* Vol. 45 (1971), pp. 10-15; William Grey, "Troubles with Time Travel", *Philosophy,* Vol. 74 No. 287 (1999), pp. 60-62. These come with their own problems, but none that bear on the present discussion.

[315] Almost every time travel paper referenced in this chapter contains mention of the Grandfather Paradox. The most common version cited is from Lewis, Paradoxes, p. 149f.

A common variant of this paradox, the 'auto-infanticide paradox', works on similar grounds, except that instead of killing my grandfather, I kill my younger self.[316] In both cases, it is argued, a contradiction ensues: I both could and could not kill my grandfather (or my earlier self). I could, so the argument runs, if I was a time traveller and had the requisite ability and opportunity; but I could not, given that my existence (and thus my being able to make a killing attempt) is contingent on my grandfather's survival. This argument has regularly been employed as 'evidence' for the impossibility of time travel, for, as Lewis notes, "if a time traveller visiting the past both could and couldn't do something that would change it, then there could not possibly be such a time traveller."[317]

So, our time traveller – let's call him Bill – sets off on a most excellent adventure with the intention of killing his grandfather. If he successfully commits grandpatricide, then he will have ceased to exist, and thus could not have succeeded. Clearly this is a contradiction, and thus we are left with two alternatives: either backwards time travel is logically impossible, or Bill will fail in his attempt (and any successive attempts) to kill his grandfather.[318] This raises two (related) questions:

1. Why must he fail?
2. Why does he fail? Or rather, how do we account for his repeated failures? What made him fail?

5.2.1 WHY MUST HE FAIL?

> Time travellers can *affect* the past; and if there are parallel universes, or additional temporal dimensions, then time travellers can *avoid* the past. They can *change* the past, however, no more than anyone can do anything contradictory, such as prove that 17=7. If a time traveller is going to travel to some past time, then she has already been there.[319]

The structure of space-time ensures Bill fails: under the 4D view (and other views, as shown in §5.5), the past is immutable.[320] What this amounts to is that each 'time' or 'moment' only occurs once. Should a

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[316] See, for instance: Smith, Bananas, p. 363f; Vihvelin, What Time Travelers Couldn't Do; Kiourti, Killing Baby Suzy.
[317] Lewis, Paradoxes, p. 149.
[318] As noted in footnote 298, there are two ways to frame the grandfather paradox. Whether there is a sense in which the time traveller 'can' kill his grandfather is not the issue here (although I did consider it in §4.4.2.3). It is the 'cannot' which has primary focus in this chapter: that the time traveller cannot bring it about that his grandfather both died and did not die at a single time (i.e. the time traveller cannot bring about straightforward contradictions).
[319] Smith, Bananas, p. 365.
[320] Under four-dimensionalism, this is fleshed out in terms of temporal parts. For Lewis, change is defined as "the qualitative difference between temporal parts of something", and thus anything lacking such parts cannot undergo change. Numbers fall into this category, and crucially, so do events at any moment in time: they "cannot be subdivided into dissimilar temporal parts" (*Ibid.,* p. 146). So, while the time traveller could be causally efficacious in

time traveller decide to travel backwards in time, and take a life, ensure a birth or perform any action at all, he has already been there and done so. To think that a specific event at a specific time occurs more than once – that is, the 'original' time in which the grandfather survives and the 'second' time in which a murder attempt is made– is to fall prey to the second-time-around fallacy, a mistake committed often by fiction writers, philosophers and physicists alike.[321] Heather Dyke writes,

> [T]o make this mistake is to move from the fact that the events of a time are recounted twice, and recounted from two different perspectives, to the conclusion that events happen twice. From this it is thought to follow that it is possible for the events to turn out differently each 'time' they occur.[322]

It is fallacious to think there is a second-time-around: the way things are at any moment in time is the way things always were at that moment in time, and facts about any given event are 'timelessly' true or false. Bill was born, thus he could not have prevented his birth by killing his grandfather; any attempts he might make will fail (indeed, have failed), and they would always have been part of the timeline. That is, anything Bill (or anyone else) does while travelling in an immutable universe he always did: he cannot change the past, and by travelling in time, his influence is limited to necessarily preserving the timeline and avoiding contradictions. As Smith notes, if a "complete chronicle of events" at any moment in time existed, it would describe Bill's arrival in the past and his actions there before he ever left the present.[323]

An attempt to change the past and thereby generate a contradiction is commonly referred to as a 'bilking attempt' (see §4.2). From Bill's case we can see that in order to avoid contradictions, either time travel must not occur, or bilking attempts must fail. Under the 4D and other immutable views then, time travellers inevitably fail at killing their grandfathers or earlier selves. They also, by extension, fail at killing Hitler, convincing their younger selves not to take up smoking, or tweaking events so that they win the lottery.

Horwich writes,

> Thus we concede that auto-infanticide is impossible but deny that its possibility follows from time travel. My inability to go back in time and kill *myself* as an infant is just a special case of my inability to

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bringing about a given state of affairs, there is no 'second-time-around' in which he brings about a different, contradictory state of affairs.
[321] The term 'second-time-around fallacy' comes from Smith, Bananas, p. 365.
[322] Heather Dyke, 'The Metaphysics and Epistemology of Time Travel', *Think,* Vol. 3 No. 9 (2005), p. 48.
[323] Smith, Bananas, p. 376.

go back in time and kill anyone before their death, and this is impossible for the same reason that I cannot, right now, kill someone before his death. The difficulty has nothing to do with time travel.[324]

While this explanation is considered sufficient by many time travel optimists, it has never been found adequate by time travel sceptics. The more pressing question then is not "Why can't the time traveller change the past?", but "What stops him?" The nature of space-time *necessitates* his failure, but what *causes* it?

5.2.2 WHY DOES HE FAIL?

So we know why bilking attempts must fail, but how do we account for our time traveller's inability to perform actions that would normally be unproblematic? Perszyk and Smith write,

> Killing one's younger self is impossible. Does that mean we need to posit special things to prevent it from occurring? Surely, the mere fact that it is impossible is enough! If your friend tells you he is off to square the circle, or prove that the square root of two is a rational number, you do not frantically dial the Logic Police to come and stop him. You know that he will fail, and there is no real mystery about how and why he will fail… Nothing special is required to prevent impossible things happening. They *cannot* happen, so their not happening looks after itself![325]

Despite this optimism, a significant number of novels, video games, films and philosophical texts have been devoted to explaining and exploring why and how bilking attempts fail, because our inability to do something which we ordinarily can do (such as fire a gun and hit a target) is thought to require explanation.[326] The most commonly quoted and lauded answer in the literature comes from Lewis: Why does Bill fail to kill his grandfather?

> For some *common place reason.* Perhaps some noise distracts him at the last moment, perhaps he misses despite all his target practice, perhaps his nerve fails, perhaps he even feels a pang of unaccustomed mercy.[327]

To those we could add, as others have: perhaps he accidentally travelled to the wrong time or place, perhaps he tripped on a banana peel, perhaps he mistakenly killed the wrong person, perhaps he was distracted at the last minute by a shout, and so on.[328] As Lewis notes,

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[324] Paul Horwich, *Asymmetries in Time,* (Cambridge, MA: MIT Press, 1987), p. 119.
[325] Perszyk and Smith, The Paradoxes, p. 8.
[326] And specifically, a causal explanation: see Riggs, Principal Paradox, p. 53.
[327] Lewis, Paradoxes, p. 150.
[328] Smith, Bananas; Sider, Time Travel; Phil Dowe, "The Coincidences of Time Travel", *Philosophy of Science,* Vol. 70 No. 3 (2003), pp. 574-589.

We often try and fail to do what we are able to do. Success at some tasks requires not only ability but also luck, and lack of luck is not a temporary lack of ability.[329]

That is, Bill can still shoot a gun, read a map and so forth to the same extent he could in the present, but his ability to plan, and put that plan in motion, does not guarantee his success. When he fails, his failure is attributable to the same sort of common-place reasons that regularly foil ordinary agents. Much of the literature accepts Lewis's theory of commonplace reasons at face value.

However, even if we accept that Lewis's theory accounts for why Bill fails to kill his grandfather the first time he tries, if a time traveller *repeatedly* tries to change the past, we might require a further explanation for why he repeatedly fails. A gun jamming or slippery banana peel may have hindered him the first time, but if Bill is insistent upon killing his grandfather, it seems we may need dozens of bananas. Thus we might question whether Lewis's account is tenable as a general explanation of Bill's continual lack of success. As a result of this worry, Riggs suggests we broaden Lewis's account. Rather than assuming that the cause of the time traveller's failure is independent of the time travel – that is, for instance, it is a fact about the past that a banana was there to be slipped on – Riggs argues that there are three types of reason the time traveller could fail:

1. His knowledge that he will fail in his attempt to change the past, resulting in a lack of effort (see §5.2.2.1)
2. A Lewisian 'common place reason', such as the aforementioned banana, which can be "explained within the causal framework of the 'local' era being visited."[330]
3. Causes that are externally later than the killing attempt, related to the time traveller and his journeying.

(3) is unique to Riggs, who writes,

The arrivals of travellers from a later time with whatever they bring will be events in a 'locally' earlier space-time region that would *not* have been the case if the time journey had not been undertaken. Such an arrival will, in addition, act as causes of other events which would not otherwise have occurred.[331]

For example, perhaps the wind caused by the arrival of the time machine affects the trajectory of the bullet, or germs carried in the time machine cause a bystander to catch a cold, the sniffles of whom

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[329] Lewis, Paradoxes, p. 150.
[330] Riggs, Principal Paradox, p. 55.
[331] *Ibid.,* p. 53.

distract the would-be murderer. Riggs's point, then, is that not all the time traveller's failed bilking attempts need be attributed to facts about the time he has visited; rather his failure may be a side-effect of the reverse causation. As he notes, these attempts, "and any later effects they may produce, constitute the difference between the 'local' past which [the time traveller] visits and a (counterfactually construed) era which [he] does not visit."[332]

Broadening Lewis's account to incorporate (3) gives it extra explanatory power with regards to the failure of bilking attempts: "failure comes about either from temporally prior causes (e.g. by accident) *or* they come about from later causes" related to the time traveller.[333] These reasons allow for time travel without contradiction: because the time traveller is unable to change the past, time travel is logically possible. Whether the need for long strings of banana peels (to prevent repeated bilking attempts from succeeding) makes time travel *improbable* is another matter, and one which receives its due attention in §5.6. Before moving on, more needs to be said about the types of reason Riggs points to in (1).

5.2.2.1 THE INTENTION PROBLEM REVISITED

One of the types of reason Riggs puts forward for the repeated failure of the time traveller's grandfather-killing attempts is as follows:

> [The time traveller] fails all his murder attempts because he *knows* that he will fail. He knows that his grandfather was not killed before his parent's conception. The effect of possessing this knowledge is that [the time traveller] either does not attempt to kill or (consciously or unconsciously) does not try as hard to succeed as he would have otherwise tried. The cause of not trying, or of trying and failing, is knowledge gained at a later time.[334]

If Riggs is right, then certainly such doubts or conflicting knowledge would serve to foil, one might think, a great number of bilking attempts. Although the past is not entirely transparent to us, there are certain facts about it that seem more or less certain, such as the existence of the necessary conditions for our existence, or the dates of the world wars.

However, the consequences might be more serious than Riggs suggests. Recall the Intention Problem from Chapter 4 (§4.4.2), which proposed the following weak claim:

> What is required, minimally, in intending to φ (or intentionally φ-ing) is merely the *absence* of a belief that you cannot or will not φ.

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[332] *Ibid.,* p. 55.
[333] *Ibid.,* p. 56.
[334] *Ibid.,* p. 55.

Based on this, I argued that you cannot intend to do something you know you will not or cannot do. So if our would-be grandpatricidal Bill knows he will not succeed, then he cannot intend to kill his grandfather. A deliberate killing attempt (a murder attempt) is intentional, and thus without the intention, his ability is compromised. If the claim above is correct,[335] then there may be far fewer bilking attempts than we might think (see §5.6.1.2). Of course, the intention problem only applies to rational agents with the requisite knowledge or belief regarding their own failure – it neither befalls irrational agents, nor those who are unsure of the likelihood of their success.[336] However, it is plausible to think that a time traveller who starts out unsure of her own success – perhaps she is not certain she is in a 4-dimensional universe, or does not believe the history books that Hitler died in 1945 – will come to doubt, after multiple attempts, that it is possible for her to succeed. When she comes to believe that she will not, or cannot, bilk, then the intention problem will rear its head, and prevent her making attempts so long as she holds the belief.

