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Occam's Razor, Dogmatism, Skepticism, and Skeptical Dogmatism

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Abstract

Underdetermination arguments for skepticism maintain that our common sense view of the external world is no better, evidentially speaking, than some skeptical competitors. An important and well-known response by dogmatists, those who believe our commonsense view is justified, appeals to abduction or inference to the best explanation. The predominant version of this strategy, going back at least to Locke, invokes Occam's razor: dogmatists claim the common sense view is simpler than any of its skeptical alternatives and so has more to recommend it, evidentially speaking. This dispute has overshadowed another possible view: skeptical dogmatism. Skeptical dogmatists hold that we are justified in believing that the common sense view is probably false. I argue that skeptical dogmatism presents some interesting complications to the dialectic between the dogmatist and the skeptic. On the one hand, even if the dogmatist's use of Occam's razor is sufficient to rebut skepticism, in itself it is not sufficient to refute skeptical dogmatism. On the other hand, skeptics themselves, ironically, must, given the assumptions of the paper, appeal to something like Occam's razor in order to avoid capitulating to skeptical dogmatism.

Keywords

underdetermination – Sextus Empiricus – Occam's Razor – abduction – inference to the best explanation – skepticism

1 Introduction

Underdetermination arguments for skepticism can be traced back at least to the ancient skeptics (Pritchard 2005: 107). Applied to the question of whether

we have justified belief about the external world, skeptics attempt to show that our common sense view of the external world is no better, evidentially speaking, than some skeptical competitors.¹ The arch interlocutors of skeptics, ‘dogmatists’, are those who believe that we have justified belief about our world and the objects of common sense.² An important and well-known response by dogmatists turns on the notion of abduction, or what we might think of as the ‘inference to the best explanation strategy’, for responding to skepticism.³ The predominant version, going back at least to Locke, invokes Occam’s razor: the common sense view of the external world—the idea that our world comprises material objects which⁴—is simpler than any of its skeptical alternatives and so has more to recommend it, evidentially speaking.⁵

The dialectic between the skeptic and the dogmatist has overshadowed another possible view: Consider an analogy with religious belief. We may think of ‘the theist’ as someone who holds that the belief in the existence of God is justified, and ‘the atheist’ as someone who holds that belief in the non-existence of God is justified, while ‘the agnostic’ holds that there is no justified belief either for or against the existence of God. In the epistemic arena, dogmatists play the role of the theist, while skeptics take the part of the agnostic. There is no analog to the atheist in the traditional epistemic debate: a view that holds that we are justified in believing the common sense view of the external world is false. This position may be referred to as ‘skeptical dogmatism’.⁶ We will examine a probabilistic form of skeptical dogmatism: we are justified in believing that the common sense view of the external world is probably false.

1 For this understanding of underdetermination skeptical arguments, see Yalçın (1992), Brueckner (1994), and Vogel (1990, 2004, 2005). For qualified endorsement of underdetermination arguments as unanswerable, along internalist lines, see Pritchard (2005).

2 I take this usage of ‘dogmatist’ to be similar to that employed by Sextus Empiricus (1996). It is broader than James Pryor’s (2000) understanding of the term, which focuses on experience, and questions about the inferential justification of beliefs based on experience.

3 Although there may be reason to distinguish abduction and inference to the best explanation (see Hintikka 1999), for our purposes the distinction is without a difference

4 I will say more about the common sense view below.

5 Beebe (2009) convincingly demonstrates that the abductivist response has a long history with many illustrious proponents. It is worth citing some of his evidence (Beebe 2009: 606) here to convince ourselves of its pedigree: Locke (1975) Russell (1948, 1988, 1992), Broad (1925), Ayer (1956), BonJour (1998, 1999), Mackie (1976), BonJour and Sosa (2003), Cornman (1975), Goldman (1988), Lycan (1988), and Vogel (1990, 2005).

6 It might be thought of as similar to, or a version of, ‘error-skepticism’. However, error-skepticism is generally thought of as having a less global target than the world of material objects of common sense, e.g., John Mackie’s views in meta-ethics are sometimes referred to as a version of error-skepticism (1977).

My intention is not to argue for skeptical dogmatism here.⁷ Rather, I will assume that it is “in the field of play”: it is part of the dialectic; for example, just as dogmatists seek to answer the arguments of skeptics, so too should they seek to answer the arguments of skeptical dogmatism. I will argue that skeptical dogmatism presents some interesting complications to inference to the best explanation strategy. On the one hand, even if the dogmatist's use of Occam's razor is sufficient to rebut skepticism, it is not sufficient to refute skeptical dogmatism. On the other hand, skeptics themselves, ironically, must (given the assumptions framing the dialectic) appeal to something like Occam's razor in order to avoid capitulating to skeptical dogmatism.

2 Underdetermination Skepticism

It will be useful to begin with a sketch of the skeptic's use of underdetermination argument; and, in the following section, a brief look at the inference to the best explanation strategy by the dogmatist, before looking at skeptical dogmatism in Section 4.

The basic template for underdetermination skepticism, as noted above, goes back to the ancient Greeks. Sextus Empiricus summarizes it thus:

The Skeptic Way is a disposition to oppose phenomena and noumena to one another in any way whatever, the result that, owing to the equipollence among the things and the statements thus opposed, we are brought first to *epochè* and then to *ataraxia*. ... At this point we are taking as phenomena the objects of sense perception, thus contrasting them with the noumena... By “equipollence” we mean equality as regards credibility and the lack of it, that is, that no one of the inconsistent statements takes precedence over any other as being more credible. *Epochè* is a state of the intellect on account of which we neither deny nor affirm anything.

PH I 8-10, in Sextus Empiricus 1996

To motivate radical skepticism about the external world, underdetermination skeptics invite speculation about possible causes of our sensory experience. Before examining this move, however, we should pause to consider the locution ‘the external world’. The term is potentially confusing. Strictly speaking, if ‘external world’ means ‘something other than me’, then any number of

⁷ Reasons for endorsing skeptical dogmatism are discussed at length in Walker (forthcoming).

skeptical hypotheses may qualify as an ‘external world’. For example, Berkeley’s immaterial world hypothesis or Descartes’ evil demon count as external to me. Dogmatists typically tend to want to fight for something more than simply any old anti-solipsistic view: they tend to mean something much more specific, which we may refer to as the ‘The Mundane World Hypothesis’:

1MWH: (i) we have bodies, (ii) we have brains located inside our bodies, (iii) and we have sense organs which process visual information. (iv) The direct cause⁸ of our perceptual judgments is typically macroscopic material objects (tables, trees, teacups, etc.) and (v) we live in a material world. In addition, (vi) our epistemic relationship to the world is autonomous: evil demons, advanced aliens and so on, do not get involved in our epistemic lives.⁹

Underdetermination skeptics ask us to consider a competitor to 1MWH, like The Matrix World Hypothesis:

2MtwH: I am in the “Matrix.” I have a body. I live in a virtual reality maintained by a computer system that interfaces with my brain. The computer system is controlled by advanced AIs who have taken control of the world.

2MtwH denies (iv), claiming instead that a computer program (The Matrix) is the typical cause of our sensory experience; 2MtwH also denies (vi) by claiming that our lives in this virtual world are orchestrated by agents (artificial intelligences) controlling the Matrix. Thus, the 1MWH explanation for why it appears there is a desk in front of me is that there is a material desk in front of me that reflects light to my eyes, which is processed by my brain to produce a visual image of a desk. 2MtwH says that electrodes feed minute electrical impulses into nerve endings in my brain that produce an experience that is subjectively indistinguishable from seeing a material desk. The electrical

8 By “direct cause” I do not mean to be taking any subtle position in the theory of perception or causation, but merely to deny certain skeptical hypotheses. For example: our brains have been removed from our bodies and placed in vats in an underground secret laboratory. Our bodies walk the earth controlled via radio links to our brains. The mundane world hypothesis, I take it, denies the thought that there are radio relay intermediaries between our bodies and our brains: common sense seems to presuppose that hypotheses about such circuitous causal routes are false.

