

On What Inferentially Justifies What: The Vices of Reliabilism and Proper Functionalism

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Introduction

Our old justified beliefs provide us with inferential justification to form new beliefs.¹ Yet there are restrictions: a justified belief can inferentially justify a belief in some propositions but not others. Suppose I justifiably believe (J) that Jones ate pizza last night. My justified belief in J can, by itself, inferentially justify me in believing (S) that someone ate pizza last night.² Maybe I won't be justified in believing S because I have a defeater. But S is at least a *candidate* for being justified solely by my justified belief in J. On the other hand, my justified belief in J cannot, by itself, inferentially justify me in believing (T) that Tommy tames tigers; T isn't even a candidate for being justified solely by my justified belief in J. An adequate account of inferential justification needs to explain this difference, why a justified belief in J can inferentially justify a belief in S but not a belief in T. As a first pass, the more general question is this: what determines which propositions are candidates to be inferentially justified by a given justified belief?

Reliabilism and proper functionalism may seem to deliver what we are looking for. A reliabilist can say that the relevant criterion can be supplied by differences in reliability. A justified belief in J can justify me in believing S, because J (conditionally³) reliably indicates S; it can't justify me in believing T, because J doesn't reliably indicate T. The proper functionalist can say that the relevant criterion can be supplied by differences in proper function. A justified belief in J can justify me in believing S, because I'm designed to believe S on the basis of believing J; it can't justify me in believing T, because I'm not designed to believe T in response to believing J.

Despite the initial plausibility of reliabilism and proper functionalism, I argue that these views have counterintuitive implications. The underlying problem is that reliabilism and proper functionalism fail to place enough constraints on what can

¹ When I use the term 'justification', I have in mind *propositional* rather than *doxastic* justification (even when I use the term 'justified belief'). Nothing hangs on this. As will become apparent by the end of section 1, the main focus of the paper is on evidential support, which is typically taken to be a component of (or at least entailed by) inferential justification—regardless of whether we are talking about propositional or doxastic justification.

² The "by itself" qualifier indicates that my justified belief in J can inferentially justify me in believing S without the help of justification for any other (suppressed) premises. A similar point applies to the "solely" qualifier below.

³ Reliabilists usually require unconditional reliability for belief-independent processes and conditional reliability for belief-dependent ones (e.g. Goldman 1986: 83). Inferential processes are paradigmatically belief-dependent, and they need to be *conditionally* reliable in the sense that they need to be reliable given that their premises are true. For the rest of the paper, I suppress the "conditionally" qualifier.

inferentially justify what. According to reliabilism, *any* justified belief can inferentially justify *any* other, provided that the content of the first belief, perhaps in some trivial or strange way, happens to reliably indicate the content of the second. According to proper functionalism, *any* belief can inferentially justify *any* other, provided that one's design plan licenses it. I suspect other views, especially externalist ones, fall prey to these counterexamples and the underlying problem they expose; however, in this paper, I restrict my attention to reliabilism and proper functionalism. As I develop the problems in this paper, they concern only inferential justification. Reliabilism and proper functionalism face similar problems with respect to non-inferential justification, but I develop the non-inferential version of these problems elsewhere (2014).

At least some of the problems I raise in this paper aren't new. Comesaña (2010), for example, responds to some of them.⁴ Even when reliabilists aren't explicitly addressing the problems, I expect that they have some vague awareness of them. Despite the familiarity, reliabilists and proper functionalists have underestimated the severity of these problems. Whereas reliabilists and proper functionalists have launched sophisticated responses to the generality problem and the new evil demon objection, the problems I develop in this paper have been mostly ignored.⁵ When they haven't been ignored, the responses have tended to be somewhat superficial. By systematically presenting these problems and criticizing existing responses, perhaps this paper will force reliabilists and proper functionalists to take these problems more seriously.

The plan of the paper is as follows. In section 1, I clarify what we are asking when we ask, what determines which propositions are candidates to be inferentially justified by a given justified belief. This clarification will allow us to state the broad aim of this paper more precisely. In section 2, I will identify the versions of reliabilism and proper functionalism at issue. In sections 3 and 4, I will present the counterexamples, and in section 5, I show that the most promising ways of addressing the counterexamples aren't very promising.

1. Inferential Justification and Evidential Support

Let us modify an earlier example. Suppose (i) I justifiably believe that J (that Jones ate pizza last night), (ii) I base my belief in T (Tony tames Tigers) on my belief in J;⁶ and (iii) I don't have any relevant defeaters. (i)-(iii) ensure that my belief in the premise is justified, that my belief in the conclusion is based on my belief in the premise, and that I don't have any defeaters. Yet it is commonly denied that (i)-(iii) are sufficient for me to be justified in believing T. A common assumption, even among reliabilists and proper functionalists, is that inferential justification also requires, at the very least, that one's premises bear some relation to their conclusion, a relation which is often referred to as *evidential support*.⁷ Others use the terms 'speak in favour of' or 'fit' to talk about this

⁴ Goldman (1979: 43-4) notices and responds to the non-inferential versions of these problems. I criticize his responses in my 2014, sec. 3.3.

⁵ For discussion of the generality problem, see Comesaña (2002) and Beebe (2004). For discussion of the new evil demon problem, see Comesaña (2010), Lyons (2013), Henderson, Horgan and Potrč (2007), Bergmann (2006), and Graham (2012).

⁶ The Basing Requirement is generally thought to be a necessary condition only on doxastic justification, so few would impose it as a necessary condition on propositional justification. I mention the Basing Relation here just to highlight the fact that it doesn't help address the key issue in this paper.