At this point, what should be clear is that the grandfather paradox and bilking attempts generally do not provide an insurmountable challenge to the possibility of time travel, and that the time traveller cannot and does not change the past. Many of the moves I have made are not novel in this regard (although the significance of spelling them out shall become clear); indeed, it is not a stretch to suggest that the standard position is a Lewisian one. What one does not find in the literature, however, is a discussion of future-directed bilking attempts and particularly their relationship to foreknowledge. It is to this that I now turn.

5.3 FOREKNOWLEDGE AND BANANA PEELS

One of the possible consequences of foreknowledge is future-directed bilking attempts. After all, if one can attempt to bilk the past, and such attempts are worthy of philosophical exploration (which, given the preponderance of literature on the topic, seems to be case), surely one can attempt to bilk the future, and this is likewise worthy of consideration. I raised this notion in Chapter 4, but did not explore

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[335] Keeping in mind that if it is not, a great deal of action theory would need to be revised. Cf. Rennick, Mere Mortals.

[336] Or those whose actions are not actually directed towards succeeding (§5.6.1.2). It would also not apply in cases like the Earman Rocket, a repeated bilking attempt (supposedly) devoid of human intention. Cf. John Earman, 'Implications of Causal Propagation Outside the Null Cone', *Australasian Journal of Philosophy,* Vol. 50 No. 3 (1972), pp. 231-2.; Ismael, Closed Causal Loops, p. 312.

it in any detail. So, would future-directed bilking attempts need to be foiled in the same way? Can we give the same explanation for their foiling?

When discussing time travel we started with a time traveller – Bill – so here let us start with a foreknower. Suppose that Ophelia knows that she will get married in 5 years. The mechanism by which she knows is not important at this point, but let us assume she indeed has foreknowledge and additionally is not just an ordinary foreknower (perhaps she is a time traveller herself, or is befriended by one, or has information from the infallible predictor).[337] Suppose she does not want to get married, and in the intervening period between her gaining knowledge and her nuptials, she engages in a number of measures to prevent getting married: she gets herself to a nunnery, has herself committed, or refuses to go on dates. For her knowledge to be knowledge then, given factivity, it must be true that she marries; so in an important sense she cannot remain unwed. But by all ordinary standards, not getting married is something a person would usually be able to do. It seems then that we have a case like Bill's, in which we require a special explanation for why she would fail, and repeatedly fail, in her attempt to avoid an outcome which we commonly think would be within our power to avoid. Just as past-bilking attempts are thought to pose a challenge to the logical possibility of time travel, future-bilking attempts serve as an analogous challenge to the logical possibility of foreknowledge (over and above those tackled in Chapters 2-4). In §5.2 I posed two questions: 'why must Bill fail?' and 'why does Bill fail?' I concluded that

a) Bill must fail because if he succeeds he changes the past, and this results in a contradiction;
b) The past is immutable, which explains the necessity of the failure;
c) Lewis's common-place reasons (bulked out by appeal to Riggs) provide a plausible explanation for his failure.

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[337] I have included only the 'extraordinary' means of gaining foreknowledge here, but it is worth considering ordinary foreknowledge as well. Where it seems to differ is that in the other cases we tend to hold the knowledge fixed, and thus concentrate on the bilking action (the grandfather killing attempt etc.). In the ordinary foreknowledge case, we tend to 'wait and see' whether a certain outcome obtains, and then decide whether the person had knowledge or not. So, for instance, if I have ordinary foreknowledge that you will wear red tomorrow, and decide to bilk, then either I succeed in preventing you wearing red – in which case, I did not know you would wear red – or I fail, and we attribute that to the ordinary reasons we fail at doing ordinary things (wrong place/wrong time, bad luck, recalcitrant victims etc.). Ordinary foreknowledge is factive, thus someone possessing it is no more capable of changing the future (and thereby proving the knowledge false) than any other foreknower. However, the failure seems less counter-intuitive or mysterious in the ordinary case because it is just that, ordinary. In fact, we don't even think of attempts to disprove our ordinary knowledge as 'bilking' attempts, because their failure does not seem inevitable to us (although, of course, it is).

I propose (and this is the new shiny bit) that these cases – backwards bilking via time travel, and forwards bilking as a result of foreknowledge – are mirror images of each other, strictly analogous in terms of their logical possibility and the answers we can give to the two questions asked above. If this were true only in virtue of the temporal symmetry afforded by four-dimensionalism, then I may be vulnerable to objections of triviality (despite it not being trivial that time travel and foreknowledge are mirror cases). Even if this were the case, it is still worth spelling out how it works (as it has not previously been demonstrated), but as it happens, it is not only true of four-dimensionalism (see §5.5). Additionally and interestingly, although the analogy holds for possibility, it does not hold so neatly for probability, as seen in §5.6.

But first things first: how would this work? Well, let us assume that foreknowers are just as murderous as their time travelling counterparts, and that Ophelia intends to kill her prophesied future spouse, thereby avoiding getting married. Every time she tries in the intervening five year period, she fails. Just as with past-bilking cases, the nature of space-time necessitates her failure – for if it was ever true that she would marry (and it must have been true for her to know it), then it is timelessly true that she marries. The immutability of events under the 4D view is not limited to the past; it extends equally to the present and future. As Lewis explains,

> Present and future momentary events no more have temporal parts than past ones do. You cannot change a present or future event from what it was originally to what it is after you change it. What you *can* do is change the present or the future from the unactualised way they would have been without some action of yours to the way they actually are. But that is not an actual change: not a difference between two successive actualities.[338]

This is not to say that the time traveller has no effect on the past he visits, Ophelia on the present, or any ordinary person the future they arrive at; just being there affects how, why or if any given event takes place. But even a time traveller or foreknower cannot bring about an event that will not occur, or

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[338] Lewis, Paradoxes, p. 150. Note that immutability is not the same as now-necessity, nor does one entail the other. As argued in Chapter 2, if 'p' is foreknown, 'p' is true (but only contingently: ¬p could have been the case). Immutability dictates that if p is true at t1, then you cannot bring about ¬p at t1 (although 'p' might be true precisely because you *didn't* bring about ¬p at t1; t1 is not outside of your causal influence). What is *impossible* is not ¬p, in isolation, but rather the conjunction 'p&¬p' at t1 (as this is a contradiction, and commits the second-time-around fallacy). A bilking attempt is, by definition, an attempt to bring about such a contradiction, and thus bilking attempts always fail. Their impossibility, however, does not make 'p' now-necessary (although given the plausibility of logical necessity entailing now-necessity (§2.3.4.3.3), ¬(p&¬p) is (eternally) now-necessary). See also §5.5.1.2.

change one that has.[339] Facts about a moment in time are timelessly true or false, events only occur once, and one cannot change the past or future.

But do the same 'common-place reasons' account for Ophelia's failures as for Bill's? Are they a good candidate for what *ensures* she marries? Can the very same banana peels that stop the would-be grandfather-killer stop Ophelia's bid for freedom?

If we start with the expanded version of the Lewis account, then we have three types of 'common-place reasons' that might foil Ophelia:

1. Her knowledge that she will fail
2. Lewis's common-place reasons (independent of the time travel or foreknowledge)
3. Riggs's reasons (dependent on the time travel or foreknowledge)

5.3.1 FOILING TYPE 1: INTENTIONS & DOUBT

If Ophelia thought about it long enough, and believed her knowledge to be knowledge, then she would fall prey to the intention problem and none of her murder attempts would get off the ground: they would be foiled before they were put into action (§§4.4.2, 5.2.2.1). If however she has doubt concerning the possibility of her success – perhaps, like Oedipus, she thinks that events will come to pass as her knowledge describes u*nless* she tries to thwart them – then her doubt could serve as a genuine commonplace reason for her failure: she may not try very hard, or not persist in her attempts. If we modify the case so it is no longer first-person then the same applies. For instance, if God is the foreknower, then while he knows Ophelia will get married and thus will fail to kill her spouse, Ophelia may have doubts as to her ability and therefore stop attempting to after she fails once or twice. For the rest of the discussion I will assume that her logic is faulty: that she can simultaneously know that she will get married and not realise that this precludes her killing her future spouse. Nonetheless, the intention problem could affect foreknowers much as it affects time travellers.[340]

5.3.2 FOILING TYPE 2: LEWISIAN COMMONPLACE REASONS

Lewis's standard commonplace reasons are a good candidate for explaining Ophelia's failure. Sometimes things just get in our way: quite often one intends to get to work on time only to be frustrated by several

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[339] See Horwich, Asymmetries, p. 116.

[340] You might think one more so than the other, but in either direction: that it's easier to know things about the past, and thus time travelers are more likely to be affected; but on the other hand, foreknowledge presupposes knowledge, while time travelers might be trying to bilk circumstances where they don't have knowledge.

seemingly random hindrances. Not all of these are far-fetched, some are quite ordinary: a phone call, or a misplaced umbrella. Some, such as a slip and fall on a banana peel, are rather more improbable. There may be any number of reasons Ophelia fails: perhaps she is a bad shot, misidentifies her future spouse, gets on the wrong bus and misses him, or slips on a banana peel while trying to stab him. The more often she attempts to bilk the more baffling her repeated failure may seem (as discussed in §5.6), but this does not affect logical possibility.

5.3.3 FOILING TYPE 3: RIGGS REASONS

In the time travel case, Riggs's reasons are those that come about due to the time travel: causes that are externally later than their effects. It is difficult to conceive of analogous reasons in the foreknowledge case – that is, causes that are externally later than Ophelia's killing attempts, relating to the foreknowledge itself – especially without adding in extra features to the cases, similar to the time machine (which can have physical effects on the world). Ophelia's foreknowledge might generate a self-fulfilling prophecy loop,[341] or lead to a weakening of her resolve (a Type-1 reason), but there is not the same causal picture as the Riggs-reasons in the time travel case: the foreknowledge does not seem to directly cause her failure in the same way the time machine crash landing might. This may be a failure of imagination on my part – perhaps we can dream up scenarios in which beaming the foreknowledge into Ophelia's brain has causal effects which impede her success, or where the *déjà vu* sensation of knowing what will happen in advance hinders her focus or cognitive abilities. On the one hand, such scenarios seem more – rather than less – far-fetched, and thus the Riggs-reasons lose some of the usefulness that motivated our appealing to them; but on the other hand, perhaps this is attributable to the lack of representations of human foreknowers (contra the plethora of time travel instances in fiction and media). It seems plausible that a time machine could causally affect its surroundings; why should foreknowledge not have analogous causal repercussions for the agent possessing it? I will not press the point, but I take it there is further potential for discussion here. However, even if turns out that there

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[341] Suppose for instance that she has found some pages from a Goldman-style book of life (Goldman, *Actions*, p. 143f). These pages accurately describe a series of events in her life: some of these have occurred in the period since she possessed the pages, so she can verify their accuracy. As a result, she has come to form beliefs that the future events described will come to pass, and indeed her beliefs are true. Assume also, according to your preferred epistemology, that she has formed these beliefs in an appropriate way in order for her to count as having knowledge. Now suppose that one of these pages describes Ophelia's wedding and, in detail, her spouse. On the basis of this knowledge she commences her bilking attempts. As we might expect, her foreknowledge has led to her bilking – she may not have tried to kill the man, and certainly not repeatedly, had she not known her fate – but the fact that she fails is what results in her failure being documented (if she had succeeded, then the pages could not have truthfully reported her marrying him). There is thus a feedback loop between the knowledge and the event it describes.

are not Riggs-analogues for foreknowledge without modification, the standard Lewis account is equally applicable in future- and past-cases.

Thus far I have been treating the cases as if they are separate: the past-visiting, past-bilking time traveller on the one hand, and the future-facing, future-bilking foreknower on the other. But of course, the time traveller is a foreknower. When he travels to the past he has knowledge of the present he left, which, relative to his new temporal location, is the future. If Bill thought about it, he would know that he fails to kill his grandfather, because he knows in the (external) future he is born.[342] If his reason for killing his grandfather is to avoid existing, then he is bilking the future as well as the past. So the distinction between the two is one of perspective, as we would expect under four-dimensionalism (where the present is not a privileged location that carves the timeline in twain). The lack of literature dealing with bilking the future in relation to bilking the past, or even bilking the future at all, is particularly striking in light of this. Of course, one might attribute this to the triviality of the observation – the past/future symmetry is a built-in feature of a four-dimensional universe – but as noted in §5.5, it seems true of many time theories lacking such inherent symmetry (and perhaps even motivates the rejection of such theories). Before addressing the latter, it is worth making even more explicit the symmetry of past- and future-bilking cases, including the applicability of Lewis's common-place reasons as explanations for their failure.