9 This conception of the mundane world and its relationship to other possible conceptions is discussed in more detail in Walker (forthcoming).

impulses are controlled by a computer program designed to realistically simulate a three dimensional world of material objects. The explanation for the appearance of a desk is something like a 'desk' file that is designed to simulate a material desk to all inhabitants of the virtual world.

Underdetermination skeptics challenge dogmatists to cite evidence that favors $1MWH$ over $2MtWH$. Skeptics argue that any such evidence would have to be either a priori or empirical and add:

- (I) We have no a priori access to the nature of the causes of our experiences which favors $1MWH$ over $2MtWH$.
- (II) We have no empirical access to the nature of the cause of our sensory experience that favors $1MWH$, since subjectively, our experience would be indistinguishable if $2MtWH$ were true. That is, if the cause of our sensory experience is $2MtWH$, it would be subjectively indistinguishable from the counterfactual possibility that $1MWH$ is the cause of our sensory experience; and, if the cause of our sensory experience is $1MWH$, it would be subjectively indistinguishable from the counterfactual possibility that $2MtWH$ is the cause of our sensory experience.

The underdetermination skeptic concludes we are not justified in believing $1MWH$ because it has no more going for it, evidentially speaking, than $2MtWH$.

We may summarize the structure of the underdetermination argument (UA) for skepticism about the $1MWH$ thus:

U1: "If h_1 and h_2 are [incompatible] hypotheses and e is all S's evidence, S is justified in believing h_1 only if $\Pr(h_1/e) > \Pr(h_2/e)$."¹⁰

U2: It is not the case that $\Pr(1MWH/e) > \Pr(2MtWH/e)$.

UC: We are not justified in believing in $1MWH$.

The major premise, U1, states one version of the underdetermination principle where 'Pr' stands for 'epistemic probability'. U1 states a necessary condition for

¹⁰ I have changed Hazlett's (2006: 200) formulation slightly: I've used 'Pr' instead of 'P' used in the original and added the word 'incompatible'. By 'incompatible' and 'competitor' we shall mean that the hypotheses in question are contraries. Hazlett's formulation also ignores the wrinkle that the principle seems plausible only if the subject is aware that H_1 and H_2 are incompatible. Pritchard's version of the principle (see below) adds that the subject knows that two incompatible hypotheses are incompatible. Even this may not be enough if the subject fails to see the connection when reasoning about the incompatible hypotheses. I will ignore these sorts of "grounding" issues here as they are not germane, since nothing here exploits such worries.

justified belief: a justified belief about some hypothesis must have greater epistemic probability than its competitor.¹¹

Sometimes the underdetermination principle is stated in terms of “favoring” or “epistemic merit” rather than epistemic probability. For example, Vogel (2005: 73) formulates the underdetermination principle as: “If q is a competitor to p , then a subject S can know p only if p has more epistemic merit (for S) than q . Duncan Pritchard writes: “For all S , p , q , if S ’s evidence for believing p does not favour p over some hypothesis q which S knows to be incompatible with p , then S ’s evidence does not justify S in believing in p ” (2005: 39) For present purposes we can understand these as expressing the same idea: p has greater epistemic probability than q for S , iff p has greater epistemic merit for S than q , and S ’s evidence favors p over q .

The skeptic’s defense of the minor premise was outlined above: skeptics claim (I) we have no a priori evidence that favors 1MWH over its skeptical competitor, and, (II) sensory evidence does not favor 1MWH over some skeptical competitor.

3 Dogmatism and Occam’s Razor

The dogmatic response we are interested in challenges the minor premise.¹² It says that 1MWH is simpler than its skeptical competitors, which means that 1MWH has greater epistemic merit than a competitor like 2MtWH. We will think of this as the “Occam’s Razor Rebuttal” (ORR).

As intimated above, ORR should be understood as part of a broader response to skepticism: the “Inference to the Best explanation strategy” (IBES) for responding to skepticism.¹³ The general principle for such arguments is: other things being equal, if H_1 is a better explanation than H_2 , then H_1 has more epistemic merit, and hence, is more likely to be true. The specific application in this case is the claim that simplicity is an explanatory virtue, hence, other things being equal, the simpler of two hypotheses is more likely to be true. Richard’s Swinburne’s phrase, ‘simplicity is evidence of truth’, captures the

¹¹ The principle is not universally accepted, see Foley (1983).

¹² For some discussion of dogmatic responses that question the major premise of the underdetermination argument see Walker (forthcoming).

¹³ For ease of reference I shall assume, for the most part, that IBES is the only option open to the dogmatist. Of course there are other options, such as various forms of externalism and neo-Moorean strategies to name but two, but these strategies are beyond the scope of the dialectic we are investigating.

point nicely (1997).¹⁴ In other words, let us suppose the non-simplicity evidence (nse) is equally supportive of H₁ and H₂, so:

$$\Pr(H_1/nse) = \Pr(H_2/nse).$$

If we think of evidence (e) as total evidence comprising both nse and evidence from simplicity (se), then $e = nse + se$. Since we are assuming that H₁ is simpler, then:

$$\Pr(H_1/se) > \Pr(H_2/se).$$

Thus, according to this line of argument, we are entitled to conclude:

$$\Pr(H_1/e) > \Pr(H_2/e).$$

ORR may be summarized as follows:

ORR1: If H₁ and H₂ are otherwise epistemically equal competitor hypotheses and H₁ is simpler than H₂, then $\Pr(H_1/e) > \Pr(H_2/e)$.

ORR2: $1MWH$ and $2MtWH$ are otherwise epistemically equal competitor hypotheses and $1MWH$ is simpler than $2MtWH$.

ORRC: $\Pr(1MWH/e) > \Pr(2MtWH/e)$.

So, the conclusion, ORRC, is the denial of the minor premise, U₂, in UA. If successful, then, this application of 1BES is sufficient to demonstrate UA is unsound.

ORR invokes the contested notion of simplicity; however, the nature of simplicity need not detain us for long, since, for present purposes, we may accept any of the common understandings. For example, sometimes 'type-simplicity' is contrasted with 'entity-simplicity'.¹⁵ Invoking Occam's Razor (OR) in

14 I make no claims about the historical accuracy of calling this "Occam's Razor" (see e.g. Thorburn 1918). Anyone who has such objections can imagine the principle expressed in the major premise of ORR as promulgated by Bill of Hokum, and that this is "Hokum's Razor."

15 There is another understanding of 'simplicity' that turns on the notion of the complexity of the theory itself, which is often invoked in deciding between competing scientific theories. So, for example, other things being equal, a theory that invokes four laws of motion is more complex in this sense than a theory that invokes three laws of motion. Sometimes this notion of 'simplicity' is referred to as 'elegance'. Other things being equal, the more elegant theory should be adopted. It is not clear how to assess elegance with respect to

thinking about types, the principle says that the simpler of two explanations is the one that invokes fewer types. Entity-simplicity says that the simpler of two explanations is the one that invokes fewer entities. Imagine in the nineteenth century, prior to the discovery of Neptune and Pluto, two competing explanations for the observed perturbations in Uranus' Orbit. One explanation suggests the perturbations are caused by two unobserved planets;¹⁶ the other explanation contends that the perturbation is caused by a single object: a planet-sized death-star spaceship. The former explanation invokes more entities, two planets versus a single huge spaceship. The latter invokes an additional type of entity: a planet-sized spacecraft. The example suggests that different dimensions of simplicity may come into conflict with one another and illustrates the need for lexical ordering or some other means to sort out potential tensions; however, nothing in this paper exploits these potential problems (Baker 2010). Rather, we shall assume that the dogmatist has identified a coherent and plausible conception of simplicity.