⁷ See, e.g., Leite (2008: 419-22) and Henderson, Horgan and Potrč (2007).

relation,⁸ but in some terminology or another, many assume something like this requirement: S's belief that P can inferentially justify S in believing that Q only if P supports Q.⁹ This requirement has been challenged (Huemer 2013: 339), but it's popular enough to assume for the purposes of this paper. Given this assumption, any account of inferential justification is committed to some account of evidential support.

While evidential support is widely regarded as being necessary for justification, it's also widely regarded as being *insufficient*. In addition to one's premises supporting one's conclusions, it's widely assumed that essential premises must be justified, that there be no defeaters, and (for doxastic justification) that belief in the conclusion must be based on belief in the premises. I too will assume that evidential support is insufficient for justification.

I assume, then, that evidential support is necessary but not sufficient for inferential justification. With these assumptions in place, we can focus on the key issue in this paper, namely what evidential support consists in. Reliabilists say it consists in reliability; proper functionalists say it consists in proper function; and internalists say it consists in something else entirely.

But wait: if reliabilists and proper functionalists hold that evidential support is required for inferential justification, are they thereby evidentialists? No. Evidentialism is, roughly, the thesis that justification supervenes on evidence (Conee and Feldman 2004: 101). First, even if *inferential* justification supervenes on evidence, it does not follow that non-inferential justification does too. While reliabilists and proper functionalists tend to require evidence for inferential justification, many do not require it for non-inferential justification (e.g., Bergmann 2006: 131-2; Lyons 2009: 167). Second, if anything, the reliabilist and proper functionalist accounts considered here imply that inferential justification does *not* supervene on evidence. The accounts we will consider make it contingent whether E supports P, and the supervenience thesis demands that it be *non-contingent* whether a given evidence base justifies a person in believing a given proposition. Reliabilists who do require evidence for both inferential and non-inferential justification may count as evidentialists in some sense; however, as they acknowledge, they are not evidentialists in the sense that requires supervenience (e.g., see Comesaña 2010, especially 572-3).

At the beginning of the paper, I asked: what determines which propositions are candidates for being inferentially justified by a given justified belief? We can restate the question in terms of evidential support: what does it take for one proposition to support another proposition? So whatever evidential support consists in—whether it be

⁸ Williamson (2000: 186) uses the term *speaks in favour of*. Bergmann (2006, ch 5), Comesaña (2010, and Conee and Feldman (2004) use the term *fit*. (Strictly speaking, “fit” is not always used to cover exactly the relation I call ‘evidential support’. First, it is often used to cover both non-inferential and inferential evidential support, whereas I’m talking solely about the inferential variety in this paper. Second, some philosophers (e.g., Comesaña 2010, section 5) hold that Q’s fitting E requires that S have justification for E, but I build that into a separate condition.)

⁹ Fumerton, in his early work (1985: 40), rejects this requirement. Yet he now seems committed to it. He seems to say that one can have inferential justification for P only if one is acquainted with the fact that one’s premise supports one’s conclusion (2006a: 190, nt. 7). Since one can’t have the relevant sort of acquaintance unless the premise supports the conclusion, this higher-level acquaintance requirement entails the evidential support one. In any case, see Huemer’s (2002: 335-8) response to Fumerton’s early view.

reliability, proper function, or something else—will determine which propositions are candidates for being justified by a given justified belief.

When I accuse reliabilists and proper functionalists of failing to put sufficient constraints on what can inferentially justify what, I'm accusing them of providing accounts of the evidential support relation that yield false positives. For this reason, the remaining discussion will focus most directly on evidential support: we will consider, in the next section, reliabilist and proper functionalist accounts of evidential support, and, in the following two sections, I will provide counterexamples to those accounts of evidential support. If I successfully show that these accounts of evidential support yield false positives, then any account of inferential justification that relies on these accounts of evidential support will likewise yield false positives.^{10,11}

The focus of this paper, then, isn't so much on reliabilist and proper functionalist accounts of justification, but their accounts of evidential support. More specifically, I'm criticizing *non-hybrid* reliabilist and proper functionalist accounts of evidential support, i.e., reliabilist and proper functionalist accounts of evidential support that don't include "internalist" elements. For illustration, a hybrid account of support might say that E supports C iff both C is the best explanation of E and E reliably indicates C. Such a view would be outside the scope of this paper. Some epistemologists, such as Juan Comesaña (2010), Henderson, Horgan and Potrč (2007), and Alvin Goldman (2011) try to combine elements of evidentialism and reliabilism to get the best of both worlds. Despite incorporating evidentialist elements into their accounts of *justification*, Comesaña (2010: 581-2) and Henderson, *et al* (2007: 293) put forward accounts of *evidential support* that are purely reliabilist in character.¹² Their views, therefore, suffer from the problems developed in this paper. Comesaña (2010, sec 8.2) responds to some of these problems. I criticize his responses in section 5. I address Henderson, *et al*'s views in note 24. It isn't clear to me whether Goldman's (2011: 263-4) account of evidential support is non-hybrid. He suggests that we understand support in terms of both process reliability and confirmation. He doesn't say much about confirmation, but if it is "internalist" in character, then his account of evidential support would be hybrid. For the purposes of this paper, I take no stand on whether such hybrid accounts of evidential support fall prey to the problems I develop in this paper. If, however, confirmation is spelled out in the

¹⁰ One might protest: couldn't these accounts of evidential support be combined with some fancy notion of basing or some sophisticated notion of defeaters or some new requirement not yet discovered, so that the overall account of inferential justification would deliver intuitive results about which beliefs are inferentially justified? I don't see how, but you're welcome to try.