5.4 FUTURE BILKING WITHOUT FOREKNOWLEDGE

Foreknowledge is not required to demonstrate the symmetry between present- and future-directed bilking: one can tell a story without foreknowledge, so long as the future is knowable, that is, that there are facts about the future.[343] In Chapter 4 I introduced the Predestination Paradox in relation to causal loops, and additionally it can be seen as a mirror of the grandfather paradox, but here what is important is that predestination paradox scenarios can serve as examples of bilking without foreknowledge. A simple example, adapted from French and Brown, is as follows:

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[342] This is contra Lewis, Paradoxes, p. 151 (as discussed in Chapter 2). You might also question whether the time traveller is knowingly attempting auto-infanticide if there is the possibility she has misidentified her earlier self (as Smith notes in correspondence (2010), "while the time traveller can know that no attempt at auto-infanticide will succeed, she cannot know of any particular act she is engaged in that it *is* an auto-infanticide attempt, for this would require *knowing* that the person she is facing really is her younger self"). As in the time travel cases discussed in Chapter 2, I am tempted to say that the time traveller can know she is facing her younger self, but this will depend on your preferred epistemology (and, if she does know, then the intention problem may arise).

[343] Thus the importance of bivalence (see §5.5.1.3).

An archaeologist travels several millennia into the past in an attempt to discover the origins of a recently-discovered human skeleton, only to die and become that skeleton.[344]

The existence and identity of the skeleton are thought to predestine[345] the archaeologist's journey into the past: if he had not travelled, he could not have died and become the skeleton, and thus could not have found the skeleton in the present. We have the same tension between different senses of 'can' as we did in the grandfather paradox. At the moment he discovers the skeleton, he has no knowledge as to its identity, but the fact that it exists means he gets in the time machine: he could not have refrained (or at least did not refrain) from his temporal voyage. But it seems that given his usual abilities he could avoid getting into the time machine and travelling into the past, unless something ensures that he goes after all. He must go, to avoid a contradiction, and the very same banana peels that stop the would-be grandfather-killer can ensure the archaeologist enters the time machine: a slip can suffice either way. The apparent difference between the two is simply one of perspective: in Bill's scenario we were interested in a time traveller's actions in the past; in the archaeologist's we are concerned with the would-be time traveller's actions in the present or short-term future. In the former, the crucial decision was whether to pull the trigger: getting into the time machine is an afterthought (or forethought, depending on whether you are following external or personal chronology). In the latter, the fact that the time traveller died and became the skeleton means that he *must* have gotten in to the time machine: it is the decision to step in (or the banana peel that makes him) that is the focal point. What this symmetry demonstrates is that the same bananas that trip up the would-be past bilker can trip up the reluctant time-traveller – the present- or future-bilker – foiling their attempts and ensuring consistency.

To quell any doubts one might have that these are indeed mirror cases, here is a scenario involving both a grandfather/auto-infanticide paradox (past-directed) and a predestination paradox (future-directed) with the very same set of events:

Fry decides to go back in time to kill his absentee father (prior to his conception). However, once in the past he gets side-tracked, meets a girl and impregnates her, unaware that she is his mother.[346]

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[344] French and Brown, Time Travel, p. 208.
[345] Weakly, and if this is a causal loop, causally.
[346] These incestuous self-generation cases are quite popular in time travel philosophy and fiction – something of an occupational hazard for the time traveller. Cf. Heinlein, All You Zombies; Grey, Troubles with Time Travel; Levin, Swords' Points; Macbeath, Who was Dr Who's Father? Etc. The name 'Fry' is in homage to a popular example of

So Fry decides to go back in time to kill his father but gets side-tracked. Love (or his hormones) serves as the common-place reason. Thus his past-directed bilking attempt is foiled. While Fry was young, he grew up with a single mother and despised his absent father, not knowing it was himself. In order to have been there to impregnate his mother, Fry must have travelled in time. He was there, he seduced her, thus in the present when adult Fry makes the decision to travel in time, the decision seems predestined. If he had tried to avoid the time machine, a common-place reason would have intervened.[347]

What this reveals is that we do not need foreknowledge to get a present- or future-directed bilking attempt; it just opens up the possibilities (and perhaps increases the likelihood) for such bilking attempts occurring. What is important is that should Bill, Ophelia, Fry or anyone else try to bilk, no matter where they are situated in time, they will fail. They must, under the 4D view, and Lewis's common-place reasons seem like a good candidate for explaining why they do. The fact that foreknowledge might result in future-directed bilking attempts (and thus a future analogue of the grandfather paradox) does not entail a contradiction: just as the grandfather paradox can be overcome, we should not mistakenly reject the possibility of foreknowledge on such grounds.

In a four-dimensional universe then, we cannot change the past and we cannot change the future, lest we generate a contradiction. Banana peels and their ilk stop us, whether our bilking attempts are future- or past-directed: either way, a slip or series of slips will suffice. But what if the universe is not four-dimensional?

5.5 BILKING SYMMETRY & THEORIES OF TIME

My overall intention in this section is to show that the conclusions drawn relating to why one must not and does not change the past (and future) are not limited to a four-dimensional universe. To demonstrate their broad applicability, I shall do the following:

1. Briefly outline four competing theories of time.

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this kind: Matt Groening, "Roswell that ends well", *Futurama,* (20th Century Fox, 2001). In this, Fry inadvertently ends up in the past and accidentally kills the man he thinks is his grandfather. Because of this mistake, he worries he will cease to exist, and impregnates his grandmother. This leads to his conception and predestines the time travel.

[347] In the Futurama case (fn 346), for instance, Fry's travel is the result of a microwave accident in the vicinity of a supernova.

2. Discuss, by appeal to proponents of these views, the compatibility of each with the assumptions underpinning my argument (immutability, bivalence, time travellers, and foreknowers).

Note that my purpose is neither to evaluate these other theories, nor develop in any detail how time travel or foreknowledge might work in such a universe. It is rather to indicate that regardless of your stance on time, based on the current literature, my broader conclusions – that foreknowledge should be seen neither to entail contradictions nor lead inevitably to problematic metaphysical consequences like a lack of free will – are broadly applicable, insofar as they require assumptions already considered compatible with the theories in question.

5.5.1 POPULAR THEORIES OF TIME

There are various ways to carve up the corpus of current theories, but the most useful for my purposes is to consider those opposed to four-dimensionalism in two regards: temporal becoming and ontology.[348] Four-dimensionalism is a B-theoretic, eternalist model of time: time does not pass, and all 'times' – which seem present, future or past only in relation to our current temporal location – are equally real.[349] The views I will consider in this section are A-theoretic models which each incorporate a different ontology, and often (although not always) posit temporal passage.[350]

For each of these theories – presentism, growing block, moving spotlight, shrinking tree – I wish to make the following claim: that the symmetry between backwards time travel and foreknowledge is compatible with the theory, and as a result, the same explanation can be given for both why you cannot and why you do not change the past as for the future.

For this to be the case, the following three conditions must be met:

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[348] Theories also differ in terms of their mereology etc., but this shouldn't be important for the conclusions I'm drawing here. There are other characteristics of theories of time, for instance whether they are reductionist or platonic, or features of their topology, but these a) are not relevant for my purposes, and b) are not the main lines along which the dialectic is carved up.

[349] The B-theory is often characterised in terms of a conjunction of eternalism (which posits that past, future and present objects are equally real) and reductionism about tense (i.e. tensed statements have timeless truth conditions and are timelessly true or false; statements like '1900 was in the past' are reducible to relations such as '1900 is earlier than the time at which I am speaking') (See Ted Sider, "Traveling in A- and B- Time", *The Monist,* Vol. 88 No. 3, Time Travel (2005), p. 330). This is in contrast to the A-theory, which posits a privileged present and genuine, irreducible tensed properties/statements. The terms originate with J. M. E. McTaggart, in "The Unreality of Time", *Mind,* Vol. 17 (1908), pp. 457-73.

[350] There are exceptions, for instance Jonathan Tallant, "A Sketch of a Presentist Theory of Passage", *Erkenntnis,* Vol. 73 No. 1 (2010), pp. 133-140. Traditionally however A-theoretic views have been associated with passage, and often deemed the latter to be a paradigmatic feature.

1. Times must be immutable (the second-time-around fallacy must be fallacious),

2. Bivalence must extend to future contingents,

3. Backwards time travel must be logically possible.

Additionally, for much of the discussion in previous chapters to readily apply,

4. There must be room for a foreknower of some kind beyond the minimal requirement of bivalence: God, a predictor, a time traveller etc.

(4) is not strictly necessary, as there may be other types of foreknowers I have not imagined. Additionally, one does not need foreknowledge in order to bilk the future (see §5.4). Thus even if a given theory does not readily allow for foreknowledge (perhaps future propositions do have truth values but we could not have epistemic access, for instance; or you adopt an open future model that rejects bivalence for future contingents)[351], the explanations for why and how you fail to bilk the (unknown) future still apply.[352]

If, however, you think that the symmetry does not hold – most likely (given the literature) because you doubt the possibility of time travel under such a theory, or because you hold a version of the open future view that does not allow for bivalence – the following weaker conclusion should still hold: you cannot and do not change the future, and we can plausibly give the same explanation for this as the four-dimensionalist gives for why backwards time travellers cannot and do not change the past. Minimally, then, the foreknowledge conclusion holds (foreknowledge is logically possible). Of course, if time travel itself is the problem, there may still be symmetry of a sort: you could hold the past and future to be equally immutable, but there will never be past-directed bilking attempts because you never actually do the travelling.

5.5.1.1 INTRODUCING OTHER VIEWS

The most popular opponent for four-dimensionalism throughout the history of the debate has been presentism, an A-theoretic view which holds that only present objects exist. [353]

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[351] In this case you could still have foreknowledge of necessary future truths, but this is less interesting.
[352] After all, you will fail to kill your grandfather even if you don't know it is your grandfather (so long as your grandfather did not, in fact, die at the time at which you make the killing attempt – otherwise it's not bilking, and is thus not (logically) impossible; see §4.4.2.3).
[353] Some credit the pre-Socratics Heraclitus and Parmenides as the origin of presentism and eternalism respectively (e.g. Grey, Troubles, pp. 55-56): although this is something of a stretch, elements of each view are to be found in

More precisely, it is the view that, necessarily, it is always true that only present objects exist… if we were to make an accurate list of all the things that exist – i.e. a list of all the things that our most unrestricted quantifiers range over – there would be not a single *non-present* object on the list. Thus, you and the Taj Mahal would be on the list, but neither Socrates nor any future Martian outputs would be included…the same goes for any other putative object that lacks the property of being present. All such objects are unreal, according to Presentism.[354]

There are various versions of presentism, but for this discussion I will be working with the basic form described above, and making statements that are – as best as I can tell – widely applicable. At first glance presentism is incompatible with both foreknowledge and time travel (either forwards or backwards): after all, neither the past nor future is real. Thus we might wonder how one could have knowledge pertaining to either, much less go there. However, recent literature suggests such assumptions are too quick in the making, as we shall see.

Another A-theoretic view growing more popular in the recent debate (although still far outstripped by four-dimensionalism and presentism) is the Growing Block view, which posits that past and present, but not future, objects exist. On this model, "the universe is always increasing in size, as more and more things are added on to the front (temporally speaking)".[355] Unlike presentism, there is an inbuilt ontological asymmetry which explains the difference between the fixity of the past (which exists) and the openness of the future (which does not): "the view is committed to the (tenseless) existence of past objects and events, but not to the (tenseless) existence of future objects or events.[356]

A third view takes a four-dimensional universe in terms of ontology and adds passage: the Moving Spotlight View. That is, the past, present and future are equally real, but only the present "glows with a special metaphysical status", and "which instant is absolutely present keeps changing."[357]

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their limited extant work. See Heraclitus, "Fragments", in Robin Waterfield (trans.), *The First Philosophers,* (Oxford: Oxford University Press, 2000), pp. 41-42, esp. F33-34 and T5; Parmenides, On Nature.

[354] Ned Markosian, "Time", *The Stanford Encyclopedia of Philosophy* (Spring 2014 Edition), Edward N. Zalta (ed.), http://plato.stanford.edu/archives/spr2014/entries/time/, accessed 10 May 2014.

[355] *Ibid.* Most famously presented by C.D. Broad in *Scientific Thought,* (New York: Harcourt, Brace and Company, 1923) Ch. II. Cf. Michael Tooley, *Time, Tense, and Causation,* (Oxford: Clarendon Press, 1997); Peter Forrest, "Uniform grounding of truth and the Growing Block theory: a reply to Heathwood", *Analysis,* Vol. 66 No. 2 (2006), pp. 161-3.

[356] Rachael Briggs and Graeme A. Forbes, "The Real Truth about the Unreal Future", *Oxford Studies in Metaphysics,* Vol. 7 (2012), p. 257.