What about the epistemic status of OR? Is it knowable a priori or empirically? I don't propose to investigate this question in detail here.¹⁷ Since we are not questioning OR, the dogmatist can hardly complain about this assumption; after all, OR is a necessary ingredient of ORR.

It may be thought that assuming OR stacks the deck against the skeptic. There are two replies. The first turns on Jonathan Vogel's useful distinction between 'domestic' and 'exotic' skepticism. Domestic skepticism is

concessive, in that it doesn't contest the legitimacy of the epistemic principles we employ. It is also dangerous in the sense that it would be deeply unsettling, or worse, if we have no knowledge of the world, according to our own accepted view of what knowledge is and what it requires.

2005: 73–74

Vogel describes 'exotic skepticism': "Someone might contest not only our ordinary judgments that we have knowledge of the world, but also the legitimacy of the principles on which we rely in making that judgment" (2005: 74). What is at issue here is domestic skepticism. Following Vogel, domestic skepticism accepts OR as a legitimate epistemic principle. Skeptics may wish to doubt

philosophical theories, and it would add little to our discussion. (I assume that the points and the examples below could be amended to account for elegance if one thinks that elegance increases the a priori probability that some philosophical theory is true.)

¹⁶ I don't subscribe the bigotry and hatred that demotes Pluto to a planetoid.

¹⁷ In Section 9, I will make a couple of brief remarks about the epistemic status of OR.

even OR, but in doing so, they are thereby exotic skeptics, according to this taxonomy.¹⁸ Secondly, as we shall see, domestic skeptics themselves require something stronger than OR in many cases to save their position from skeptical dogmatism, so they are hardly in a position to complain about OR.

4 Radical Underdetermination and Skeptical dogmatism

So far we have rehearsed in broad sketch some of the long standing debate between the skeptic's deployment of underdetermination arguments and the dogmatists' use of IBES. It is now time to consider the neglected position, skeptical dogmatism. We may start by considering an assumption common to the dogmatist and skeptic in this stretch of the dialectic: there are competing explanans for our sensory experience. As Bonjour notes, the explanandum is not simply that we have sensory experience. Rather, explanations should say something about the "involuntary, spontaneous character" of experience and the fact that sensory experiences "fit together and reinforce each other in a coherent fashion, presenting a relatively seamless and immensely complicated picture of an ongoing physical world" (2003: 85).

As noted above, 1MWH and 2MtWH purport to meet this explanatory burden. But of course there are other hypotheses that have been offered to explain the character of our sensory experience. There is, for example, Berkeley's proposal:

3BWH: There are only minds and ideas; there is no material world.¹⁹

Berkeley takes up the challenge to explain sensory experience: he agrees that we see and interact with macroscopic objects, tables, trees, teacups etc., but adds that we perceive only ideas, so macroscopic objects are ideas (Winker 1989: 138). Berkeley writes:

I do not argue against the existence of any one thing that we can apprehend by sense or reflexion. That the things I see with my eyes and touch

18 Below we will consider the possibility that domestic skepticism is not sufficient to demonstrate OR. For the moment, we will assume that it is.

19 The assumption here is that 1MWH, 2MtWH, and 3BWH are contraries. I leave it to the interested reader to imagine further specifying these hypotheses to ensure that they are contraries, e.g., adding to 3BWH the specification that there is no Matrix in Berkeley's world.

with my hands do exist, really exist, I make not the least question. The only thing whose existence we deny is that which *philosophers* call Matter or corporeal substance. And in doing of this there is no damage done to the rest of mankind, who, I dare say, will never miss it

1982: §35

So, Berkeley rejects (i), (iv) and (v) of 1MWH.

Once we see that there are at least three hypotheses to consider, we may ask: do we have reason to favor 3BWH over 2MtWH or vice versa? One thought here is that the skeptic and the dogmatist will say the same thing about the pair-wise comparison of 3BWH and 2MtWH as was said about 1MWH and 2MtWH. Accordingly, let us imagine that the skeptic says that 3BWH and 2MtWH are evidentially equal: the Pyrrhonian point of equipollence applies, namely, “equality as regards credibility and the lack of it.” And in the stretch of the dialectic we are considering, it is not untoward to imagine the dogmatist concedes, *considerations of simplicity aside*, 3BWH and 2MtWH are evidentially equal. Once the evidential weight of simplicity is factored in, however, the dogmatist may say that we have reason to favor 1MWH over 2MtWH and 3BWH. We will look at the adequacy of the dogmatist’s response below in Section 6.

For the moment, let us concentrate on the skeptic’s answer. There is an obvious difficulty for the skeptic. Our initial presentation of skepticism in Section 2 saw the skeptic affirming that $\Pr(1MWH) = \Pr(2MtWH)$; and now we are imagining the skeptic suggests that the $\Pr(2MtWH) = \Pr(3BWH)$; so it seems we are entitled to conclude $\Pr(1MWH) = \Pr(3BWH) = \Pr(2MtWH)$. But if this is the case, equipollence is lost, for now we have positive reason to suppose that each hypothesis lacks credibility, since the maximum epistemic probability of each can be no more than 0.33.²⁰ On the other hand, if it is not the case $\Pr(1MWH) = \Pr(3BWH) = \Pr(2MtWH)$, then the skeptic will be forced to say that at least one hypothesis has more epistemic merit than its competitors. We will explore this move more below in Section 8, but even at this point we can at least see a potential difficulty for the skeptic here: grasping this horn of the dilemma, the skeptic is forced to say that there is evidence that favors (say) 1MWH over 3BWH, and there is evidence that favors 1MWH over 2MtWH. However, in the traditional dialectic, as noted above, the skeptic maintains that we do not have evidence that favors one hypothesis about the cause of our experience over another.²¹

²⁰ Here and below I will not fuss about small probabilities (0.01 and less).

²¹ In Walker (forthcoming) I explore various moves the skeptic might make to avoid or answer this dilemma.

It will help to summarize the radical underdetermination argument (RUA):

- RU1: *Radical Underdetermination Principle*: If h_2 and h_3 are competitor hypotheses to h_1 and to each other, and e is all S's evidence; and S's evidence for believing h_1 is not greater than S's evidence for believing h_2 , and S's evidence for believing h_1 is not greater than S's evidence for believing h_3 , then S is justified in believing h_1 is probably false.
- RU2: S's evidence for believing $1MWH$ is not greater than S's evidence for believing $3BWH$, and S's evidence for believing $1MHW$ is not greater than S's evidence for believing $2MtWH$.
- RUC: S is justified in believing $1MWH$ is probably false.

The conclusion of RUA is a probabilistic version of skeptical dogmatism.

As with dogmatism and skepticism, I will not attempt to convince that we ought to take skeptical dogmatism seriously.²² Rather, as noted above, the plan is to assume all three are cogent and see whether considerations of simplicity provide reason to favor one view. Admittedly, skeptical dogmatism is less well-known and so may be harder for the reader to grant. Still, what follows should be of some interest: it may be worthwhile to see whether considerations of simplicity can provide reason to reject skeptical dogmatism. If not, then dogmatists and skeptics may need to confront skeptical dogmatism in some other fashion.