¹¹ Many philosophers make evidential support (and probability) relative to background knowledge (e.g. Williamson 2000: 186-7; Achinstein 2001). When such philosophers say that E supports P given K, I prefer to say that the conjunction of E and (the relevant parts of) K supports P. As far as I can tell, nothing significant hangs on this way of speaking. Second, I talk as though evidential support is a relation between *propositions*, and some proper functionalists and reliabilists also talk this way (e.g., Plantinga 1993: 168; Henderson, Horgan, Potrč 2007, esp. sec. 3).

¹² In the abstract of their 2007, Henderson *et al* say that they will give a "non-reliabilist" account of evidential support. This is misleading. When they present their account of evidential support, they rely on the notion of global (and transglobal) reliability (293), but they note that the account "makes no appeal to the reliability of *belief-forming processes*" (294, emphasis mine). What Henderson, *et al* meant to say, I take it, is that their account doesn't appeal to "process reliability" (283), not that it makes no appeal to reliability whatsoever.

reliabilist terms (e.g., in terms of reliable indication rather than process reliability), then his 2011 view will suffer from the problems I develop below.

2. Three Accounts of Evidential Support

Recall that accounts of evidential support, as we are discussing them, put constraints on what inferentially justifies what. More specifically, they are attempts to identify what determines which propositions are candidates for being inferentially justified by a given justified belief. In this section, I identify three accounts of evidential support, one proper functionalist and two reliabilist. In the next two sections, I show that these accounts of evidential support are subject to copious counterexamples. Reliabilists are aware of some of these counterexamples, and Comesaña (2010) proposes three ways of addressing them. In section 5, I show that these responses are inadequate. Since an account of inferential justification requires an adequate account of evidential support, any account of inferential justification that relies on any of these three accounts likewise fails.

The first account that we will consider is:

The Proper Function Account (PF): A proposition E supports another proposition C for a subject S just in case S is designed to believe C on the basis of S's belief in E.

This account is closest to Bergmann's (2006: 130), though it involves some simplification. Plantinga (1993: 168) and Richard Otte (1987: 433) provide proper function accounts of evidential support that are significantly more complicated than PF. This simple proper functionalist view will do for our purposes. The extra complications don't address the problems I develop in this paper (note 23 discusses some of the extra complications).¹³ Since proper function doesn't require reliability in the actual world or that of the subject, PF is arguably not committed to any form of reliabilism.¹⁴ Perhaps, as Bergmann (2006: 60-1) claims, this feature of PF comes with certain advantages; however, it won't help the proper functionalist respond to any of the counterexamples I identify in this paper.

The other two accounts are reliabilist accounts. The first reliabilist account is suggested by the work of John Greco. When discussing what it takes for R to be a good reason for p, Greco maintains that "there need be no necessary relation (logical or quasi-logical) between the truth of R and the truth of p: it is sufficient that the truth of R is a contingently reliable indicator of the truth of p" (2004: 54). In his 2004, he doesn't specify the sort of reliability he has in mind, but based on his 2000, perhaps he wants it "to be understood in a non-epistemic sense, meaning something close to statistically probable" (2000: 150). What is statistical probability? Greco doesn't say, but when explicating the concept of ability, he says "S has an ability to achieve result R in conditions C if and only if, across the range of close possible worlds where S is in C, S achieves R with a high rate of success" (2000: 212). I take it that the relevant sort of

¹³ I think non-reliabilist virtue accounts of justification will suffer from counterexamples similar to the ones which afflict the proper function account, but that's not something that I will be arguing for in this paper.

¹⁴ Graham (2012) endorses a type of proper functionalism and is committed to something like PF. He talks as though his proper functionalism is a version of reliabilism, but he's quite clear that reliability in the subject's (or actual) circumstances is neither necessary nor sufficient for justification (see, e.g., his introduction). So he arguably doesn't count as a reliabilist. It should be obvious, though, that proper functionalism's prospects for avoiding the problems in this paper are not affected by whether proper functionalism gets labelled as a reliabilism or not.

statistical reliability is supposed to be similarly counterfactual.¹⁵ If so, we get something like:

The Similar Worlds Account (SW): A proposition E supports another proposition C just in case, in the most similar worlds, C is usually true when E is.¹⁶

I take it that most reliabilists have something like SW in mind when they are thinking about reliability.¹⁷ To be sure, some reliabilists may prefer to treat evidential support and the relevant sort of reliability as relations between *beliefs* rather than *propositions*. Such reliabilists may prefer a view like this one: S's belief that E supports S's belief that C just in case, in the most similar worlds in which both (i) S believes E and C and (ii) S's belief that E is true, then S's belief that C is also true. Nothing significant hangs on which way we prefer to talk. As Alston (2005: 96 and especially 135) notes, we can map the different ways of talking on to each other.¹⁸ Such a view will be subject, *mutatis mutandis*, to the same problems.

According to SW, what matters is whether, in the most similar worlds *to that of the subject*, C is usually true when E is. Goldman (1979: 43-4; 2011: 256) has flirted with the idea that what matters is not the reliability of the subject, but reliability in the actual world. Comesaña's (2002) indexical view is a variation on this theme. Since all the counterexamples I use against reliabilism in this paper work in the actual world, requiring reliability in the actual world will not help the reliabilist to avoid the problems in this paper.

Other reliabilist accounts of evidential support will be counterfactual, but worlds will be ranked according to normalcy, not similarity. According to Goldman, normal worlds are those worlds that are "consistent with our *general* beliefs about the actual world" (1986: 107). The actual world will be abnormal if many of our general beliefs about it are false, as would be the case if we were in fact being deceived by an evil demon. A normal worlds account of evidential support might hold: A proposition E supports another proposition C just in case, in the most *normal* worlds, C is usually true when E is.¹⁹ As far as I can tell, such a view is in no better position to avoid the counterexamples

¹⁵ If Greco intends a non-counterfactual version of statistical reliability (e.g. the number of times in the actual world some proposition is true when another is), his view will still be subject to the below counterexamples. Also see Fumerton 2006b: 80.