[357] Bradford Skow, "Relativity and the Moving Spotlight", *Journal of Philosophy,* Vol. 106 (2009), p. 666. The spotlight imagery is from Broad, Scientific Thought, p. 59. See also D. Zimmerman, "The Privileged Present:

Finally, one might adopt a branching view, which conceives of the future as a manifold of possible branches. Again, there are a variety of such models, but most envision the branches metaphorically (akin to some possible world theorists).[358] This sort of branching tends to be discussed synonymously with an open future, and an open future is often incorporated into each of the theories considered, thus I will not treat it separately. However, there is an oft-discussed branching view that treats the branches literally, and I will discuss it briefly throughout. This is McCall's 'shrinking tree':

> The universe, then, has in this model the shape of a tree, with a single four-dimensional trunk for the past and a densely branching set of four-dimensional manifolds for the future. Each of these manifolds in turn branches, so that the branching pattern is very complex and the number of branches very large.[359]

The objective present "lies at the end of that trunk peering into an array of non-actual but ontologically real future branches."[360]

The relevant features of each theory for the purpose of this discussion are summarised in Table 7:

	A-Theory	B-Theory
Ontological Presentism	Presentism	N/A[361]
Ontological Non-Presentism	Growing Block (Past/Present) Moving Spotlight (Past/Present/Future) Branching Model (Past/Present/Future Branches)	Eternalism/ Four-dimensionalism

Table 7. Theories of Time

Defending an 'A-theory' of Time", in T. Sider, J. Hawthorne and D. Zimmerman (eds.), *Contemporary Debates in Metaphysics,* (Malden, MA: Blackwell, 2007), pp. 211-225. NB. There is a combination growing block/moving spotlight view called the 'glowing spotlight', but a) it isn't defended, and only rarely discussed, and b) the same conclusions that apply to the other theories apply to it. Cf. D. Zimmerman, "Presentism and the Space-Time Manifold", in Craig Callender (ed.), *The Oxford Handbook of Time,* (Oxford: Oxford University Press, 2011), pp. 163-244; Barry Dainton, "Time, Passage, and Immediate Experience" in The Oxford Handbook of Time, pp. 382-419; Hudson and Wasserman, Van Inwagen on Time Travel).

[358] See, for instance, Horwich, Asymmetries in Time, p. 25f.; Aristotle, De Interpretatione, IX.

[359] McCall, A Model of the Universe, p. 3.

[360] Miller, Time travel and the open future.

[361] Possibly a Parmenidean-style one moment universe could fit in this cell, but if you define a B-theory in terms of two-place relations, this won't work. Non-passage presentism could abide if you define the B-theory in terms of reductionism about tense, but not if it incorporates eternalism.

I will now consider each of the conditions – immutability, bivalence, potential foreknowers and time travel – in turn, and show their compatibility as recognised in the existing literature.

5.5.1.2 IMMUTABILITY

I contend that for any consistent theory of time, it cannot be the case that your grandfather is both dead and alive at the very same time; or more precisely, that it is both true and false that your grandfather is alive (with two possible exceptions, which I deal with below). What the above discussion shows (§§5.2-5.4), albeit in the context of a four-dimensional universe, is that time travel need not lead to "altering the truth value of a proposition about the past."[362] However, the truth of this extends beyond a particular theory of time.

Regardless of which of the above theories you adhere to, the second-time-around fallacy is just that, a fallacy. Although there may be other reasons to dispute the possibility of time travel in a non-four-dimensional theory of time, the grandfather paradox is not one of them. Whether the universe is presentist, a growing block, a four-dimensional-manifold with moving spotlight or a shrinking tree:

> There can be no first time around a set of events, with the time traveller absent, followed by a second time around of the *very same events,* with the time traveller playing a role: for either there is no second time around; or else the second time around is a genuinely distinct series of events, to be involved in which is to *avoid* rather than *change* the original series of events.[363]

This passage points to the importance of the distinction between *change* and *influence*: any agent, whether a time traveller, a foreknower or an ordinary person, can causally influence whether a proposition is true, but not change its truth value once the latter is settled. This is not limited to the past. As Lewis notes (and I quoted earlier):

> You cannot change a present or future event from what it was originally to what it is after you change it. What you *can* do is change the present or the future from the unactualised way they would have been without some action of yours to the way they actually are. But that is not an actual change: not a difference between two successive actualities.[364]

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[362] Harrison, Dr Who and the Philosophers, p. 6.
[363] *Ibid.,* p. 365.
[364] Lewis, Paradoxes, p. 150.

So, in a presentist universe, if the time traveller manages to visit the past (which used to be the present), then they cannot make it the case that their grandfather is both alive and dead at that time.[365] The same applies for the growing block, moving spotlight, and branch views. If the universe is such that there are different past branches (with different possible pasts), or different temporal dimensions, then the time traveller may kill a different-branch doppelganger grandfather, but it would be contradictory (and thus impossible) to bring it about that their grandfather both died and did not die at the same moment in a single branch. Similarly it would be contradictory to bring it about that it is both true and false that there is a sea-battle tomorrow.[366]

There are two views of time that reject this claim and suggest that you can change the past. Neither is widely held (so it would not be a fatal blow if my conclusions did not extend so far as to accommodate them) but it is not clear that either really avoids the problem. The first is an account by Goddu that posits events as having temporal parts – hypertimes – which, as Miller suggests, is arguably tantamount to a branching view in which in one branch your grandfather lived (and went on to father your parent, and in turn you were conceived), and in another you kill him.[367] If this is the correct interpretation of Goddu, it is not really changing the past.[368] The second more hotly debated view is from Peter van Inwagen, who posits a growing block model where the time traveller, in travelling back in time, annihilates everything after the point at which he arrives allowing him to bring things about differently to how they were the 'first' time.[369] There are a wide variety of problems with this account,[370] but as for bilking, we just need to shift our discussion from 'time' to 'hypertime'. While moments in time are mutable, as the block can be rewound and recorded over, each 'ticktock' of hypertime is immutable. If 'hypertime travel' were possible, attempts to bilk the hyper-past or hyper-future would fail, just as attempts to fail the regular past or future fail in other accounts of time.

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[365] Indeed Keller and Nelson (Presentists, p. 340) argue that the grandfather paradox, if not a problem for four-dimensionalism, is not a problem for presentism, as "there is no peculiarly presentist premise involved in [the] argument."

[366] (In actuality, if we're adopting McCall's view)

[367] G. C. Goddu, "Time Travel and Changing the Past (or how to kill yourself and live to tell the tale)", *Ratio,* Vol. 16 No. 1 (2003), pp. 16-32; K. Miller, "Time travel and the open future", *Disputatio: International Journal of Philosophy,* Vol. 1 No. 19 (2006), footnote 2.

[368] See Lewis, Paradoxes, p. 152f.

[369] Peter Van Inwagen, "Changing the Past" in D. Zimmerman (ed.), *Oxford Studies in Metaphysics Volume Five,* (Oxford: Oxford University Press, 2010), pp. 3-40.

[370] See, for instance, Sara Bernstein, "Time Travel and the Movable Present" in J. C. Adorno (ed.), *Being, Freedom, and Method: Themes from the Philosophy of Peter van Inwagen* (forthcoming); H. Hudson and R. Wasserman, "Van Inwagen on Time Travel and Changing the Past", in D. Zimmerman (ed.), *Oxford Studies in Metaphysics Volume Five,* (Oxford: Oxford University Press, 2010), pp. 41-49.

5.5.1.3 BIVALENCE

A pre-requisite for foreknowledge is a knowable future: that is, a future which has true propositions pertaining to it.[371] While the moving spotlight view easily accommodates bivalence of future contingents – as, like four-dimensionalism, it grants the reality of the future[372] – the other temporal theories may be, prima facie, less amenable. In fact, things are not so clear cut.

Perhaps surprisingly, while presentists do not grant the ontological reality of the past or future, many think this does not preclude the existence of past or future truths. Keller and Nelson note,

> Presentists believe that the past and future do not exist, but most presentists will not go so far as to say that there are no past- or future-tensed truths… it is still true that John Denver broke down the barriers between country and pop and that the sun will rise tomorrow…there are true sentences which appear to report relations which hold between present and non-present things. It is true that Shania Twain uses electric guitars more than John Denver did, even though there is no existing John Denver to make this true.**[373]**

A common objection to presentism is thus the 'truthmaker objection': if the past and future do not exist, what is it that makes the propositions pertaining to them true? There is nothing about reality that would give such propositions a truth value.[374] There have been various responses to this;[375] but as Hales notes, "the canonical reply of presentists is to respond that the truthmakers for past and future facts are located in the present, and are expressed by appropriately tensed language."[376] As a result, many presentists concede that while other times are not real, there are nonetheless past- and future-tensed

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[371] My argument does not require that all future propositions have a settled truth value, only that some of them do (and are thus knowable). It is thus compatible even with views that hold some future contingents to be unsettled (cf. Briggs and Forbes, the Unreal Future).

[372] It was to explain the possibility of remembering the past and foreseeing the future that Augustine endorsed something like the moving spotlight view: "Otherwise, how do prophets see the future, if there is not yet a future to be seen? It is impossible to see what does not exist. In the same way people who describe the past could not describe it correctly unless they saw it in their minds, and if the past did not exist it would be impossible for them to see it at all" (*Confessions,* trans. R. S. Pine-Coffin, (Harmondsworth: Penguin, 1961), Book XI §20). He still endorsed a privileged present, however: "the past and future do exist…time emerges from some secret refuge when it passes from the future to the present, and goes back into hiding when it moves from the present to the past" (§18). Cf. Zimmerman, The Privileged Present.

[373] Keller and Nelson, Presentists, p. 337. NB. Not all presentists will allow for cross-time relations, but frame them instead in terms of relations between present things. See for instance John Bigelow, "Presentism and properties", *Nous,* Vol. 30 (1996), pp. 35-52.

[374] Cf. Michael Dummett, *Truth and the Past*, (New York: Columbia University Press, 2004), p. 74.

[375] Such as tensed properties of present objects (Bigelow, Presentism and Properties, p. 38); appealing to non-existent entities (Mark Hincliff, "A Defense of Presentism", PhD Thesis, (Princeton University, 1988), p. 102); memories and predictions, including those of God (Augustine, Confessions*,* Book IX §§22-4; Alan R. Rhoda, "Presentism, Truthmakers, and God", *Pacific Philosophical Quarterly,* Vol. 90 (2009), pp. 41-62).

[376] Stephen D. Hales, "No Time Travel for Presentists", *Logos & Episteme,* Vol. 1 No. 2 (2010), p. 355.

facts. The truthmaker objection applies equally to past and future facts, given the theory's ontological symmetry, and thus if bivalence extends to past facts, it should extend to future ones as well. As Diekemper notes,

> I am unaware of any presentist who *would* endorse an asymmetry of bivalence in light of their endorsement of an ontological symmetry.[377]

Some are not convinced that bivalence requires truth-makers in the way the objection suggests. For instance Craig writes,

> Ultimately what makes the statements true is that reality was or will be as the statements describe; when the time comes, for example, a sea battle is going on, and therefore the statement made the day before, 'There will be a sea battle tomorrow', was true."[378]

Either way, presentism is compatible with a knowable future.

In an early Growing Block conception, Broad differentiated between past and future facts based on the asymmetry in ontology:

> [J]udgments which profess to be about the future do not refer to any fact, whether positive or negative, at the time when they are made. They are therefore at that time neither true nor false. They will become true or false when there is a fact for them to refer to; and after this they will remain true or false, as the case may be, for ever and ever.[379]

Generally speaking, however, contemporary Growing Block theorists have had little to say about the future beyond its being unreal. Briggs and Forbes seek to address that, and contra Broad, argue that while denying the reality of the future, the Growing Block theorist can "still countenance non-trivial truths and falsehoods about future events."[380] For instance, they want their account to allow the proposition "there will be a lunar eclipse on January 21, 2019" to be true, and meaningfully so.[381] Acknowledging the truthmaker objection, they respond:

> Sometimes, the past, the present, and the laws of nature are not enough to settle whether there will be a sea battle one day into the future. But according to the Growing-Block theory, there is nothing

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[377] Joseph Diekemper, "Presentism and Ontological Symmetry", *The Australasian Journal of Philosophy,* Vol. 83 No. 2 (2005), p. 227.

[378] William Lane Craig, "McTaggart's Paradox and Temporal Solipsism", *Australasian Journal of Philosophy,* Vol. 79 No. 1 (2001), p. 34 fn. 10. Cf. Craig, "Divine Foreknowledge and Human Freedom: the coherence of theism: Omniscience", *Studies in Intellectual History,* Vol. 19 (1991), pp. 43-63.

[379] Broad, Scientific Thought, p. 73.

[380] Briggs and Forbes, The Unreal Future, p. 258.