5 Occam's Beard

In this section, we will extend the argument of the previous section by looking at a corollary of RUA:

Occam's Beard

Other things being equal, the uniquely simplest hypothesis of any set of radically undetermined competitor hypotheses (greater than two) is probably false.

The qualification 'uniquely' is meant to indicate that there are no ties for simplest hypothesis. At this stage, the reasoning for Occam's Beard (OB) is perhaps apparent. Suppose we have just three hypotheses to consider: $1MWH$,

²² Again, see Walker (forthcoming) for a conditional defense of skeptical dogmatism.

$2M_{TWH}$, and $3M_{TWH}$; and that the dogmatist is correct that $1M_{WH}$ is the simplest. Since, by assumption, the hypotheses are observationally evidentially equal, let us suppose for the moment that simplicity is *not* evidence for truth, it follows that the three hypotheses are evidentially equal. Under these assumptions, we should assign 0.33 epistemic probability to each hypothesis. This means that each hypothesis is probably false, and so the simplest hypothesis is probably false.²³

As we shall see below, in responding to skeptical dogmatism, unlike the response to underdetermination skepticism, it is not sufficient for dogmatists to say that simplicity adds evidential weight. Rather, dogmatists will have to say something about how much evidential weight simplicity provides. The question of how much evidential weight the dogmatist must attribute to simplicity, I shall argue, is proportional to the number of hypotheses. To lay the groundwork for this argument, we will need to secure two points: there are far more than three hypotheses that explain our sensory experience, and, amongst these, simpler hypotheses will form a small subset of the hypotheses that explain sensory experience.

The fact that $1M_{WH}$ is the conjunction of (at least) (i) to (vi) suggests a method of generating more hypotheses: formulate a hypothesis that denies one or more of the conjuncts. For example, consider:

$4D_{WH}$: I am deceived by Descartes' evil demon.

The main thought behind Descartes' thought experiment seems to be the denial of (vi), that our epistemic lives are autonomous: Descartes asks us to imagine that we are manipulated into believing any number of false things because of the machinations of the evil demon. Another possibility is the familiar brain-in-a-vat hypothesis:

$5BIV_{WH}$: I am a brain-in-a-vat. I lack a body. I live in a virtual reality controlled by an advanced computer system that interfaces with my brain.

23 It is perhaps evident that there is no imputation that the simplest hypothesis is less likely to be true than any of its competitors. So, for example, if we suppose that $2M_{TWH}$ is more complex than $1M_{WH}$, but less complex than $3B_{WH}$, the same reasoning would apply to $2M_{TWH}$: it is less likely that it is true than the set of competitor hypotheses, hypotheses about $1M_{WH}$ and $3B_{WH}$. The point of highlighting the fact that the simplest hypothesis is likely false is to contrast it with the oft made assumption that the simplest hypothesis is somehow special.

5BIVWH shares with 2MtWH the denial of (vi), epistemic autonomy. 5BIVWH also denies (i), (ii) and (iii) of MWH (that is, it denies that we have bodies, that our brains are located in our bodies and that material objects are typically the direct cause of sensory experience).

Another causal hypothesis to explain sensory experience is the possibility that our entire reality and existence is an electronic simulation. Unlike 5BIVWH, the hypothesis is that our bodies and minds are simulated by some advance program.²⁴

6EWH: I am an electronic being living in a computer simulation of the 1MWH.

Yet another hypothesis, explored in the movie *Inception*, is that our dreams could be manipulated by others, again questioning the autonomy condition of MWH such that what we take to be reality might be nothing but a dream:

7IWH: I am in a deep dream state controlled by others for the purposes of extracting information.

In order to get some idea about of the number of possible hypotheses there are that might explain sensory experience, it will be useful to think of various incompatible hypotheses as specifying possible worlds. In particular, let us think of 'O-worlds' as the set of possible worlds that are consistent with an explanation of the character of our present sensory experience. For example, my sensory experience is constantly changing, so the "Parmenides" possible world where nothing changes is not a member of the set of O-worlds. For if nothing changes in some world, and my experience changes, then I cannot be a member of that possible world. The hypotheses mentioned above, 1MWH to 7IWH, are O-worlds because they all offer an explanation of sensory experience that is consistent with our present sensory experience.

For present purposes, the exact size of the set of O-worlds is not of particular importance. As we shall see in a moment, we can create new hypotheses, and so specify new O-worlds, by combining elements from the hypotheses on our list, so the set of O-worlds will number, at bare minimum, nine; and possibly be infinite.²⁵

24 The simulation idea found expression in Philip Dick's 1959 novel, *Time out of Joint* (2010), and in Greg Egan's 1994 novel, *Permutation City* (2010).

25 The question of the number of competing hypotheses is discussed in more detail in Walker (forthcoming).

Turning now to the question of the ratio of simple to complex O-worlds, a little reflection indicates that there are far more possible complex O-worlds than simple O-worlds. The most straightforward case is where it is asserted there is a single unique simple world. Using our list of seven hypotheses above to illustrate, if 1MWH specifies the simplest world (with no ties), then the more complex worlds outnumber the simplest world six to one.

Even if it were suggested that there may be some ties for the crown of the simplest, there is still good reason to believe that complex worlds far outnumber the simplest worlds. The reasoning here has two steps.

First, in many cases we can create additional O-worlds by combining elements from two or more O-worlds. For example, we can imagine combining elements from the possible world associated with Berkeley's hypothesis with elements from the possible world associated with the Matrix hypothesis to form a new hypothesis specifying a new possible world:

8BMTWH: Everything is ultimately ideas. Advanced computers took control of the planet earth and have trapped most humans in a virtual world maintained by a large computer. The computer is itself, of course, mental stuff, since all there is ultimately is mental stuff.

The second step involves recognizing that far more combinations will result in complex worlds than simple worlds. It will help to show that this applies whether we are thinking of simplicity in terms of types or entities. In terms of type-simplicity, let us think of types individuated in terms of substances. Further, let us suppose that simple worlds are monistic: comprised wholly of physical or mental substance. Complex worlds are dualistic: comprised of both mental and physical substance. The union of two dualistic worlds is itself a dualistic world, which means that the union of two complex worlds is itself a complex world. The same does not hold for the combination of simple worlds. True, some simple world combinations will result in simple worlds: the union of two physical worlds is itself a physical world and so similarly type-simple. But the union of the elements of a simple physical world with the elements of a simple mental world is not itself a simple world: it is dualistic and so complex by assumption. Finally, the combination of a simple world with a complex world is complex: a monistic world combined with a dualistic world is itself dualistic. So, if we create a mapping function for the combination of all O-worlds, the type-complex worlds will greatly outnumber the type-simple worlds.²⁶

²⁶ For ease of exposition, I am assuming that the number of O-worlds is finite. I argue that the appeal to an infinite number of possible worlds is of no solace to the skeptic or the

The point about complexity applies equally to entity-simplicity. In the typical case, the union of two O-worlds will have more entities than either world. (The exception being where the entities postulated in the two worlds are exactly the same.)²⁷ So, imagine at the deceiver's convention, the following timetable is agreed upon: humans will live in the Matrix Mondays and Wednesdays, and live in an Inception dream-reality Tuesdays and Thursdays, while Friday, Saturday and Sunday, humans will be subject to the antics of the Evil Demon:

9DCWH: We live in a Matrix-type simulation Mondays and Wednesdays, and Inception-like deception Tuesdays and Thursdays, and we are deceived by Descartes' evil demon Friday, Saturday and Sunday.