¹⁶ Greco allows that S has an ability to R in conditions C even if there is a sufficiently similar world in which, perhaps because of bad luck, S never achieves R in C (2000: 212). Analogously, he may allow A to support B even if there is some sufficiently similar world in which, perhaps because of bad luck, B is never true when A is. SW is intended to be compatible with this result.

¹⁷ Alston (2005: 124-5) would add a restriction to situations like the ones we typically find ourselves in. Even with such a restriction, the below counterexamples, perhaps with some minor modifications, will still work.

¹⁸ If one rejects content essentialism, the claim that a belief has its content essentially, then it might matter whether we treat evidential support as a relation between beliefs or propositions. There may be some theoretical advantages to rejecting content essentialism (see, e.g., Weatherson 2004: 378-81), but I don't know how this rejection could help solve the below problems. I'll simply assume content essentialism in what follows.

¹⁹ Two points are worth mentioning about this normal worlds account of evidential support. First, it would be parallel to Goldman's proposal that "a rule system is right in any world W just in case it has a sufficiently high truth ratio *in normal worlds*" (1986: 107, emphasis original). Second, Martin Smith (2010) may endorse something like this account of evidential support, but his notion of normalcy is *very* different than that of Goldman's (see, e.g., Smith 2007). Even given Smith's notion of normalcy, the

that afflict SW. We can safely ignore the normal worlds account in the rest of this paper.²⁰

The third reliabilist account is suggested by the work of William Alston. He says, “Suffice it to say that I am thinking in terms of some kind of ‘tendency’ conception of probability, where the lawful structure of the world is such that one state of affairs renders another more or less probable” (1989: 232; cf. Armstrong 1973: 168-175, 206-208; Sosa 1991: 278). If, by ‘lawful structure of the world,’ Alston wishes to include the laws of logic, then his view suffers from the same problems as SW (see the end of sec 3.1). We can assume, then, that by ‘lawful structure,’ he has in mind solely the laws of nature. Given this reading, there are at least two ways of developing Alston’s remark. The first is: A proposition E supports another proposition C just in case, in the worlds that share our laws of nature, C is usually true when E is. We can safely ignore this account since it too will be subject to the same problems that will afflict SW. The second way of construing the account is:

The Nomic Account (NA): A proposition E supports another proposition C just in case it is a law of nature that C is (usually) true when E is true.

I will focus on NA because it is a good foil to SW, as it illustrates the dangers of going too far in the opposite direction. SW fails because its restrictions on what justifies what are too *weak*; NA fails because its restrictions on what justifies what are too *strong*.

3. Promiscuity Problems

Reliabilist and proper functionalist accounts of evidential support are often, if not always, subject to false positives, that is, they often entail falsely that some proposition supports another one. We can divide this tendency into two categories: the problem of promiscuity and the problem of wrongful vindication. I develop the former problem in this section and turn to the latter problem in the subsequent section.

3.1. Promiscuity with Necessary Truths

The Similar Worlds and Proper Function Accounts each face what is a familiar problem: promiscuity with necessary truths. These accounts are all too eager to say that some proposition supports a necessary truth. Gödel’s (First Incompleteness) Theorem is necessarily true. Since it is necessarily true, all propositions entail it, including:

BEER: My students hate Keystone Light.

SW says that E supports C just in case, in the most similar worlds, C is usually true when E is. Since Gödel’s theorem is assumed to be necessarily true, BEER entails the theorem

normal worlds account doesn’t seem to have any special advantages when it comes to avoiding the below problems.

²⁰ I’m sometimes asked whether Lyons’ (2009: 171-3) views fare any better with respect to the problems discussed in this paper. Not really. To avoid going into the details of Lyons’ account, the following simplified view will approximate his account: E supports C iff E bears “the appropriate reliability connection” (which he leaves unspecified) to C and the inference from C to E is a basic inference. Simplifying again, we can say that a basic inference is one that a subject is designed to make. So this simplified approximation of his account requires reliability and proper function. By requiring proper function, he will avoid some of the counterexamples that afflict what I will call SW. Yet, since my counterexamples to proper functionalism all involve reliability, my counterexamples to the proper functionalist account are also counterexamples to his (approximated) account. I also address Lyons’ views in my 2014.

in all possible worlds, not merely all the sufficiently similar ones. Since BEER entails Gödel's theorem in every possible world, then, in every possible world, the theorem is always true when BEER is. Hence, SW entails that BEER supports Gödel's theorem in every possible world. More generally, SW is maximally promiscuous with necessary truths because it holds that every proposition supports every necessary truth in all possible worlds relative to any subject.^{21,22}

The Proper Function Account has the dubious honor of being somewhat less promiscuous than SW. The modal profile of necessary truths guarantees that any proposition will bear to any necessary truth the reliability relation identified by SW. What causes the problem for PF is, not the modal profile of necessary truths, but the flexibility of design plans. PF does not entail that BEER supports Gödel's theorem relative to us in the actual world. This is so, because we are not designed to believe the theorem on the basis of my students' hating cheap beer. Nonetheless, in the worlds in which we are designed this way, PF entails that BEER supports Gödel's theorem for us. PF will allow any proposition to support any necessary truth given the right design plan. This result is absurd: it seems that BEER, for example, cannot be a good reason (by itself) for Gödel's theorem for any subject or design plan.²³