[381] *Ibid.*

but the past, the present, and the laws of nature… where nothing in the world settles whether a sentence is true or false, that sentence must not have at truth value – there is no truth without some sort of truthmaking.[382]

What distinguishes past facts from future facts is thus that the truth values of the former are necessarily determinate, while the latter can, possibly, be indeterminate.[383] If Briggs and Forbes are correct, then some foreknowledge will be possible – such as astronomers knowing the date of the next lunar eclipse – but other knowledge might not, if there is not a suitable truthmaker. Others are not swayed by the objection: for instance, Sorensen and Greenough respectively argue that all propositions have a truth value, even though some are not "made true by anything in the world"[384]; that is, there are truthmaker gaps rather than truth value gaps.[385] Much like presentists, there is some disagreement about bivalence in a growing block world.[386] Some theorists argue that the latter does extend to future contingents, which gives us a knowable future, and others suppose that it is limited to certain facts. Either way there is room for some foreknowledge.

McCall's shrinking tree is rather trickier. There will undoubtedly be room for some foreknowledge i.e. that of propositions which have the same truth value in all branches. Whether the view requires a rejection of bivalence is still up for grabs; although the model looks like it does (because no one branch is privileged), that could be a case of conflating determinism and bivalence.[387] It is worth noting scholars working on the open future – which presentists and growing block theorists sometimes posit, and the shrinking tree entails – disagree over whether the latter is compatible with bivalence.[388] Some have gone so far as to define an open future in terms of the limitations of bivalence, and specifically, its failure to apply to future contingents.[389] However, as Barnes and Cameron note,

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[382] *Ibid.,* p. 276.

[383] Providing the universe is not determined. They thus argue that growing block theorists should accept one of a range of non-classical logics, accepting that the truth or falsity of some propositions is unsettled.

[384] *Ibid.*, p. 272.

[385] *Ibid.;* Roy Sorensen, *Vagueness and Contradiction,* (Oxford: Oxford University Press, 2001); Patrick Greenough, "Indeterminate Truth", *Midwest Studies in Philosophy,* Vol. 32 (2008), pp. 213-241.

[386] As Forbes commented in correspondence (2014), "There's more or less no difference between the sorts of things Presentists can say about the future and the sorts of things the Growing-Blockers can say".

[387] A similar mistake to conflating types of predestination, as shown in Chapter 2. See for instance Barnes and Cameron, The Open Future.

[388] J. MacFarlane poses an argument against those who seek to uphold the bivalence of future contingents in "Future contingents and relative truth", *The Philosophical Quarterly,* Vol. 53 (2003), pp. 325-6. For criticism, see Stephan Torre, "The open future", *Philosophy Compass,* Vol. 6 No. 5 (2011), pp. 366-7 and Oliver Pooley, "Relativity, the Open Future, and the Passage of Time", *Proceedings of the Aristotelian Society,* Vol. 113 No. 3 (2013), pp. 321-363.

[389] For instance, Ned Markosian, "The Open Past", *Philosophical Studies,* Vol. 79 (1995), pp. 95-105.

Perhaps it is the case that although the open future thesis is *compatible* with bivalence, determinism, eternalism, the *best theory* of the open future leads to their denial. But that is a substantial claim that would need to be argued for: it is not *definitional* of the open future that any of them are false.[390]

And Torre makes a similar point:

> [I]t seems wrong to begin with the supposition that openness of the future amounts to a failure of bivalence for future contingents. Many philosophers maintain that bivalence is compatible with an open future.[391]

In conclusion, then, it seems plausible that bivalence extending to future contingents is compatible with each of the theories given above, and given this, the future (or at least some of it) may be knowable.

5.5.1.4 POTENTIAL FOREKNOWERS

In previous chapters I discussed four foreknowers: an ordinary agent, a time traveller, a divine foreknower (God) and a Predictor in a determined universe. While it is not the case that such foreknowers are required to be possible for the conclusions of this chapter to hold – indeed, foreknowledge itself is not necessary for future bilking to be impossible and foiled in the way described (as discussed in §5.4) – it would be nice if they were, as it would allow for the broader conclusions of the thesis to be maximally relevant.

Obviously, ordinary foreknowledge will be possible in each model so long as bivalence applies to future contingents (and your epistemology allows for it). Minimally I can form justified beliefs about the future, and those beliefs can turn out to be true. Time travel to the future and then returning, thereby gaining foreknowledge is – as discussed below (§5.5.1.5) – also thought compatible with a range of theories of time. This leaves us with God and the determined predictor.

Firstly, if you have in mind a God who is outside of time, then your theory of time is irrelevant to the possibility of his existence. Certainly it is not thought incompatible with A-theoretic accounts that there could be timeless entities such as God or abstract objects (although a timeless God is not unproblematic, as discussed in Chapter 2).[392] Secondly, although the problem of divine foreknowledge has led to some theists embracing eternalism, there remain A-theoretic theists, and even some who seek not only to demonstrate the compatibility of the two, but strengthen one by appeal to the other. Rhoda, for instance, argues that the memories of God are the best candidate truthmakers for past facts in a

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[390] Barnes and Cameron, The open future, p. 308.
[391] Torre, The Open Future, p. 361.
[392] Hales, No Time Travel, p. 354.

presentist universe.[393] There seems nothing inherent in any of the theories discussed that would, prima facie, preclude a divine foreknower.

By contrast, there has been considerable debate concerning the compatibility of determinism and an open future (which each of the theories is often, although not always, supposed to provide), but current consensus is leaning towards an affirmative view. Torre, for instance, writes,

> [T]he open future intuition seems largely independent of views about whether the world is deterministic or indeterministic. It seems that even if our world turned out to be deterministic, we would maintain that there is an asymmetry in openness between the past and the future.[394]

Barnes and Cameron make a similar point, arguing more explicitly that an open future is compatible with determinism.[395] Bourne not only recognises the compatibility of presentism (for instance) with determinism and indeterminism, the limits he places on bivalence (and thus how much foreknowledge we can have) hinge on how deterministic the world is:

> In a fully deterministic universe… all future- and past-tensed statements have a determinate truth-value, as this is guaranteed by present fact. But in an indeterministic universe… many statements about the future must for [presentism] lack a truth-value.[396]

Much the same can be said about the growing block view: Briggs and Forbes, for instance, seem to presume determinism ("even if the actual world is deterministic, we would not want to rule out the possibility of indeterministic worlds"[397]). The moving spotlight view is likewise compatible with determinism (much as four-dimensionalism is).

However, on McCall's shrinking tree view:

> [I]t is a purely random matter which branch survives to become part of the trunk. There is no 'preferred' branch, no branch which is singled out ahead of time as the one which will become actual. Instead, all branches are on a par."[398]

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[393] Rhoda, Presentism, pp. 41-62. This is not a good argument, but it's in keeping with Augustine and others.
[394] Torre, The Open Future, p. 361. He continues: "Secondly, if our world is indeterministic, then the current state of the world and the laws are compatible with multiple futures. However, given indeterminism, the current state of the world and the laws are also compatible with multiple pasts. So indeterminacy alone fails to accommodate the *asymmetry* in openness between the past and the future."
[395] Barnes and Cameron, The Open Future.
[396] Craig Bourne, "A Theory of Presentism", *Canadian Journal of Philosophy,* Vol. 36 No. 1 (2006), p. 6.
[397] Briggs and Forbes, The Unreal Future, p. 276.
[398] McCall, Model of the Universe, p. 4.

Because the present is defined as the point where branching starts, there is no absolute present without branching, and thus time cannot pass if there is only one fated (or determined) path. As Tooley has noted, this leads to the view's incompatibility with determinism.[399] As a result, McCall's model precludes the predictor. It is still a matter of debate whether the same can be said for God.[400]

5.5.1.5 TIME TRAVEL

For many years it was considered incontrovertible that time travel was incompatible with presentism, but several prominent philosophers have recently argued to the contrary.[401] Most notably, Keller and Nelson argued that if Lewis was right in supposing that certain time travel stories are compatible with four-dimensionalism, then provided presentism was plausible, they are compatible with the latter as well. [402] In response to what they call the 'Nowhere Argument'[403] – which I alluded to above (§5.5.1.1), and which hinges on the non-existence of other times for time travellers to visit – they note that

> If it were a good argument, then it would rule out not just the possibility of time-travel, but the ordinary passage of time as well… We are about to take a journey into the immediate future. Now it is over. If presentism is true, however, then the time that we just travelled to did not exist when we started the journey. We just travelled to a time that did not exist, and we are about to travel to a time that does not exist. If it were impossible to travel to times that do not exist, then we would not be able to make these journeys in time, and the ordinary passage of time from one moment to the next would be impossible.[404]

They progress by translating Lewis's defence of time travel in a four-dimensional universe into a presentist framework. The story looks very much like a Lewisian one: Jennifer goes back in time and talks to her earlier self. Although we see the events from both the perspective of the earlier and later Jennifer, it is not the case that the former happen differently each 'time' (or more accurately, each 'telling'). Additionally, Keller and Nelson incorporate a personal/external time dichotomy: the time

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[399] Tooley, Time, Tense and Causation, p. 239.

[400] Pooley, Relativity.

[401] Although, admittedly, the type of time travel envisaged by presentists is unsatisfying for some on the grounds that it does not look like 'travel'. This might be a reason to reject presentism in favour of four-dimensionalism, but that is not my purpose here: what matters is only that there is room in presentism for backwards time travel, and specifically for (foiled) grandfather-paradox scenarios.

[402] Keller and Nelson, Presentists, p. 334.

[403] William Godfrey-Smith gives a version of this argument in "Travelling in Time", *Analysis* Vol. 40 No. 2 (1980), p. 72; Cf. Grey, Troubles.

[404] Keller and Nelson, Presentists, p. 335. Sider also rejects the Nowhere Argument (although thinks there may be a problem for presentists in terms of 'travel' and personal time): Traveling in A- and B- Time, p. 329. Cf. Phil Dowe, "The Case for Time Travel", *Philosophy,* Vol. 75 No. 3 (2000), pp. 441-451.

traveller's cigar burns but a little compared to the fire in her study, and the clock in the latter shows more time passing than the hands of her wristwatch. They write,

> There is four-dimensional time-travel if the appropriate sorts of events occur at the appropriate sorts of times; events like people hopping into time-machines and disappearing, people reappearing with the right sorts of memories, and so on. But the presentist can have just the same patterns of events happening at just the same times. Or at least, it can be the case on the presentist model that the right sorts of events will happen, or did happen, or are happening, at the right sorts of times.[405]

In a similar vein, Bradley Monton argues that in addition to this type of time travel story, presentism "is compatible with some stories that involve closed timelike curves, and that some of these stories are time-travel stories."[406]

It is not my intention here to evaluate the arguments, only to point out that within the presentist literature, there is growing credence paid to the possibility of time travel.[407] What's more, the conclusions Lewis draws about why and how time travellers fail in their bilking attempts are thought applicable to a presentist universe, by some presentists themselves. Presumably the same sorts of things could be said about the growing block or moving spotlight view: that when the 'now' was in 1920, Bill tried to kill his grandfather. When the now had moved on to 1980, Bill was born.[408] It would be fallacious to think that when the now was in 1920 Bill was not there, but if he decides in 2000 to travel back to 1920 he will be able to change the past – this is just the second-time-around fallacy.[409] There is almost no discussion of time travel in a shrinking tree universe, but where it is mentioned, it is treated analogously to the growing block.[410] So if there is room for time travel in the former, we should charitably think it plausible in the latter, until someone demonstrates otherwise.

5.5.1.6 IN SUMMARY

The state of play given the current literature is as follows (Table 8):

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[405] Keller and Nelson, Presentists, p. 338.

[406] Bradley Monton, "Presentists can believe in closed timelike curves", *Analysis* Vol. 63 No. 3 (2003), p. 199.

[407] Although some philosophers still have doubts: see for instance Hales, No Time Travel, p. 360; Miller, Time Travel and the Open Future; Sider, Traveling.

[408] The same problems plaguing the presentist will plague the growing block theorist in accounting for time travel (e.g. given an open future, the view requires that "present states be caused by non-existent indeterminate future states" – Miller, Time Travel and the Open Future), but it remains a live possibility in the debate.

[409] In fact, the fallacy is arguably more transparent in a growing block view, or moving spotlight view: obviously times only happen once, after that the spotlight or edge of the block moves on.

[410] As in Miller, Time Travel and the Open Future.

	Immutable	Bivalence	Potential Foreknowers	Time Travel
Presentism	Yes	Compatible	Compatible	Compatible
Growing Block	Yes	Compatible	Compatible	Compatible
Moving Spotlight	Yes	Compatible	Compatible	Compatible
Shrinking Tree	Yes	Still under debate	No predictor, possibly no God	Plausibly compatible

Table 8. Key Assumptions and Theories of Time

In each of the most popular non-eternalist theories of time, then, you cannot change the future or the past, even if you could know the former and travel to the latter. Plausibly the very same banana peels that foil the four-dimensionalist would foil the A-theorist, and in all but the shrinking tree, the very same deity, predictor or other foreknower could know about it in advance.