9DCWH combines elements of 2MtWH, 4DWH, and 7IWH and so has more entities than any of these individual worlds. So, if simplicity is measured in terms of entities, then there will be far more complex hypotheses invoking complex possible worlds than simple hypotheses invoking entity-simple worlds.

6 Dogmatism and Fortified Occam's Razor

In this section, we will examine the question of what dogmatists must say about simplicity in order to answer skeptical dogmatism. Two preliminary points we need to secure are: OR is sufficient to defend dogmatism against RUA; however, OR is not enough to demonstrate the falsity of OB. We will take these in turn.

Consider three hypotheses H_1 , H_2 and H_3 , where H_1 is the simplest, followed by H_2 , and H_3 is the most complex hypothesis of the set. It is consistent with OR that the epistemic probability of H_1 is merely 0.34, while the epistemic probability of H_2 is 0.33, and H_3 is 0.32, since OR says the simpler of any two hypotheses (other things being equal) is more likely to be true. This is sufficient to undercut RUA, as OR provides the dogmatist with reason to reject RU2, for it gives us reason to favor one hypothesis, for example, 1MHH, over the other two, which RU2 denies.

dogmatist: If there are an infinite number of O-worlds, then the probability a hypothesis about a single O-world is true is zero, which supports the strongest form of skeptical dogmatism; or we appeal to probability density functions, in which case, analogous reasoning to the finite case can be used Walker (forthcoming).

²⁷ The worlds may differ in their relational properties.

Nevertheless, such a probability assignment is not enough to show OB is false. As our previous example illustrates, we still have good reason to suppose H_1 is probably false even though it is more likely than each of its competitors, because it is not more likely than the set of competitor hypotheses. The problem, of course, is that OR requires only that the simpler hypothesis has *some* evidential weight, for example, this evidential weight could be as little as ϵ . But this point in itself is not much comfort for the skeptical dogmatist because although OR does not show that OB is false, it does undermine the support for OB: it was argued that OB is a corollary of RUA. Since OR undermines support for RUA, it undermines the support for OB.

All is not lost for the skeptical dogmatist, since a slightly weaker cousin of RUA is available, which we will refer to as 'disjunctive radical underdetermination argument' (DRUA):

- DRU1: *Radical Disjunctive Underdetermination Principle: If h_2 and h_3 are competitor hypotheses to h_1 and to each other, and e is all S's evidence; and S's evidence for believing h_1 is less than S's evidence for believing (h_2 or h_3), then S is justified in believing h_1 is probably false.*
- DRU2: S's evidence for believing 1MWH is less than S's evidence for believing (2MtWh or 3BWH).
- DRUC: S is justified in believing 1MWH is probably false.

Reasoning for DRU1 is as follows: If S's evidence for believing H_1 is less than the combined probabilities of H_2 and H_3 , then the maximum epistemic probability of H_1 (for S) is 0.49. If epistemic probability were greater than 0.49, say 0.5, then the combined probabilities of H_2 and H_3 would have to be at least 0.51, which is impossible, since the combined probabilities of all three would be greater than 1.0. Since the maximum probability of H_1 for S is 0.49, given the antecedent of DRU1, S is justified in believing that H_1 is probably false.

The essential difference between RU1 and DRU1 might be put thus: RU1 considers the case where the probabilities of the three competitor hypotheses are equal. DRU1 is consistent with the probability of one hypothesis being greater than that of the individual probabilities of the competitor hypotheses, so long as the joint probability of the two competitor hypotheses is greater than the single hypothesis.

It should be clear that OR does not undermine DRU1, since a probability assignment of $H_1 = 0.34$, $H_2 = 0.33$, and $H_3 = 0.32$, is consistent with OR and DRU. So, the skeptical dogmatist can happily admit that even if simplicity adds

some evidential weight, this in itself does not undermine DRUA. This is of course the thought behind DRU2.

An obvious move is to strengthen OR to directly challenge DRUA and Occam's Beard:

Fortified Occam's Razor (FOR)

Considerations other than simplicity being equal, the simplest hypothesis is more likely true than the set of more complex competitors.

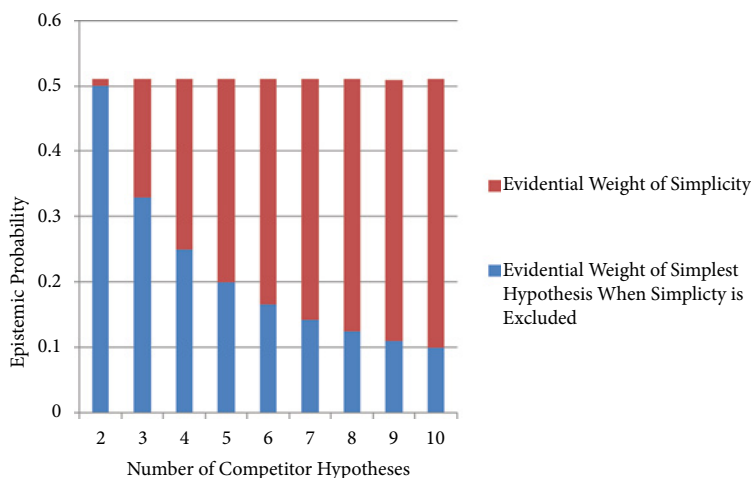
So, we might think of the set of the complex competitors as a disjunction of individual competitor hypotheses to the simplest hypothesis. FOR says that the epistemic probability of the simplest hypothesis is greater than the conjunction of probabilities of all of its more complex competitors.

So, FOR is committed to simplicity having more evidential weight than OR. But how much more evidential weight? As intimated above, this will depend on how many competitor hypotheses there are. In a three hypotheses case, for example, where we considered just 1MWH, 2MtWH and 3BWH, we noted that considerations of simplicity aside, each hypothesis has 0.33 epistemic probability. In order to challenge the premise from the original underdetermination argument, simplicity would have to add 0.18 evidential weight. To illustrate with the same example, applying FOR to account for the evidential weight of simplicity, 1MWH is raised to at least 0.51 probability, and 2MtW and 3BWH are reduced to 0.24 each. Clearly, this probability assignment is enough to undermine DRUA as it is enough to show the minor premise, DRU2, is false.

In a case where there are nine competing hypotheses, for example 1MWH to 9CCWH, considerations of simplicity aside, each hypothesis has 0.11 epistemic probability. In order to challenge the premise from the original underdetermination argument, simplicity would have to add 0.4 evidential weight. If 1MWH is the simplest hypothesis with ninety-nine competitors, then simplicity aside, each hypothesis has 0.01 epistemic probability. In order to challenge UA, simplicity would have to add 0.5 epistemic weight. Again, this would also be sufficient to show the falsity of the minor premise of DRUA and UA. So, the degree of evidential weight required by FOR to answer UA and DRUA is proportional to the number of competitor hypotheses.

The graph below illustrates the relationship between the number of hypotheses and the minimum evidential weight of simplicity required by FOR. The red portion of each column represents the probability of the simplest hypothesis, excluding any weight that simplicity adds. The blue portion of each column represents the minimal evidential weight of simplicity licensed by FOR. We can see that in the two hypotheses case, FOR and OR require the same

minimum evidential weight of simplicity. The crossover point where se exceeds nse is the case of four competitor hypotheses. In this instance, each hypothesis has 0.25 nse evidential weight, where simplicity is excluded. So, simplicity must add at least 0.26 evidential weight to challenge the relevant premise in the underdetermination argument. As can be seen, by the time we get to ten competitor hypotheses, simplicity is bearing the lion's share of the evidential weight: the fact that the simplest hypothesis is compatible with sensory experience adds only 0.1 epistemic probability, leaving 0.41 to be shouldered by simplicity as evidence for truth.