We have seen that two of the three accounts of evidential support are promiscuous with necessary truths. The third one, the Nomic Account, actually avoids promiscuity with necessary truths. This is no advantage, however, because it avoids promiscuity by falling prey to *monkish chastity*. Since necessary truths and falsehoods aren't nomically related (i.e. connected by a law of nature) to other propositions, NA entails that there are no propositions that support necessary truths. Not even a sound proof of Gödel's theorem will satisfy NA's standards. On the other hand, if one insists that any necessary connection, including entailment, counts as a law of nature, then we merely trade monkish chastity for promiscuity. Since BEER entails Gödel's theorem, NA would entail that BEER supports the theorem.²⁴

²¹ I've encountered this objection a few times: "If there are impossible worlds, then it won't be true that Gödel's theorem is true in all the most similar worlds. So, given impossible worlds, SW isn't promiscuous with necessary truths." Postulating the existence of impossible worlds does not, by itself, constitute progress. Suppose there are equally many close impossible worlds in which Gödel's theorem is false as there are close possible worlds in which it is true. SW may avoid promiscuity with necessary truths, but only at the cost of monkish chastity. For now not even a sound proof will support Gödel's theorem.

²² Although the promiscuity problems are perhaps more worrisome, SW is also monkishly chaste with respect to necessary falsehoods. The proposition that Gödel's theorem is false is itself necessarily false. Given SW, the denial of the theorem would not be supported by the conjunction that there are many reliable experts in the relevant domain and they all agree that Gödel's theorem is false. This result seems to be a false negative.

²³ *Objection:* Your discussion of proper functionalism is too simplistic. The proper functionalist typically requires not only proper function, but also that the relevant faculties be aimed at truth and be reliable in the environments for which they are designed. *Reply:* BEER trivially entails Gödel's theorem, so the reliability comes trivially. Hence, it's easy to imagine that the relevant faculties are aimed at truth and are reliable in the environments for which they are designed. A similar point holds for the below counterexamples to proper functionalism.

²⁴ Henderson, Horgan, and Potrč defend a view they call *Transglobal Evidentialism-Reliabilism*. The view avoids the new evil demon problem for reliabilism, which it was designed to do, but it offers no progress on the issues discussed in this paper. They claim "Propositions A_1, \dots, A_n collectively provide strong evidential support for proposition B just in case B is true in a wide range of experientially relevant possible worlds in which A_1, \dots, A_n are all true." (2007: 293). An experientially relevant possible world is, roughly,

3.2. Promiscuity with Contingent Truths

Reliabilists recognize that their views have trouble with necessary truths, but they don't seem to notice that their views suffer from equally troubling problems when applied to certain contingent truths. I develop these problems in the rest of this section and the next.

The Similar Worlds Account is promiscuous with what we can call **similarity-constituting truths**. Some contingent truth T is *constitutive of similar worlds* just in case T is true in all the most similar worlds. Consider:

The Nomic Proposition: the proposition identifying all and only genuine laws of nature.

The Miracle Proposition: the proposition identifying all and only miracles.²⁵

Given some respectable accounts of miracles and the laws of nature, the miracle and nomic propositions will be contingently true. Nonetheless, it is widely assumed that there are no similar worlds in which these propositions are false.²⁶ Hence, there will be no sufficiently similar world in which any proposition is true and these propositions are false. The Similar Worlds Account absurdly entails, then, that BEER supports the Nomic and Miracle propositions.

Other examples of similarity-constituting truths are easy to come by. Consider:

HUMANS: there existed humans on June 20th, 2000.

No Grammy: I do not win a Grammy.

There are no sufficiently similar worlds in which HUMANS is false. Nor is there a nearby world in which I win a Grammy. (Background info: I once won a bottle of coconut rum for being the *worst* karaoke singer in a group of very bad karaoke singers. No, I wasn't trying to sing badly; singing badly just comes naturally.) Since there are no similar worlds in which, say, BEER is true and these propositions are false, the Similar Worlds Account entails absurdly that BEER supports these propositions.

You can construct your own counterexamples at home by following two simple steps. First, identify some similarity-constituting truth T. I've identified four such truths. Second, identify some proposition P that (i) intuitively does not support T but (ii) is true in at least some of the most similar possible worlds. My preferred substitution for P was BEER. SW says that P supports T just in case, in the most similar worlds, T is usually true when P is. Since T is similarity-constituting, it is true in all the most similar possible

one "compatible with having the experiences of roughly the character of those agents actually have" (2007: 283, cf. 2007: 293-4, 2011: 109-10). This account makes no progress with respect to necessary truths, for in every world, Gödel's theorem is true. Trivially, then, the theorem is true in experientially relevant possible worlds when BEER is true. Or consider the contingent proposition that there exist creatures that have experiences. This proposition is constitutive of experientially relevant possible worlds. So it is trivially true that this proposition is true in experientially relevant worlds when BEER is true. Henderson, *et al's* account entails that BEER supports propositions it has no business supporting. (If they wish, they could build into their account evidential support the sort of counterfactual strategy they describe in their 2007: 292. This would not help for familiar reasons.)

²⁵ If there are no genuine miracles, then the Miracle Proposition will say as much.

²⁶ As Lewis (1981) argues, if we live in a deterministic world, the closest world in which I do something differently than I actually do may involve a small miracle just prior to my action. I'm happy to assume that we don't live in a deterministic world, but even if we do, there is an easy fix. Just let the miracle proposition concern only those miracles that occurred long ago. Then the miracle proposition will be constitutive of the most similar worlds.

worlds. *A fortiori*, in all the most similar possible worlds, T is always true when P is. So SW entails that P supports T. If you've chosen P wisely, i.e. if it seems intuitively obvious that P doesn't support T, then you'll have a nice counterexample to SW.