So the conclusions drawn about the possibility of time travel and foreknowledge and the symmetrical explanations of failed bilking attempts are not trivially true: they are not true solely in virtue of an assumed four-dimensional universe. The difference between four-dimensionalism and other theories of time is that the former implies the assumptions required for my argument, but the latter are still compatible with them.

Now I turn to the likelihood of foreknowledge and time travel given the preponderance of banana peels thought to be entailed by all these bilking attempts.

5.6 COINCIDENCES, PROBABILITY AND LUCK

It is one thing to establish the logical possibility of time travel and foreknowledge and explain why and how bilking attempts fail, but is quite another to consider the probability or likelihood of either given the apparent long chains of coincidences required to foil repeated bilking attempts. It is important to consider the charge that time travel or foreknowledge, while possible, are unlikely to occur or be occurring in a world like our own: after all, as Ismael notes, "logical possibility is cold comfort, where probability is arbitrarily low."[411] This argument has standardly been considered in the context of time travel, so I shall begin the discussion there – outlining and evaluating the arguments against the

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[411] Ismael, Closed Causal Loops, p. 306.

likelihood of time travel given bilking attempts[412] – and then move on to foreknowledge, where I shall argue that

a) The arguments applied to the latter can be challenged along the same lines, although

b) We have even less reason to level the charge against foreknowledge than time travel, as the symmetry that held between the two in relation to bilking and possibility does not hold in terms of probability.

I shall conclude that both time travel and foreknowledge are, at worst, only contingently unlikely: that is, even if they would lead to the sort of coincidences that currently we do not see (and it is not clear that this is the case), that does not suggest either are necessarily or eternally improbable. In other words, even if on current evidence we should give low credence to there having been time travellers or foreknowers, our evidence might change in the future in such a way as to warrant a higher credence.

(Note that the arguments throughout are neutral in terms of theories of time – four-dimensionalism is not required).

5.6.1 TIME TRAVEL

> If success is impossible, then failure is the only option. Repeated failure is the result of extremely improbable and odd coincidences. Hence, regular time travel worlds are worlds in which extremely improbable coincidences occur and so are, at the very least, most strange and odd worlds.[413]

5.6.1.1 HORWICH'S ARGUMENT

As demonstrated above, the time traveller cannot change the past, and thus cannot kill his grandfather or earlier self. Nor can he choose not to travel in time if he has already made the journey. Lewis's common-place reasons allow for the possibility of backwards time travel, as they ensure consistency in the timeline. This account is frequently accepted without question, but has been challenged most notably by Paul Horwich, who writes:

> Suppose [time travellers] try over and over again to commit autoinfanticide. On every attempt something happens to frustrate their plans – guns are constantly jamming, poisons spilling, etc. but there is no causal connection between the decisions to commit autoinfanticide and the guns' jamming so often. Neither one causes the other, nor is there any common cause. Thus…time travel would imply

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[412] There are other challenges and concerns regarding the likelihood of time travel that I will not address here (as they do not directly bear on the discussion of foreknowledge or the analogy drawn between time travel and the latter).

[413] G. C. Goddu, "Banana Peels and Time Travel", *dialectica,* Vol. 64 No. 4 (2007), pp. 560-1.

massive (indeed, limitlessly extendable) coincidence: a phenomenon we know from experience to be absent from our world.[414]

And elsewhere,

[M]isgivings arise, I think, when we focus our attention on cases of attempted [bilking]…we know of course that success is impossible. Yet repeated failure is nevertheless surprising and disturbing, for it constitutes a violation of well-established regularities.[415]

While Horwich agrees with Lewis insofar as the possibility of time travel, he argues that given the coincidences it entails, it is highly improbable. Note that coincidences in and of themselves are not inherently unlikely: in his sustained treatise on the subject David Owens defines coincidence as "any event whose constituents are produced by independent causal processes" (a definition widely endorsed).[416] A coincidence is inexplicable insofar as it involves "an accidental correlation or regularity" without a natural law to explain it, but it does not have to be significant, striking, unpredictable or improbable.[417]What makes the bilking-foiling coincidences improbable, for Horwich, is that we do not see them in the world. The type of probability he has in mind is thus evidential, based on frequencies we have observed to date. Rather than objective or purely subjective probability, this epistemic probability is based on the credence of a well-informed agent, drawing on her experience of the world at a given time. Following Horwich, and the successive literature, this is the sense of probability I shall employ throughout.

So, whether Bill tried to kill his grandfather once, or repeatedly, he would fail; otherwise his actions would result in a contradiction. But while a single banana peel, or gun jam, may be seen as merely fortuitous, repeated failures seem to require an additional explanation. To see this, Sider suggests we imagine an 'Institute for Auto-infanticide', a futuristic organisation that sends out legions of time-travelling assassins:

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[414] Paul Horwich, "Closed Causal Chains", in S. Savitt (ed.), *Time's Arrows Today,* (Cambridge: Cambridge University Press, 1995), p. 263.

[415] Horwich, Asymmetries, p. 120; cf. Michael Dummett, 'Bringing About the Past', in *Truth and Other Enigmas* (London: Duckworth, 1978) pp. 333-350.

[416] David Owens, *Causes and Coincidences,* (Cambridge: Cambridge University Press, 1992), p. 7. See for instance, Dowe, Coincidences of Time Travel.

[417] Owens, Causes and Coincidences, pp. 8-9.

Since auto-infanticide is impossible, each assassin fails. Some change their minds, others slip and fall on banana peels, yet others kill the wrong target, and so on. But there is something odd about the idea that such "coincidences" are *guaranteed* to happen, again and again![418]

For every bilking attempt (*X*), there must be a common-place reason – such as slipping on a banana peel (*Y*) – that prevents *X* from succeeding.[419] The repeated occurrence of *Y,* or *Y*-like circumstances, cannot be explained except as a coincidence, and this sort of coincidence, argues Horwich, is so improbable as to make time travel highly unlikely. That is, every time *X* occurs, *Y must* occur to prevent a contradiction. However, *X* does not cause *Y,* or vice versa, and they have no common cause, thus

[T]he correlation between [*X*] and [*Y*] would be a sheer coincidence. And it is an empirical fact that sheer coincidences do not occur.[420]

Indeed, the only (apparent) causal relation between the auto-infanticide attempt (*X*), the slip on a banana peel (*Y*), and the failure of the attempt *(Z)* is an 'inverse' fork. Whereas usually when two events are consistently correlated, there is either a direct causal connection between the two, or they share a common cause, forming a V-correlation; in bilking cases we have two causally independent events (a killing attempt and a banana peel) causing a subsequent event (the failure of the attempt). This is an inverse fork (see Figure 3), and according to Horwich, is a phenomenon "we know from experience to be absent from our world", and thus we can infer that time travel will not, or will only rarely, take place.[421]
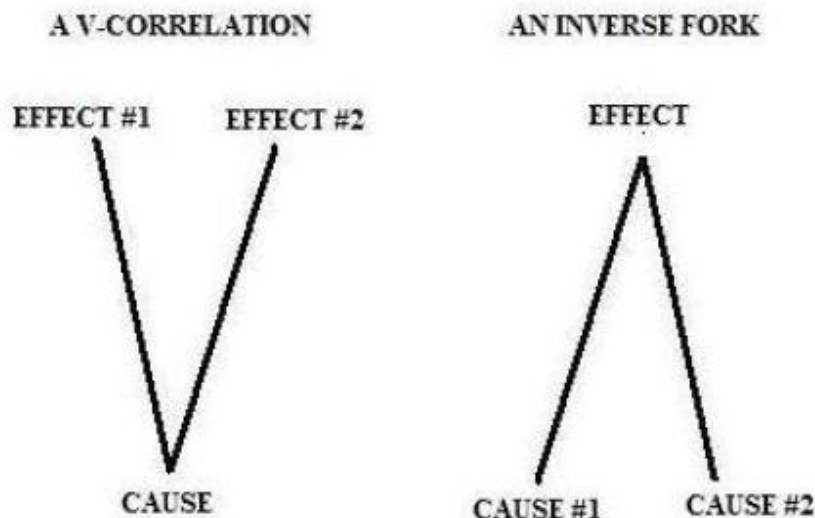

Figure 3. V-Correlation and Inverse Fork

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[418] Sider, Coincidences & Counterfactuals, p. 117.
[419] Horwich, Closed Causal Chains, p. 262.
[420] *ibid.,* p. 263; cf. Asymmetries, p. 125; Dowe, Coincidences of Time Travel, p. 586f. (Dowe further suggests that if causation is transitive, the coincidences would be neither improbable nor inexplicable).
[421] *Ibid.*

In short, whenever there is a bilking attempt, some improbably coincidental occurrence will prevent its success. Because these coincidences are so improbable (and inexplicable), we can infer that they would not occur often. Thus if time travel were to occur, bilking attempts could happen only rarely, if at all. But, Horwich states, given what we know of human psychology, it is likely people would engage in bilking attempts, and thus we can infer that time travel will not occur, or will occur only very rarely.[422] The crucial premises of Horwich's argument are as follows:

P1 There is likely to be a positive correlation between time travel and bilking attempts.[423]

P2 The kind of coincidences required to foil bilking attempts are improbable and inexplicable, given our experience of the world.

P3 Assuming [P1] and [P2], time travel will be, at most, rare.

I shall consider each of these in turn, arguing that even if premises one and two are true – and it is not clear that they are – premise 3 is false.

5.6.1.2 DISPUTING THE CORRELATION (P1)

There is vast disagreement on the subject of bilking attempts and whether it is a feature of human nature that time travellers would try to change the past. The most notable rebuttal of Horwich comes from Nicholas J. J. Smith, who gives two arguments: the first of which targets premise 1 (the second is discussed in §5.6.1.4). While Horwich views a positive correlation between time travel and bilking attempts as inevitable, given enough time travellers, Smith argues to the contrary that there are only two types of time travellers who might engage in bilking attempts: a) those who fell for the 'second-time-around' fallacy, and did not realise that a successful attempt to change the past is a logical impossibility, and b) those who understood they would fail but tried anyway out of curiosity or morbid fascination.[424] With regards to the former, Smith argues, time travel would not generate improbable

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[422] Horwich, Asymmetries, pp. 120-21; cf. Ismael, Closed Causal Loops, p. 306; Huw Price, *Time's Arrow & Archimedes' Point,* (New York and Oxford: Oxford University Press, 1996), p. 278.
[423] Horwich assumes this premise, although he does not provide an argument for it. As Sider notes, it would only apply to persons: "Quantities of unthinking time-travelling particles from the future going about their random business would not be particularly likely to exhibit "coincidental" patterns noticeable to us. The more cynical might accept the conditional "if time machines will one day be invented then there now exist numerous time-travelling assassins hunting down their ancestors", but an analogous conditional for electrons is implausible. Thus, Horwich's argument at best concerns the likelihood of future persons travelling in time" (Time Travel, p. 119).
[424] One might accidentally attempt to change the past by, for example, landing one's time machine directly on top of an earlier temporal stage, but this attempt (which will, of course, fail) is not likely to be repeated, and the single coincidence enabling survival is not hugely improbable.

strings of coincidences unless there was a "systematic correlation between the time travelling intentions and failure to think clearly", which "is itself an improbable coincidence."[425] As for the latter, people would not bilk out of curiosity unless they did not know how, for instance, their younger self survived repeated murder attempts, and it "is highly improbable that the time traveller should have *forgotten* the most exciting and dangerous events of their youth (namely, their fantastically improbable escapes from a series of murder attempts by an apparently demented person – their older self.)"[426] The crux of Smith's argument is this: time travel does not entail improbable strings of coincidences, and "every argument which purports to derive such coincidences as output, given backward time travel as input, *also* uses as input – in addition to back time travel itself – occurrences which are *themselves* highly improbable", such as fallacious reasoning, memory loss, and so forth. But, as he acknowledges, people often form irrational beliefs, and assuming that time travellers are just ordinary people, it is likely that some might not understand or accept the logical impossibility of changing the past; that is, an irrationally formed belief – while coincidental in terms of its correlation with time travel – is not highly improbable. What this means for Smith, then, is that while time travel itself might not require coincidences, once "an event of *mildly* low probability" occurs, such as the development of an irrational conviction to change the past, the door is wide open to a long string of highly improbable banana peels and the like.[427]

Smith's argument against the likelihood of bilking has been repeatedly contested, and rightly so: it hinges on questionable intuitions concerning the probability of both fallacious reasoning amongst time travellers, and the probability of bilking attempts as a result of curiosity or scientific enquiry. It also assumes, too quickly, that these are the only two types of possible bilkers; and that improbable coincidences are required as input. Each of these is open to challenge.