It will help to summarize the dogmatist's use of FOR to rebut skeptical dogmatism. For consistency with our previous discussion, the Fortified Occam's Razor Rebuttal (FORR) will make use of only three competitor hypotheses, although the argument has obvious extensions to cases of more than three competitor hypotheses:

- FORR1: If H_1 , H_2 and H_3 are otherwise epistemically equal competitor hypotheses and H_1 is simpler than H_2 , and H_1 is simpler than H_3 , then $\Pr(H_1/e) > \Pr((H_2/e) \text{ or } (H_3/e))$.
- FORR2: $1MWH$, $2MtWH$ and $3BWH$ are otherwise epistemically equal competitor hypotheses and $1MWH$ is simpler than $2MtWH$, and $1MWH$ is simpler than $3BWH$.
- FORRC: $\Pr(1MWH/e) > \Pr((2MtWH/e) \text{ or } (3BWH/e))$.

The conclusion of the FORR, FORRC, is sufficient to show the unsoundness of DRUA for it maintains that the probability of MWH is greater than 0.5, which would mean that DRU2 must be false.

We should note here a further point that we will need below: OR is a necessary condition for FOR, but not vice versa. As we have just noted, in the case of just two otherwise evidentially equal hypotheses, FOR requires simplicity add only some small amount of epistemic weight, just as OR maintains. Thus, when there are two hypotheses, OR and FOR give the same verdict. Furthermore, we noted above that in the multiple hypotheses comparison, OR is weaker than FOR in the sense that FOR requires we assign a higher minimum epistemic probability to the simplest hypothesis. So, if OR is false, FOR is false but not vice-versa.

7 Questioning the Simplicity of the Mundane World Hypothesis

The dogmatists' response to radical underdetermination is fairly straightforward (which is not to say unproblematic, see below): skeptical dogmatism can be answered by saying that the epistemic weight attributed to simplicity is considerable and proportional to the number of competitor hypotheses. The skeptic's position, I shall argue, must strike a delicate balance between the pincers of skeptical dogmatism and dogmatism. On the one hand, attributing no evidential weight to simplicity leads to skeptical dogmatism, and attributing too much evidential weight leads to dogmatism. To see our way to this conclusion, in this section we will examine what skeptics might say about the minor premise of FORR. There are four ways that the skeptic might challenge this premise.

The first is to say that 1MWH is not the simplest hypothesis. Fumerton, for example, has suggested that Berkeley's hypothesis is simpler than 1MWH:

Which theory is simpler? Well Berkeley had just minds, mental states and causation. The common sense hypothesis has minds, mental states, causation and physical objects. On any criteria of simplicity, Berkeley seems to win, but despite Berkeley's protestations to the contrary, most of us will conclude that if Berkeley wins, so does skepticism.²⁸

1992: 165

Fumerton's suggestion is framed in terms of a response to OR. We can amend it to make it applicable to FORR by stipulating that 3BWH is simpler than 2MtWH as well. Of course, one might question whether Berkeley's view really is as explanatory adequate as 1MWH, and so violates the 'other things being equal'

²⁸ Fumerton makes the same point in his later article on Vogel's (2005) abductionism.

rider of FOR, and whether it really is simpler than 1MWH and 2MtWH. Nevertheless, let us grant these points and see what follows.

Initially, it may seem that if Berkeley's hypothesis is simpler, we have a welcome result for the skeptic. After all, if 3BWH is the simplest of the three hypotheses, then FORR licenses us to conclude that we are not justified in believing 1MWH.

However, on the issue of whether skepticism triumphs, we should side with Berkeley against Fumerton. To see this, we need to notice an ambiguity in the term 'skepticism'. Skepticism about some subject matter X may be proposed as a view primarily about doubt or error. Using our earlier example, we can say that agnostics are doubt-skeptics about the existence of God. Agnostics follow the pattern suggested by Sextus Empiricus: the claim that God exists does not take "precedence over" the claim that God does not exist. Atheists are error-skeptics about theism: atheists claim there are good reasons to believe that God does not exist. Thus, atheists do not follow the pattern suggested by Sextus Empiricus because they believe that the claim that God does not exist "takes precedence" over the claim that God exists. True, atheists may doubt the existence of God, but this is because they believe there are good reasons for thinking the view is in error.

Applying this distinction, let us imagine a group of Western dogmatists land on the shores of an 'uncontacted tribe' or 'lost tribe' who have had no communication with Western Civilization. This culture, like some others, endorses a Panpsychism view that mind or spirit is the fundamental feature of the universe.²⁹ After communication is established, the uncontacted group is horrified to hear about the skepticism of the Western dogmatists. After all, to these people, 1MWH is a skeptical hypothesis. The Westerners are skeptical of Panpsychism because they believe the view is in error, that 1MWH takes precedence over Panpsychism. Each group offers a skeptical hypothesis to the other. Of course, the uncontacted group and the Westerners are error-skeptics about the competitor hypothesis because each is a dogmatist about the home field hypothesis. Similarly, Berkeley is a dogmatist about 3BWH and an error-skeptic of 1MWH. Dogmatists about 1MWH are error-skeptics about 3BWH. Underdetermination skeptics, as doubt-skeptics, would not claim either is in error; but rather, maintain that 1MWH does not have precedence over 3BWH or vice versa.

The misstep in Fumerton's thinking is thus apparent. He says he is investigating traditional skeptical arguments. At least in the Pyrrhonian underdeter-

29 It seems likely that at least some social groups have held views that are more closely related to Berkeley's than 1MWH. See e.g. Bird-David (1991).

mination tradition, skepticism is understood as doubt-skepticism, not error-skepticism. Since Berkeley is an error-skeptic about 1MWH, and a dogmatist about 3BWH, a Pyrrhonian would no more be enamored with Berkeley's dogmatism than dogmatism about 1MWH. So, once disambiguated, the sort of skepticism Berkeley offers, error-skepticism, is not one that would be of comfort to the underdetermination skeptic: it leads to dogmatism (and error-skepticism about 1MWH).

The second possibility we should consider is whether the skeptic might be better off to argue that all hypotheses are equally simple. Granted, this is not very plausible; it is hard to imagine what conception of simplicity would permit the judgment that 9DCWH is as simple as some other hypotheses, but still it is worth seeing where this assumption leads. If all hypotheses are equally simple, then dogmatism is no longer tenable based on consideration of simplicity. After all, if there is a large set of equally simple hypotheses, then FOR does not give us guidance as to which, if any, ought to be given greater evidential weight. This may seem a welcome result for the skeptic. The trouble with this suggestion for the skeptic is that it leads directly to skeptical dogmatism, for it suggests there are a large number of hypotheses about O-worlds with equal evidential weight. The skeptical dogmatist will be in a position to claim that for any particular hypothesis, it is probably false. A fortiori, the skeptical dogmatist will be in a position to claim that 1MWH is probably false.

The third possibility is that the skeptic might say that there is no way to tell whether 1MWH is the simplest hypotheses or not.³⁰ At least some support for this objection comes from the fact that we may sometimes have a hard time deciding which hypothesis is simpler, e.g., we might wonder whether 3BWH is simpler than 1MWH, as Fumerton suggests, or vice versa. But it hardly follows that it is impossible to judge in all cases, e.g., it seems that no matter which conception of simplicity we use, 9DCWH is more complex than, say, 4DWH. Nevertheless, let us grant the objection and see where it leads. The answer is that, again, it leads directly to skeptical dogmatism. For if by assumption all hypotheses are evidentially equal, considerations of simplicity aside, and we accept the objection that we cannot tell whether 1MWH is the simplest hypothesis, then it follows that we cannot tell whether 1MWH has more going for it evidentially speaking. In which case, there is no reason to favor 1MWH over its competitors and so no reason to favor it over the large set of competitors. This is, of course, precisely what the skeptical dogmatist maintains.