The flexibility of design plans again leads the Proper Function Account astray. For example, BEER will support the Nomic and Miracle Propositions for any creature designed to believe those propositions on the basis of BEER. Yet it doesn't seem plausible that, by itself, BEER could support the Nomic and Miracle Propositions.²⁷

4. Wrongful Vindication

In addition to being promiscuous, reliabilist and proper functionalist accounts of evidential support tend to wrongfully vindicate certain instances of fallacious reasoning. Consider the premise of denying the antecedent arguments, i.e. consider:

The DA-Premise: $\sim P$ and if P then Q.

Is it possible for this proposition to support $\sim Q$? Apparently not: inferring $\sim Q$ from such a premise is called "the *fallacy* of denying the antecedent" for good reason. Of course, the conjunction of this premise with something else might evidentially support $\sim Q$. Take the DA-Premise and the claim that the premise is a statistically reliable indicator of $\sim Q$. *That* conjunction seems to support $\sim Q$ (and to do so necessarily), but the DA-Premise cannot do so by itself.

Suppose Fred justifiably believes the premises of the following argument:

F1: If I intend to start a fire, then there will be a fire in my office in the next 10 minutes.

F2: I do not intend to start a fire.

F3: Therefore, there will not be a fire in my office in the next 10 minutes.

If he believes the conclusion solely on the basis of those premises, he will commit the fallacy of denying the antecedent, so presumably, his premises would not support their conclusion.

To help elicit this intuition compare the conjunction of F1 and F2 with the conjunction of F2 and:

F4: It is unlikely that there will be a fire in my office in the next 10 minutes if I do not intend to start one.

There seems to be something genuinely defective—something more than that the argument isn't deductively valid—about Fred's reasoning if he accepts the argument *F1 and F2 therefore F3*. If he accepts the argument *F2 and F4 therefore F3*, his argument seems to lack that defect. What explains this difference, I submit, is that only the conjunction of F2 and F4 supports F3.

We can see that the Similar Worlds Account wrongfully vindicates some instances of denying the antecedent if we fill in a few more details. Fred, we can suppose, is a rather ordinary sort of person, except that he endorses some of the wacky things that are vogue in analytic metaphysics these days. His office is a lot like yours, except that yours probably has more epistemology books than his does. His office contains only the expected sorts of things, such as books, some unfinished grading, a computer, etc. All electronics in the office, including the wiring within the walls, are in acceptable

²⁷ I suspect that SW is monkishly chaste with some contingent truths as well. A good candidate is remote-constituting propositions, i.e. those propositions that are true only in worlds that are not among the most similar worlds.

condition, and there are no impending natural disasters. It seems that, in all the similar worlds in which F1 and F2 are true, there is no fire in his office. Given SW, the conjunction of F1 and F2 evidentially supports F3. Hence, SW wrongly vindicates Fred's fallacious argument.

The Proper Function Account will vindicate denying the antecedent for a design plan as long as the plan requires properly functioning subjects to believe the fallacious conclusion on basis of the fallacious premise. We can suppose that Fred is a member of a species who has such a design plan. Hence, PF wrongly vindicates Fred's use of denying the antecedent. That is to say, it incorrectly entails that, for Fred, the conjunction of F1 and F2 supports F3.

The Nomic Account is again the oddball. While it may wrongly vindicate some instances of bad reasoning, its more obvious defect is that it *wrongly condemns* certain instances of perfectly good reasoning. Consider this argument:

- L1 It is a law of nature that litmus paper turns red when dipped in an acidic solution.
- L2 This litmus paper will be dipped into an acidic solution.
- L3 Therefore, the litmus paper will turn red.

The argument's premises seem to support its conclusion, but it doesn't seem that the *conjunction* of L1 and L2 is nomically related to L3. To be sure, L2 is connected by a law of nature to L3, namely the law identified in L1; however, there is no law of nature connecting the conjunction of L1 and L2 with L3. The fact that there is this or that law of nature is not the sort of fact that can be connected by laws of nature to other facts. The conjunction of L1 and L2 supports L3, but NA says that it doesn't. NA wrongly condemns any reasoning in the form: it is a law of nature, or nomically necessary, that if something is F, then it is G; x is F; therefore, x is G. It seems that any reasoning in this form *must* support its conclusion, but NA condemns all reasoning in this form because laws of nature are not themselves lawfully connected with other facts.²⁸

In this section, I have argued that reliabilist and proper functionalist accounts of evidential support tend to suffer from the problem of wrongful vindication.²⁹ A theory of evidential support faces this problem when it allows some argument to evidentially support its conclusion when, intuitively, an argument in that form *cannot* provide evidential support for its conclusion. The promiscuity problems are different. Consider promiscuity with necessary truths. Presumably, some argument in the form *P therefore necessarily Q* is a good argument. A theory faces this problem when it allows entirely

²⁸ The proponent of the Nomic Account can avoid this counterexample if she assumes that a conjunction is nomically related to a conclusion if at least one of its conjuncts is nomically related to the conclusion. Since L2 is nomically related to L3, any conjunction that contains L2 as a conjunct would likewise be nomically related to L3. The Nomic Account, therefore, would rightly allow the conjunction of L1 and L2 to support L3. Unfortunately, endorsing this assumption would merely trade the condemnation problem for the vindication problem. Consider the conjunction of L2 and the claim that if this litmus paper will *not* be dipped in to the solution, then it will *not* turn red. The above assumption entails that this conjunction is nomically related to L3 because one of its conjuncts, L2, is nomically related to L3. The Nomic Assumption, then, would hold that this conjunction supports L3, but this is just to wrongly vindicate an instance of denying the antecedent.