Firstly, as Goddu notes, fallacious reasoning on the part of time travellers is only improbable if the impossibility of changing the past is obvious, and that is not the case.[428] Even if some time travellers would readily come to accept their logical limits, this is no guarantee all would: people are not immune

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[425] Nicholas J. J. Smith, "The problems of backward time travel", *Endeavour,* Vol. 22 No. 4 (1998), p. 156.
[426] *Ibid.,* p. 157. Smith does not apply this line of thinking to the grandfather paradox (just the auto-infanticide), but one could by arguing that a series of "fantastically improbable" murder escapes would be a family legend, or at least a matter of public record. On the other hand, perhaps the time traveller's earlier self could have repressed the memories as a result of the trauma, which would not seem a particularly unlikely coincidence.
[427] *ibid.,* p. 157; cf. Bananas, p. 381f.
[428] As anyone teaching metaphysics or giving a paper on time travel would likely concede. Goddu, Banana Peels, pp. 559-60; cf. Horwich, Asymmetries, p. 125.

to fallacious reasoning, or the lure of irrational beliefs. Additionally, it is not far-fetched to think that scientists might travel in time to test the impossibility of changing the past (perhaps to verify the universe is four-dimensional), or that other curious travellers might be interested in some facet of their history. Smith also assumes, unfairly, that only the improbably curious or improbably irrational would be inclined to bilk (as opposed to, say, travellers who have mistakenly but rationally come to believe that the past is mutable[429]). And it is not only the murderous who might be so inclined: a bilking attempt need not involve something as serious as auto-infanticide; it may instead be a comparatively minor or beneficial task, such as convincing your younger self not to take up smoking, or having a chat with your grandmother about some aspect of her youth. Given this, it is not clear that every instance of time travel involving a bilking attempt and the necessary foiling coincidence need be accompanied by improbable input coincidences. Imagine I am Peter van Inwagen, and rationally (although arguably mistakenly) think I can change the past, and decide to go back in time to tell my earlier self this, and thereby save myself time in the long run. This tale does not require, it would seem, inexplicable or improbable coincidences. So Smith's initial assumptions are not above rebuke.

There is one further consideration that might, at least in part, redeem Smith's argument. Long strings of coincidences will only come about as a result of repeated bilking attempts. Repeated bilking attempts are most likely to arise as a result of conscious bilking (there will be counter-examples, but the bilkers we usually envision, in philosophy and in fiction, are those with a particular goal in mind: a dead grandfather, a saved loved one, a better future).[430] However, given the intention problem, rational agents would be precluded from deliberately and knowingly bilking: the time traveller cannot simultaneously believe their grandfather will survive and intend to kill them anyway (§§4.4.2, 5.5.2.1). As a result, those that do bilk *are* most likely to fall into Smith's two categories along with a third: the irrational, the curious (who intend not to succeed but generate the coincidences, or see how they fail), and the mistaken. And the mistaken, if rational, are likely to realise their mistake after a certain number of bilking attempts, and thus themselves fall prey to the intention problem. Still, we have no reason to think that the irrational, curious, and mistaken would be in the minority.

However, if Smith is right and there is insufficient reason to believe that time travellers would be particularly concerned with bilking attempts, then there could be time travel going on today, without the need for foiling coincidences. Indeed, we might unknowingly encounter countless time travellers

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[429] As per Goddu and Van Inwagen, see §5.5.1.2.
[430] Most famous pop culture examples fit this category: Harry Potter, Back to the Future, the Terminator, etc.

throughout our lives, those who are "avoiding the banana peels and annoying pricks of conscience simply because they have no interest in 'changing the past'."[431] But it is difficult to adjudicate on the controversial psychological thesis upon which premise 1 depends, especially from the armchair, and I will not attempt to do so here: it is not clear how frequently or to what extent time travellers would be inclined to engage in bilking attempts, and thus how many coincidences we would expect to see if time travel were occurring.[432]

It could be noted, of course, that the whole discussion of the frequency of bilking attempts is curious, as the important problem is not *how often* time travellers would engage in bilking attempts, but that they could. Whenever they did choose to bilk, it would seem, a series of miraculous coincidences would need to occur in order to maintain consistency in the timeline and avoid contradiction. Thus we arrive at premise 2.

5.6.1.3 ON IMPROBABLE & INEXPLICABLE COINCIDENCES (P2)

Premise 2 is the strongest of Horwich's three premises: it does indeed seem that time travel, and particularly bilking attempts, could give rise to improbable and inexplicable coincidences. Here I will point to two reasons that cast doubt on the premise, although they are not meant to be knock-down objections. The coincidences Horwich posits are thought to be inexplicable because there is no causal connection between the two correlated events (the bilking attempt and the banana peel), and improbable because such correlations do not occur at present. Each of these can be questioned.

Firstly, it is not the case that inexplicable coincidences are entailed by bilking attempts: some will be foiled by Riggs-type reasons, which are not causally independent of the time travel. In such cases, the bilking attempt and the foiling event will have a common cause; for instance, the time machine not only delivering the murderous time traveller but a strong electro-magnetic field that affects the accuracy of the time traveller's weapon. As Riggs himself notes, "the causes of his lack of success in a *long series* of attempts are (in part) attributable to [the time traveller], to what accompanies him and to his

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[431] Sider, Coincidence & Counterfactuals, p. 119.
[432] NB. Even if Smith is right in questioning premise 1, bilking attempts are not the only way in which time travel may generate Horwich-style coincidences. For example, Dowe imagines a time traveller who goes back in time to meet her grandparents before they are married and have children. She shakes their hands, greets them, but does not reveal her identity. When her grandfather goes to war, every enemy who attempts to shoot him falls foul of a banana peel, or for some other common-place reason fails to kill him (Dowe, Coincidences, p. 580). There do not seem to be any strange input coincidences (other than time travel) in this tale, although it does have the improbable output coincidences Horwich finds so objectionable. This is an inverse fork: the killing attempts and foiling peels enable the subsequent existence of the time-travelling grandchild (there might be something strange about the order of explanation here – see §5.6.2).

activities."[433]Of course, the more times the time traveller tries to kill, especially if he adapts to using non-metal weapons, the more banana peels will be needed, and we might think that only a certain number could plausibly be the result of the travel itself. This might be true, but Riggs's reasons, minimally, reduce the number of coincidences required, and undermine the entailment of the inexplicability.

Secondly, it is not clear that evidential probability matches up with real-world frequency: perhaps we are really rubbish at noticing strings of banana peels. Dowe suggests that the correlation between the latter and bilking attempts would only be discernible if we recognised the time traveller for what he is; otherwise we would not bother to look for a correlation. In the time travel scenarios considered, the correlation is visible because we have "partitioned on the fact" that Bill is a time traveller.[434] If we looked at all attempted shootings in a given region of space-time, we would not expect there to be a correlation. If there did happen to be time travellers engaging in such bilking attempts, then there would be a correlation, but unless there were high incidences of the former, the effect would be slight enough to likely escape our attention. Dowe writes,

> We think we do not have the relevant correlations, and so in that sense we do not see them…We need to ask whether we know on the grounds that we haven't seen them that there haven't been time-traveller induced correlations in our experience…Without independent evidence of time travelling, we wouldn't notice the correlations it brought. Then it may be that such correlations do already occur, and if so they cannot be called improbable in Horwich's sense.[435]

As the above shows, we have some reason to doubt premise 2; but even so, one might argue, there would be *some* inexplicable and improbable coincidences entailed by bilking attempts. Still, this does not make time travel unlikely, as the third premise's flaw is decidedly more fatal.

5.6.1.4 THE ARGUMENT AGAINST INDUCTION (P3)

Horwich's third premise can be paraphrased as follows:

> **P3** Given that the coincidences entailed by time travel are improbable – that is, they fall outside the realm of our experience – time travel is unlikely to occur.

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[433] Riggs, Principal Paradox, p. 56.
[434] Dowe, Coincidences, p. 581.
[435] *Ibid.*, Coincidences, p. 581f.

The problem with this premise is the move from 'we don't see them' to 'they won't happen'. Smith makes this point in several places, arguing that even if time travel entailed these inverse forks, we cannot predict future occurrence from present experience. He writes,

> To argue otherwise would be like arguing that one has never seen humans fly, and therefore will do so at most rarely – even as the Wright brothers set up in the neighbouring field.[436]

And,

> The only reason we regard the events in question as improbable coincidence is that within our experience, they have not occurred very often – and our experience does *not* (apparently) encompass backward time travel.[437]

Even if we assume, as Horwich does, that persistent time travel will inevitably lead to bilking attempts which will in turn generate strings of improbable, inexplicable coincidences, this does not demonstrate anything about the possibility or probability of time travel in the future or distant past. Given that we do not seem to see long strings of banana peels and gun jams (at least on a regular basis), if Horwich is right, at most time travel does not actually occur in the present: time travellers engaging in bilking attempts are not here now, or not in large numbers. But there is nothing contradictory about large numbers of coincidences occurring in a particular space-time region. As Sider writes,

> The argument establishes at most that we have defeasible reason to believe that time travel into the recent past does not *actually* occur. The argument concerns only the actual world because the evidence against coincidences is contingent; clearly strings of coincidences *might* have occurred. The argument provides only defeasible evidence because the evidence is inductive: the future existence of strings of coincidences is logically compatible with our present evidence.[438]

That is, we cannot project from our present experience (or lack) of inexplicable coincidences to a future in which time travel takes place, because time travel makes a relevant difference to what we would experience, and thus what we would deem probable. One cannot introduce time travel and expect to hold everything else fixed: introducing backwards causation may have any number of consequences, including the likelihood of apparently inexplicable correlations. Our current conception of what events constitute an improbable coincidence is not due to any law of nature, but our experience of the world as it is *now,* it is a 'matter of particular fact.'[439] Thus, "given the de facto nature of the uniform lack of such coincidences in our region of the universe, to expect no such coincidences on the grounds that we

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[436] Smith, Problems of Backwards Time Travel, p. 158.
[437] Smith, Bananas, p. 370.
[438] Sider, Coincidences & Counterfactuals, pp. 118-9.
[439] *Ibid.*, p. 120

haven't seen any falls foul of problems of predictability."[440] It is not at all clear that we can, or should, "project features of our experience" onto another space-time region when "that region may be relevantly different to ours."[441]

So where does that leave us? Although it is not settled that time travel will necessarily involve bilking attempts (especially long chains of bilking attempts), they might occur, and if they do, they will – at least sometimes – require the sorts of coincidences that we currently consider extremely improbable. Nevertheless, improbability by present standards is not tantamount to necessary improbability, or eternal improbability. After all, one cannot extrapolate from present experience to the future if the future is relevantly different, and time travel would constitute a relevant difference. The introduction of time travel would be significant, and would dramatically affect our expectations and estimates of probability – certainly if Horwich's first two premises are correct, long strings of banana peels would swiftly become less striking and unlikely.

Having debunked the argument against time travel, now I turn to foreknowledge, and show that not only can many of the same responses be made; the probability of foreknowledge generally is even less vulnerable to an analogous argument.

5.6.2 FOREKNOWLEDGE

As established above, the same answers to why and how a foreknower fails to change the present or future can be given as for the time traveller and his attempts to change the past. The same sort of banana peels that stop a would-be grandfather killer ensure (or at least explain why) the reluctant foreknower acts in accordance with her foreknowledge. We can tell stories that contain both backwards time travel and foreknowledge, to see how this plays out:

> Suppose you are visited by your future self. The future self recognises the impossibility of younger-self-killing, and attempts to do you no harm: she merely has a chat, and then pops off again – but not before telling you exactly when and where her trip began.[442]

The earlier self knows that at a specified future time she will get in a time machine; trying to avoid doing so would constitute a bilking attempt. The very same common-place reasons that ensure the failure of auto-infanticide bilking attempts – memory loss, slips on banana peels, a misfiring grenade etc. – will ensure the foreknower fails to bilk. Just as with the time travel cases, not all of these reasons will be

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[440] Dowe, Coincidences, p. 574.
[441] *Ibid.,* p. 581.
[442] Smith, Bananas, p. 386.

strange and improbable, some might be decidedly ordinary (such as a trip and fall). Of course, just as we might doubt that a time traveller would engage in bilking attempts, so it is not clear that a foreknower would do so. Nonetheless, should Ophelia or Bill attempt to bilk, no matter whether it's a forward- or backward- attempt in relation to time, they will fail. A string of the common-place reasons accounting for their failure might constitute, by present standards, a more-or-less improbable coincidence. But is foreknowledge as vulnerable to Horwich's criticism as time travel? Can we respond in similar ways?