A fourth possibility is for the skeptic to suggest there are exactly two equally simplest hypotheses. For example, if the skeptic suggests that 1MWH and 3BWH

³⁰ I owe this objection to an anonymous referee.

are equally simple, then it seems that we would have no reason to prefer $1MWH$ over $3BWH$, and underdetermination skepticism is vindicated.

The trouble here is that as long as we assign some probability to the truth of the set of more complex hypotheses, the individual probability of the two simplest hypotheses will have to be less than 0.5 each, in which case, we would be justified in believing that each is probably false, and skeptical dogmatism would prevail. So, if, as we are supposing, $1MWH$ and $3BWH$ are equally simple, and we suppose $2MtWH$ is the only competitor hypothesis to which we attribute a very small credence to, say, 0.01, it would follow that the probability of $1MWH$ is 0.495 and $3BWH$ is 0.495. Which means that we would be justified in believing all three hypotheses are probably false. The only way to restore equipollence on the assumption of exactly two equally simple hypotheses is to assume the probability of the complex competitor set is 0.0, in this case that the probability of $MtWH$ is 0.0. Such a view, presumably, is anthem to most skeptics because it would require certainty that each member of the competitor set of more complex hypotheses is false. Even dogmatists may allow some small probability that some member of the more complex competitor set is true. And as long as some small probability is granted, it will follow that each of the two simplest hypotheses is probably false.

We have looked at four different ways to reject the minor premise of $FORR$; none of which are promising for the skeptic.

8 Knife's Edge Occam's Razor

The other option for the skeptic in dealing with $FORR$ is to reject the major premise. Here, again, there is no comfort for the skeptic. For if we reject the idea that simplicity is evidence for truth, as the major premise states, and we accept that there are more than two equipollent hypotheses to explain sensory experience, skeptical dogmatism immediately follows. Ironically, perhaps the best hope for skepticism to avoid the pincers of dogmatism and skeptical dogmatism is to use a simplicity principle related to OR and FOR :

Knife's Edge Occam's Razor (KEOR)

The uniquely simplest hypothesis is equally probable to the set of more complex competitor hypotheses.

In cases where there are just two hypotheses, $KEOR$ is slightly weaker than OR in that it assigns no evidential weight, whereas OR requires that we assign at least $0.5 + \epsilon$ to the simpler hypothesis and $0.5 - \epsilon$ to the more complex

hypothesis. In cases of radical underdetermination, where there are three or more competitor hypotheses, KEOR is stronger than OR in the sense that it requires assigning more epistemic weight to simplicity than OR. Working our previous example, let us suppose that simplicity aside, 1MWH, 2MtWH and 3BWH have 0.33 probability, and 1MWH is the simplest. Applying KEOR to account for the evidential weight of simplicity, 1MWH is raised to at least 0.5 probability and 2MtW and 3BWH are reduced to 0.25 each.

The service KEOR might provide for the underdetermination skeptic is perhaps obvious: the probability of the simplest hypothesis will be equal to the probability of its negation. The negation of the simplest hypothesis is the set of all the more complex competitors. So, if KEOR is used to show the equipollence of 1MWH, then the skeptic will assert that $\Pr(1MWH/e) = \Pr(-1MWH/e)$.³¹ Assuming (as we are) that the dogmatist accepts the underdetermination principle as a necessary condition for justified belief, this application of KEOR to 1MWH would be sufficient to thwart dogmatists. Likewise, this application of KEOR to 1MWH would be sufficient to thwart skeptical dogmatism about 1MWH, since 1MWH is neither probably true nor probably false.

Of course, we should hardly be surprised that the skeptic's application of KEOR to 1MWH has these consequences as it has been specifically designed for this purpose. Let us turn then to the plausibility of this marriage between skepticism and KEOR.

An obvious reason to worry about KEOR is that it looks like a case of special pleading. Indeed, the only argument I can think of for KEOR is that it preserves underdetermination skepticism, but this is to argue *from* skepticism, not to argue *to* skepticism. Surely it would require some sort of very interesting argument to the conclusion that simplicity offers *exactly the right amount of evidential credence* to the simplest hypothesis to avoid both the dogmatists' rejection of the underdetermination argument and skeptical dogmatism. Thinking along these lines shows just how apt the name 'knife's edge' is. With just a tiny bit more epistemic credence than that licensed by KEOR, the skeptic would not be in a position to reject FORR. For example, if the epistemic credence attributed to the simplest hypothesis was raised to 0.51, then the dogmatist would be in a position to reject the skeptic's claim of equipollence. Likewise, if the credence for the simplest hypothesis dropped even a fraction below 0.5, then the skeptic would have no reply to the skeptical dogmatist. KEOR leaves the skeptic vulnerable to any argument that would show that epistemic credence might vary even the slightest from 0.5.

31 Since we are considering simplicity as evidence for truth with KEOR, when we factor out this evidence the following is true: $\Pr(1MWH/nse) < \Pr(-1MWH/nse)$.

Further confirmation of the suspicion that KEOR is a case of special pleading comes from the fact that, as noted above, in the two hypotheses case, KEOR says that simplicity adds no evidential weight, but in the three or more hypotheses case simplicity adds considerable evidential weight (0.17). It is hard to imagine any remotely plausible explanation for why simplicity is not evidence for truth in the two hypotheses case, but simplicity is evidence for truth when there are more than three hypotheses. At minimum we can say that this remarkable fact would require some fancy explaining on the part of the skeptic.

The KEOR strategy inherits the problem of demonstrating that 1MWH is the simplest hypothesis. Again, this is not the place to explore whether 1MWH is the simplest hypothesis, but clearly if some other hypothesis is simpler, then the skeptic will not be a position to say that 1MWH is underdetermined. For example, suppose Fumerton is correct that 3BWH is simpler than 1MWH. Applying KEOR, this means that $\Pr(3BWH/e) = \Pr(-3BWH/e)$. In which case, 1MWH is simply one of a large number of hypotheses that make up the set of $-3BWH$, and so the probability of 1MWH is much less than 0.5. Under these assumptions, we would be entitled to conclude that 1MWH is probably false. So, it is critical for the skeptic's use of KEOR strategy to motivate the claim that we should neither affirm nor deny that 1MWH turns out to be the simplest hypothesis.

Obviously, too, it is critical that there are no ties for simplicity. If 1MWH is tied in simplicity with one or more hypotheses, then the probability of 1MWH would dip below 0.5, to the detriment of the KEOR strategy for defending the claim that we should neither affirm nor deny 1MWH.

Interestingly, even if all the previous problems can be batted, the victory for the skeptic is only partial, for KEOR strategy says that 1MWH is equipollent to the $-1MWH$ set of hypotheses. So, it is not the case that we are in a state where "we neither deny nor affirm anything" with respect to the vast majority of hypotheses about O-worlds, for according to the KEOR strategy, we are in a position to deny hypotheses about all O-worlds other than 1MWH. Thus, according to the proposed application of KEOR, we are in a position to say Berkeley's hypothesis is probably wrong, and the Matrix hypothesis is probably wrong. Indeed, skeptics using this strategy would be in a position to tell those cultures that hold a Panpsychism view of the world that they too are probably wrong. So, the skeptic will have to concede to the skeptical dogmatist that each of the specific hypotheses other than 1MWH is probably false. Error skepticism, rather than doubt-skepticism, applies to every competitor hypothesis to 1MWH. As intimated above, this spells trouble for the usual way underdetermination skepticism is motivated, e.g., the idea that the hypothesis that we are

brains-in-a-vat is as evidentially credible as 1MWH. The skeptic will now have to concede that the brains-in-a-vat hypothesis is far less credible.