²⁹ In this paper, I focused on denying the antecedent, but a similar problem can be raised for counterinductive reasoning (e.g. *9 out of 10 observed Fs are Gs therefore the next F won't be a G*), which plausibly counts as a non-deductive fallacy. Though, Plantinga (1993: 172-3) does not share my intuition that counterinduction is necessarily fallacious.

too many propositions to support necessary truths or whatever sort of proposition is at issue. There will be overlap between the two problems, but they do seem at least partially independent. Even if there is, ultimately, no difference between them, the deeper issue still remains: there are various counterexamples that afflict the above accounts of evidential support, and it is difficult, if not impossible, for an reliabilist and proper functionalist accounts of evidential support to avoid them all in a principled way.

5. Comesaña's Three Ways

Reliabilists are often aware that their views have trouble with necessary truths. Yet Comesaña (2010, sec. 8.2) argues that the reliabilist has plenty of resources to deal with this problem. His immediate concern is his (and other reliabilists') apparent commitment to the idea that a necessary truth can be justifiably believed on any basis. His view has this problem because it allows *any* proposition to support *any* necessary truth. He discusses three ways of addressing these problems and lists them in what he takes to be the order of increasing plausibility.

The first way draws upon the formal epistemology literature. Bayesian views that model rationality or justification on probabilities are notorious for being promiscuous with necessary truths. Reliabilism and proper functionalism face promiscuity problems because they fail to put enough constraints on what justifies what, i.e. they don't require enough. Bayesian views, in contrast, require too much. They face these problems because they demand a certain kind of coherence, typically one that is invulnerable to Dutch books (e.g., see Garber 1983: 104; Vineberg 2011). Although these promiscuity problems arise in different ways, it is natural to wonder whether Bayesian responses to these problems can be appropriated by the reliabilist. It is no surprise, then, that Comesaña's first way looks to this formal literature.

A common Bayesian response to their promiscuity problems claims that their models of justification "presuppose an *idealized* epistemic agent who *is* logically omniscient [and so would have full belief in every necessary truth]" (Comesaña 2010: 588, emphasis original).³⁰ Comesaña suggests the reliabilist can adopt this strategy to make his promiscuity problems seem less severe. I'll grant, for the sake of argument, that a fully rational, logically omniscient agent would have full belief in every necessary proposition; however, it doesn't follow that a fully rational, logically omniscient agent could fully believe necessary truths on the basis of *any other belief whatsoever*. Such an idealized agent wouldn't believe Gödel's theorem on the basis of BEER (and only BEER). Even if it is an epistemic ideal to have full belief in every necessary truth, it is not rationally permissible to believe necessary truths on any basis whatsoever.

The second way of addressing promiscuity with necessary truths is to endorse an account of belief, according to which there is no such thing as believing in necessary truths. Comesaña holds that, if Stalnaker's (1984) account of belief is correct, then a belief must eliminate some way that the world could have been. But a "belief" in necessary truths doesn't do that. If such an account of belief is correct, then reliabilism will not entail that one can have justified belief in any necessary truth on any basis whatsoever, because one can't have a belief in necessary truths at all. Let us grant that this solution somehow resolves the promiscuity problem with necessary truths. We still

³⁰ Comesaña (2010: 588) cites Christensen (2004) as an epistemic logician who gives an "able defense" of this sort of move.

have made no progress when it comes to wrongful vindication and promiscuity with contingent truths. Those problems involve arguments whose conclusions are contingent, so belief in those conclusions does rule out ways the world could have been. This second possibility provides at best a partial solution.

The third and allegedly most plausible way modifies the following simple picture. Let *T* be some necessary truth and *E* be some arbitrary proposition. Consider the process-type *basing a belief that T on a belief that E*. Since *T* is necessarily true, it is true in all the worlds in which *E* is true. So the process will be maximally reliable on at least the most natural construals of reliability. Given a reliabilist account of evidential support, it seems that *E* would provide maximal evidential support for *T*, no matter what *E* is.

Inspired by Sosa's work (e.g., 1991: 138-40), Comesaña suggests that reliabilists can make the relevant process type relative to a field of propositions. When a subject bases her belief in *T* on her belief in *E*, the relativized process type would be *basing a belief in some proposition from F on a belief that E*, where *F* is the (relevant?) field of propositions that contains *T*. This yields the following account of evidential support:

Relativized Type Account (RETA): A proposition *E* supports another proposition *C* just in case the following process type is reliable: *basing a belief in some proposition from F on a belief that E*, where *F* is the field that contains *C*.

How is RETA supposed to help? Comesaña answers: "If the type [of process] to be assessed for reliability includes reference to a *field* of propositions, some of which are true and some of which are false, then it is no longer the case that processes that issue in necessary propositions have only extreme reliability measures" (2010: 589, emphasis original). Comesaña seems to think that, given RETA, the reliabilist avoids the promiscuity problem with necessary truths *as long as* there are some false propositions in the relevant fields. As we'll see, things aren't quite so simple.

The main problem with RETA, with relativizing the relevant process type to fields, is that, by itself, it makes no progress toward resolving any of the problems in this paper. RETA is really an account schema, and it won't be a complete account of evidential support until (i) we have some idea about how to non-arbitrarily select the relevant fields, and (ii) we are told in what sense the relevant process type needs to be reliable. We won't be able to make any progress toward resolving the problems in this paper until we are given suitable accounts for (i) and (ii). Consider (ii) first.

Let's work with a simple counterfactual notion of reliability. This seems appropriate since Sosa's (1991: 138-40) account of intellectual virtue, the inspiration for RETA, apparently operates with that notion. The idea, then, is this:

SW-RETA: A proposition *E* supports another proposition *C* just in case, in most similar possible worlds, the following process type usually results in a true belief: *basing a belief in some proposition from F on a belief that E*, where *F* is the field that contains *C*.

SW-RETA is a version of RETA that interprets 'the following process type is reliable' as 'in most similar possible worlds, the following process type usually results in a true belief'.