5.6.2.1 A PARALLEL ARGUMENT

First, let us construct a parallel argument for foreknowledge as Horwich gave for time travel:

P1 There is likely to be a positive correlation between foreknowledge and bilking attempts.

P2 The kind of coincidences required to foil bilking attempts are improbable and inexplicable, given our experience of the world.

P3 Assuming [P1] and [P2], foreknowledge will be, at most, rare.

If these premises are true, then we can conclude that foreknowledge will be, at most, rare. But each of the premises is up for grabs.

5.6.2.2 ON THE CORRELATION [P1]

As with the time travel case, premise one relies on a questionable psychological thesis. However, in the foreknowledge case, it is arguably more plausible than it was for time travel, for the following reasons:

In the time travel case, I concluded that the irrational, the curious, and the mistaken are those agents most likely to engage in bilking attempts: those that a) fell for the second-time-around fallacy and held conflicting beliefs, b) were not trying to succeed, but rather to witness the circumstances of their failure, or c) were genuinely but rationally mistaken about the possibility of changing the past. Each of these seems as likely, if not more likely, in the context of future bilking.

There are several things to say about the irrational. Firstly, as mentioned in the time travel case, the correlation between bilking intentions and failure to think clearly – something Smith disputes – seems likely, as rational agents will be plagued by the intention problem (as discussed in §4.2.2.1 – although this will prevent long chains of coincidences in some cases, as noted in §5.6.1.2). Secondly, it may not be immediately obvious that changing the future is impossible, especially given the prevalent and pervasive intuition of an open future, and the subtle difference between 'change' and 'influence'. Finally, there are

countless tales – fictional and otherwise – of people fighting a seemingly inevitable end, either irrationally, or by choosing to disbelieve that their fate was determined (i.e. that the outcome was really foreknown).[443]

As for the curious, Smith argued in the time travel case that people would only bilk if they did not know how, for instance, their younger self survived repeated murder attempts, and it would be unlikely that they should have forgotten such a thing.[444] But unless we have the entire future open to us, the same would not apply in the foreknowledge case. Ontology and possibility might – depending on one's metaphysics – be symmetrical, but our memory is not. So the curious bilking to see how they fail, or test an hypothesis, or see if what they believe to be foreknowledge is really foreknowledge, is at least as likely in the future case as the past.

 Finally, the mistaken seem more likely to be prevalent and engaging in bilking attempts in the foreknowledge case than the time travel case. They may have many of the same reasons, such as assuming they are in a branching universe structure (particularly likely given, as I noted above, the prevalent and pervasive sense that the future is different to the past for it is open and 'up to us' in a meaningful way), but they also have greater reason to doubt: the foreknowledge, after all, might not be foreknowledge. The easiest way around the intention problem is to give up the conflicting belief: one can intend to change the future so long as one does not believe failure is inevitable.

However, even if the correlation fails to hold, bilking attempts are not required for Horwich-type coincidences to come about.[445] If God has foreknowledge of the date of my death, then it could be assumed that I am essentially immortal until then: if I jump off a cliff I will survive, and I need not look both ways while crossing the street. So, one might think that God (or any other foreknower) is unlikely to know that I will survive for 30 years if I am going to spend the intervening decades doing reckless things. There are two ways to interpret this: either certain types of foreknowledge are unlikely to occur (which seems arbitrary), or if God believes I will survive for 30 years and I am the type of person to engage in reckless activities, God's belief is unlikely to be true. If we think that surviving a string of cliff-jumps, for instance, is highly unlikely, then it is unlikely that a so-inclined person would indeed survive so long. As Smith notes, this is not a problem: if it is unlikely, then it is unlikely it will be known I will

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[443] Finding an alternative to the Final Summoning in Final Fantasy X, for instance (Kazushige Nojima, *Final Fantasy X,* (Square Enix, 2001)). For other examples, see §4.4.1.
[444] Smith, Problems of backwards time travel, p. 157.
[445] See footnote 432.

survive so many attempts. I may survive once or twice, but then either I stop (if God knows I survive) or I die (and the knowledge pertains to something else, or the foreknower has a false belief). The only way this is problematic is if one imagines that I lead a safe and cautious life, based on which God or the time traveller witnesses my survival, and that then I behave recklessly (perhaps because God has shared his foreknowledge with me), and nonetheless survive, thanks to a host of foiling coincidences. But to imagine this, as Smith notes, is "to succumb to the second-time-around fallacy."[446] If it is known that I will survive, it is because I behave cautiously and safely. To think otherwise seems to get the order of explanation wrong, as Smith observes in his dates-on-objects example:

> Suppose that every object has written upon it the date on which it will cease to exist… However many attempts I make [to destroy it], the attempts in no way *require* the occurrence of the coincidences that foil them... My destruction attempts are not *required* to fail in order that the date remains correct. Rather, the date is only there *because* the attempts fail. The existence of the date does not entail the coincidences; on the contrary, it is *because* the coincidences occur that the pen bears the date '2003' in the first place.[447]

It is not that the future has to conform to the foreknowledge, but rather that the foreknowledge, if knowledge, conforms to future events.[448] Still, as with the time travel case, given that one could attempt to bilk the future, it is worth considering the impact that has on the likelihood of foreknowledge.

5.6.2.3 ON IMPROBABLE & EXPLICABLE COINCIDENCES [P2]

As with the time travel case, premise two is the strongest of the argument. The same two caveats can be made here as were made above:

1. It is not clear that every future-bilking case would entail improbable coincidences: those foiled by Riggs-reasons or a late onset case of the intention problem would not be causally independent from the foreknowledge itself (and thus not instantiate an inverse fork).

2. It is not clear that we would notice the strings of banana peels, particularly if the knowledge is third-person. Although most repeated bilking cases are likely to arise as a result of first-person foreknowledge (through irrationality, curiosity or misunderstanding), if we are not the ones with the knowledge, then a pattern of coincidental activity is not something we would necessarily

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[446] Smith, Bananas, p. 377.
[447] *Ibid.,* pp. 376-7.
[448] That the feedback loop (C-E-N information loop) itself, in a first-person case, seems to require certain coincidences is baffling, but not logically impossible, nor eternally unlikely given what we know of the world currently. See §4.4.1 and Hanley, No End in Sight.

recognise. For example, all the lights going green on my way to work is coincidental, but I do not

attribute that to some spooking foiling pattern, and often I do not even notice.

Additionally, as noted in §5.6.2.2, in at least some cases it seems that to posit the necessity of

coincidences is to get the order of explanation wrong: because certain coincidences occur (as

coincidences so often do), events turn out in a certain way, and the foreknowledge in question turns out

to be, in fact, knowledge (because it is true). When discussing the time traveller in Chapter 2 I noted that

she knows I will wear a red dress only because, as it happens, I wear a red dress. If I did not wear a red

dress, either she does not have knowledge (because her belief is mistaken), or her knowledge reports

the actual colour of my attire. Likewise, it is not that Ophelia's knowledge had to be knowledge, or have

a particular content, it just happens to (as a result of the sequence of events conforming to it). The

feedback loops are strange, but if knowing she will φ leads Ophelia to act in such a way as to generate

improbable coincidences, it is improbable that Ophelia will know she will φ (although as noted above,

the coincidences entailed may not in fact be improbable).

5.6.2.4 THE ARGUMENT AGAINST INDUCTION [P3]

In the time travel case, I noted that Horwich's argument fallaciously moves from 'we do not see

coincidences of this kind' to 'we will never, or only ever rarely, see coincidences of this kind'. The same

argument applies in the foreknowledge case: one cannot extrapolate from present evidence to future

likelihood if the future in question contains a relevant difference, and foreknowledge would constitute a

relevant difference (unless of course you think God currently has foreknowledge – in which case, he and

his prophets are not the type to engage in bilking attempts, or they do and we do not notice the banana

peels).

However, there is one striking difference between the backwards time travel and foreknowledge cases

(and thus more broadly between past-directed and future-directed bilking attempts): if backwards time

travel was ever to be invented, then there might be time travellers among us today (and if Horwich's

argument is right, that is highly unlikely). At most, Horwich's argument gives us defeasible evidence to

think that time travel *to our time* only rarely occurs.[449] But foreknowledge has no such limitation. If we

were to invent a determined predictor 100 years from now, then our expectations regarding the

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[449] As Smith notes, "Thus the most that Horwich can argue – assuming that local backward time travel does entail
coincidences – is that no time traveller…*has visited us* – that is, that time travel to the local past will not occur
within the next few generations, at least not around here" (Bananas, p. 371). If you think now a likely destination
for time travellers, then you might wish to argue based on their absence that it is unlikely there will ever be time
travellers, but this seems a stretch (See Sider, Coincidences and Counterfactuals).

likelihood of coincidences and long strings of banana peels would change, but *this has no bearing on now.* So the first two premises of the analogue argument might be right, for the foreknower: future-bilking attempts might be likely, given foreknowledge; and these might lead to long strings of banana peels. But that is compatible with what we experience now, an experience which seems to lack long strings of coincidences. Our current experience is thus no measure of the likelihood of foreknowledge in the future, and given the logical possibility of both foreknowledge and long strings of coincidences, we have no reason to buy the conclusion of the Horwich argument for foreknowledge.[450]

5.7 CONCLUSION

In the first half of this chapter I argued that time travel and foreknowledge are logically possible: the contradictions thought to preclude their possibility do not arise. The reason the foreknowing future-bilker must and does fail to change the future is the same as why the time travelling past-bilker fails to change the past (even if you adopt a theory of time that rejects a symmetrical ontology of past and future, the former is best understood in light of the latter). In the second half I argued, contra Horwich, that time travel and foreknowledge are improbable only to the extent that we seem to have no experience of people regularly engaging in bilking attempts, and only if we assume that the former would lead to the sort of coincidences that we do not currently see. That is, they are contingently improbable: we can conceive of a time or world in which it is not unlikely, in which inverse forks and strings of banana peels are a regular occurrence.

In short, both foreknowledge and time travel, for all their strangeness, puzzles and 'paradoxes', are neither logically impossible, nor definitively improbable.

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[450] C-E-N loops themselves may require additional coincidences (to account for the fact that the loop 'works'), but the foreknowledge cases are not the improbable kind the time travel literature has concerned itself with (unlike object loops, or genetic information loops). Nonetheless, they may be worth further consideration in future. See Hanley, No End in Sight, p. 134f; Dowe, Coincidences of Time Travel, p. 598.

CONCLUSION

"It is written" – Simon Beaufoy.[451]

And now we reach the end. In the five preceding chapters I argued for three central claims:

(1) The folk intuition is wrong in rejecting foreknowledge wholesale on the basis that it entails a problematically fixed future, and thereby undermines our freedom.

I diagnosed and debunked the folk intuition by means of three distinctions – types of foreknowers, types of predestation, and first-person versus third-person foreknowledge – and showed *that* we, and *how* we, make such a mistake. In Chapter 2 I concluded that foreknowledge does not inevitably entail problematic predestation, in Chapter 3 that it need not preclude free will, and in Chapter 4 that first-person foreknowledge – while different in several interesting respects – is more puzzling than problematic.

(2) Foreknowledge gives rise to new problems, and sheds new light on old ones, but none of these are insurmountable.

Addressing the relative paucity of literature on the consequences of foreknowledge beyond free will and fatalism, in Chapters 4 and 5 I considered (amongst others) causal loops, self-fulfilling prophecies, coincidences, and the new 'intention problem': showing that each could be generated by foreknowledge, and how each could be overcome.

(3) The same paradoxes thought to plague backwards time travel can arise in foreknowledge cases, and can be defused in the same way.

In the final chapters I considered the parallels between backwards time travel and foreknowledge, particularly in terms of past-future symmetry, causal loops, bilking and probability. I showed that many of the same counter-intuitive consequences seem to arise from both, and can be treated in the same way.

In reaching these conclusions, I provided a patchwork-map of a region of conceptual space visited by the folk and philosophers alike over the past several millennia, tying together disparate threads in the literature and contributing new distinctions, problems and solutions. The conclusions drawn apply not

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[451] Simon Beaufoy, *Slumdog Millionaire* Script, (2007), http://www.imsdb.com/scripts/Slumdog-Millionaire.html, accessed Aug. 16 2014.

only to foreknowledge itself: a better understanding of the latter and its consequences shine new light on age-old problems, and point to some new ones.

Foreknowledge is fascinating, strange, and puzzling – but it is not paradoxical. We should abandon the folk intuition rejecting foreknowledge: it does not entail a future that is problematically fixed, it does not undermine our free will, and its consequences are neither logically impossible, nor definitively improbable.

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