9 Justifying FOR and KEOR

This is not the place for a detailed consideration of whether FOR and KEOR are justified, so I will confine myself to two points. First, FOR and KEOR inherit all the problems of justifying OR. On the one hand, if they are justified empirically, then there are difficulties to be addressed, among them, worries about circularity (Swinburne 1997). On the other hand, if they are a priori justified, then there are the usual concerns about how we can know synthetic a priori truths about a mind independent world.³² I am not suggesting that they cannot be justified; rather, my point is that justifying FOR and KEOR appear to be at least as difficult as justifying OR.

It may be remarked that worries about the status of OR shift the debate from domestic to exotic skepticism, since the foregoing worries about OR are about one of our epistemic principles. This is not the place to assess this point but at least one possibility is that there are worries about the internal consistency of our epistemic principles. For example, if one of our epistemic principles is that circular justifications are not legitimate, and another is that we do not have synthetic a priori knowledge about a mind independent world, then this suggests that there may be problems making consistent the epistemic principles assumed by domestic skeptics, since if OR is empirical, it is in tension with the former; and if OR is a priori justifiable, then it is in tension with the latter. Underdetermination considerations may then be seen as putting pressure on the assumption that the epistemic principles protected by domestic skepticism are internally consistent (Cohen 1988, 1999). Of course, these are large concerns for another occasion. The limited point available here may be put conditionally: if there are problems about the justification of OR within the strictures of domestic skepticism, then there are problems for FOR and KEOR.

Furthermore, even if OR is a principle accepted by domestic skeptics, it is not clear that the same can be said for FOR and KEOR. Consider the following example about an ordinary case application—one where we are not looking

32 One possibility would be to take a page from Swinburne (1997). Swinburne, in a nutshell, argues that if we do not accept OR as a synthetic a priori truth, then we will be stuck with skepticism. Skepticism, apparently, is too sad for words. Following Swinburne, this strategy might license adoption of FOR, as skeptical dogmatism is (presumably) an even sadder position.

for an explanation for sensory experience in general—of OR: The police have determined that the crime was committed by a single person and it was either Bad Bob or Conniving Chris from the notorious bus-gang. The non-simplicity evidence equally supports the Bad Bob and the Conniving Chris hypotheses; however, Bad Bob would have required only three bus rides to get to the crime scene unseen, whereas Conniving Chris would have had to catch a fourth bus. Using OR, the police believe Bad Bob likely committed the crime because it is the simpler hypothesis. The police need only assume that simplicity adds only the smallest evidential weight to the Bad Bob hypothesis to justify their conclusion.

Let us assume, for the sake of the argument, that the police are correct about this application of OR. If we imagine betting based solely on epistemic probabilities, then it would be a wise bet that Bad Bob committed the crime. Let us change the example to test FOR in an ordinary case. Imagine now there is a third suspect: Dastardly Darren. Non-simplicity considerations point equally to all three suspects. However, like Conniving Chris, Dastardly Darren would have had to take four buses to get to the crime scene, so the Bad Bob hypothesis is the simplest hypothesis. Using OR, the detectives report back to the police commissioner that Bad Bob is the most likely suspect. The commissioner says he does not care about this; he wants to know whether it is likely that Bab Bob committed the crime. (The commissioner points out that the detectives are wrong to think that 'X likely committed the crime' follows from 'X is the most likely suspect'.) Suppose the detectives apply FOR and tell the commissioner that it is likely that Bad Bob committed the crime (not simply that he is the most likely suspect). If, like me, you think the conclusion that Bad Bob likely committed the crime seems a bit rash, then we have some reason to think that FOR is not one of the epistemic principles protected under the aegis of domestic skepticism, even if OR is so protected.

As we noted above, the evidential weight we must assign to simplicity increases with the number of underdetermined hypotheses. Thus, even if you think FOR is plausible where there are three suspects, it is not clear that FOR will bear up as the number of hypotheses increases. Suppose that the police have determined that one person from the bus-gang committed the crime and there are a hundred gang members. Bad Bob would only need three bus rides to get to the crime while all the other gang members would have to take four or more buses to the crime scene. The police note that the probability that Bob committed the crime is equal to the probability that each of the ninety nine other members of the gang committed the crime when simplicity considerations are not factored in. Using FOR, the police conclude that Bob likely committed the crime, since the probability that Bob committed the crime is greater

than 0.51 and the probability that any of the rest of the gang members committed the crime is less than 0.49. Again, it is one thing to say that simplicity adds some evidential weight, and so endorse OR, it is much less plausible to think simplicity adds as much evidential weight as FOR requires.

Using the same example, we can see that KEOR says that the probability that Bob committed the crime is 0.5 and the probability that any other gang member committed the crime is 0.5. Again, KEOR adds much more evidential weight to simplicity than is required by OR. In this case, KEOR says that simplicity adds 0.49 evidential weight to the Bad Bob hypothesis.

So, FOR and KEOR do not look plausible as applications of everyday epistemic principles, and so it seems they are not under the aegis of domestic skepticism. So, even if OR is justified on an analogy with scientific or common sense reasoning,³³ the same cannot be said of FOR or KEOR. In other words, we can doubt FOR and KEOR without sliding into exotic skepticism.

10 Conclusion

It remains to be seen whether dogmatism and skepticism can be justified using considerations of simplicity. I have argued a more modest thesis: skeptical dogmatism requires the traditional debate between the skeptic and the dogmatist to address the question of how much evidential weight simplicity adds. As we have seen, the traditional dialectic requires only that simplicity has *some* evidential weight. I have argued that it must have *considerable* weight—proportional to the number of hypotheses that are otherwise evidentially equal—if the dogmatist wants to use simplicity to thwart skeptical dogmatism. Also, the skeptic will have to claim considerable evidential weight to simplicity if the skeptic uses simplicity to thwart skeptical dogmatism.

Simplicity, as we noted above, is one species in the genus of IBES employed by the dogmatist to refute skeptics. If other explanatory virtues are cited as evidence for truth as part of IBES, for example, fecundity, explanatory power, non-ad hocness,³⁴ then they too must add *considerable* evidential weight when taken individually. Alternatively, the dogmatist may hope that each of the explanatory virtues contributes some small amount of evidential weight, which, when combined, adds considerable evidential weight.³⁵ In the Bad Bob

33 Huemer (2009) questions whether philosophical applications of OR can be made on analogy with scientific uses of OR.

34 See Beebe (2009) for some discussion of such virtues.

35 I owe this point to an anonymous referee.

case, for example, if the Bad Bob hypothesis has greater fecundity, explanatory power, non-ad hocness and simplicity than the competitor hypotheses, then perhaps this might license the police to conclude not simply that Bad Bob is the most likely suspect, but that it is more likely that Bob committed the crime than the probability that any other gang member is the perpetrator. Again, it is beyond the scope of the paper to examine these suggestions. My point is more limited: either individually or jointly the explanatory virtues, if understood as evidence for truth, will have to add considerable evidential weight—more than has thus far been acknowledged. The question going forward is whether IBES can carry this greater epistemic load to help the dogmatist and the skeptic against the skeptical dogmatist.³⁶

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³⁶ I am greatly indebted to an anonymous referee for a challenging set of comments on an earlier version.

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