Unfortunately, SW-RETA is still promiscuous with necessary truths, because it allows BEER to support Gödel's Theorem in some possible worlds, no matter how we specify the relevant field *F*. There is a possible race of creatures for which *basing a*

belief in some proposition from F on a belief in BEER always yields a true belief in all the worlds that are most similar to their world. This might be simply because Gödel's theorem is the only proposition from F—or even the only proposition, period—they are designed to believe on the basis of student beer preferences (and they function properly in all the worlds most similar to their own). Since Gödel's theorem is the only proposition from F that these creatures are designed to believe on the basis of their student's beer preferences, the reliability of the process type *basin a belief in some proposition from F on a belief in BEER* will be equivalent to the reliability of the process type *basin a belief in Gödel's theorem on a belief in BEER*. Both processes will be 100% reliable, because, in all the worlds most similar to the world of the creatures, the processes always yield a true belief, namely a belief in Gödel's Theorem. Note that both processes will be 100% reliable, even if F contains infinitely many false propositions. Those propositions don't make a difference to the reliability of the relativized process type because, in the relevant worlds, the subjects never believe one of those propositions on the basis of BEER. Hence, no matter how we specify fields, SW-RETA entails that BEER supports Gödel's theorem in some possible worlds.

The modal profile of necessary truths made the original Similar Worlds Account promiscuous with necessary truths. The flexibility of design plans made the Proper Function Account promiscuous with necessary truths. The modal profile of necessary truths and the flexibility of design plans *jointly* make SW-RETA promiscuous with necessary truths. They don't make SW-RETA *maximally* promiscuous with necessary truths—there will be some worlds where BEER doesn't support Gödel's theorem. Nonetheless, SW-RETA is still shamefully promiscuous because it allows any proposition P to support any necessary truth T in some possible world.³¹

Suppose we find a satisfactory account of reliability to plug into RETA, thus avoiding the above problem. Endorsing RETA still fails to constitute progress. In fact, relativizing the relevant process type to fields may constitute a step *backwards*. Comesaña (2006; 2010) argues quite plausibly that we can solve the generality problem if we let the relevant process be *believing P on the basis of some evidence e*.³² Yet if we relativize this process to fields, then we now suffer from a generality problem for fields. Just as every token process is a token of infinitely many types at all levels of generality, every proposition is a member of infinitely many fields at all levels of generality. Comesaña recognizes that his earlier solution to the generality problem will no longer work, but he says that this version of the generality problem “is considerably weakened: I can see no argument that there is no principled way of specifying fields” (2010: 590). I'm actually inclined to think that there are many principled ways of specifying fields. One might divide all propositions into contingent and non-contingent propositions. Alternatively, one might divide propositions into the field of mathematical propositions

³¹ Talk of design plans and proper function is convenient, but it isn't essential to showing that SW-RETA is shamefully promiscuous. All that is needed is some possible story according to which: there is a creature who, in all the closest possible worlds to that of the creature, never believes anything (from F) on the basis of BEER except Gödel's theorem. We could get such a story without appealing to proper function if there is a possible race of creatures, such that Gödel's theorem is the only proposition that they are *disposed* to believe on the basis of BEER.

³² I have been using 'E' to stand for an arbitrary proposition that gets used as a premise in an argument. Comesaña uses 'e' to refer to both inferential and non-inferential evidence, and I think he intends evidence to come in the form of beliefs or experiences.

and the field of non-mathematical propositions. Yet it is far from obvious that there is a principled way of specifying fields that can be used to address the promiscuity problems with necessary truths, much less the other problems that are raised in this paper.³³

Suppose Comesaña is right that the field version of the generality problem can be resolved without undue difficulty. All that follows is that RETA isn't a step *backwards*. It doesn't follow that, by itself, it is a step *forward*. If this version of the generality problem is as manageable as Comesaña seems to think, then it should be relatively easy work to find a promising way of specifying fields. Yet progress won't be made until we have a way of specifying fields *and* an account of reliability that, when combined with RETA, will avoid at least some of the above promiscuity and wrongful vindication problems without introducing chastity and condemnation problems.

In this section, I've focused on the promiscuity problem with necessary truths, but do not read too much into that focus. I was simply following Comesaña's lead. As long as necessary truths are everybody's problem, there is a sense in which they are nobody's problem. Even setting aside the promiscuity problem with necessary truths, wrongful vindication and promiscuity with contingent truths still pose serious obstacles to reliabilist (and proper functionalist) accounts of evidential support. Yet Comesaña's suggestions don't seem well-suited to resolve these problems either.

Conclusion

Every account of inferential justification needs to explain why a given justified belief is a candidate to inferentially justify some beliefs but not others. In other words, every account of inferential justification needs an account of evidential support. If an account of inferential justification relies on a faulty account of evidential support, then the account of inferential justification is likewise faulty. In this paper, I have shown that reliabilist and proper functionalist accounts of evidential support suffer from a number of counterexamples (secs. 3 and 4) and that the best fixes are bad (sec. 5). What these counterexamples expose is that reliabilist and proper functionalists fail to put enough constraints on what can inferentially justify what. Perhaps reliabilists and proper functionalists can modify their accounts to shore up these problems. Or perhaps these counterexamples suggest, ever so slightly, that a belief that P can inferentially justify a belief that Q only if P's conceptual content bears some intrinsic relation to Q's conceptual content. Only time will tell.³⁴

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³³ The only attempt that I know of to solve a generality problem for fields is Sosa (1991: 281-4). His "solution" is that the relevant process type needs to be usefully generalized upon by the subject and her epistemic community. Unfortunately, it's not clear his solution fits comfortably with the rest of his view (Foley 1994), and it is doubtful that his solution yields a unique type (Conee and Feldman 1998: 28, nt. 37).

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