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INFERENCE TO THE BEST EXPLANATION AND EPISTEMIC CIRCULARITY

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ABSTRACT. Inference to the best explanation—or, IBE—tells us to infer from the available evidence to the hypothesis which would, if correct, best explain that evidence. As Peter Lipton (2000, 184) puts it, the core idea driving IBE is that explanatory considerations are a guide to inference. But what is the epistemic status of IBE, itself? One issue of contemporary interest (e.g., Boyd 1985; Psillos 1999; Boghossian 2001; Enoch & Schechter 2008) is whether it is possible to provide a justification for IBE itself which is non-objectionably circular. We aim to carve out some new space in this debate. In particular, we suggest that the matter of whether a given rule-circular argument is objectionably circular itself depends crucially on some subtle distinctions which have been made in the recent literature on perceptual warrant. By bringing these debates together, a principled reason emerges for why some kinds of rule-circular justifications for IBE are considerably less objectionable than others.

1. THE EPISTEMIC STATUS OF IBE: A PUZZLE

Inference to the best explanation—or, IBE—tells us to infer from the available evidence to the hypothesis which would, if correct, best explain that evidence. As Peter Lipton (2001, 184) puts it, the core idea driving IBE is that explanatory considerations are a guide to inference. IBE is widely regarded as a hallmark of scientific methodology.¹ Moreover, IBE features in the background of our everyday (i.e., non-scientific) inquiries in such a way that—as Igor Douven (2011, §1.2) notes—is so ‘routine and automatic that it easily goes unnoticed.’² Given our widespread dependence on IBE, one might naturally ask what justifies our employment of it.

One response that might be proffered in this regard is to contend that IBE is basic to our epistemic practices in such a way that it does not require a justification.³ However, as David Enoch and Joshua Schechter (2008) note, it would surely be ‘philosophically unsatisfying’ if we could not do so. As they put the worry:

There are many different possible belief-forming methods that could be employed as basic. Some, such as MP [*modus ponens*], IBE, and relying on perception, we presumably are justified in employing. Others, such as Affirming the Consequent, Inference to the Third Worst Explanation, and relying on wishful thinking, we presumably would be unjustified in employing. It is highly implausible that it is merely a brute fact that we are justified in employing certain methods as basic and not others. It is much more plausible that there is a principled distinction between the two classes [...] relevant to justification, one that presents [MP, IBE, etc.] in a rationally positive light. (Enoch & Schechter 2008, 557-8)

The thinking here is that it is not enough to observe that we employ IBE as if it were basic—that is unlikely to be in doubt—since we still need a rationale for why we are right to so employ it, and that question takes us right back to the need to justify our use of IBE⁴.

Paul Boghossian (2001) takes things a step further by suggesting that if we can’t justify our basic inference rules, then this speaks against their objectivity. Boghossian’s reasoning is that ‘if there are objective facts about which epistemic principles are true, there should be humanly accessible circumstances under which those facts can be known’ (2001, 3), which of course entails that one is able to have justified beliefs about them.⁵ On Boghossian’s line, then, it would not only be intellectually unsatisfying were we to lack any way to justify IBE, it would also be evidence against the objectivity of IBE.⁶

Let’s assume for the sake of argument that that it is incumbent upon us to at least give *some* kind of account of how IBE is itself justified—i.e., how IBE has a kind of positive epistemic status that is not shared equally by other, epistemically problematic, belief-forming methods, such as ‘Inference to the Third Worst Explanation’. How would this be done? Here, Enoch & Schechter (2008) claim that a puzzle arises. We will first outline this puzzle and then show how there is, in fact, a more challenging way to formulate it. The remainder of the paper will engage with this more challenging version of the puzzle.

As Enoch & Schechter see it, the puzzle that arises once we ask how our reliance on IBE is to be justified is most effectively framed as a choice between two *prima facie* non-starters. One option is to use IBE in the service of its own justification.⁷ Another option is to use some other belief-forming method to justify IBE. Neither option is workable, they tell us, the former because it is

objectionably circular, and the latter because one cannot justify a basic rule by appeal to other belief-forming methods. The puzzle goes as follows.

The Justificatory Puzzle for IBE

1. We cannot justify our use of IBE with a justification that relies upon IBE (or otherwise assumes its privileged epistemic status), since such a justification would be objectionably circular.
2. We cannot justify our use of IBE by appealing to other belief-forming methods, since IBE is a basic rule.
3. Thus, there is nothing in virtue of which we are justified in using IBE.

Enoch & Schechter attempt to resolve this puzzle in a way that draws inspiration from Hans Reichenbach's (1949) pragmatist response to the problem of induction. While we think their positive proposal—though interesting—is not ultimately compelling, this point won't concern us here.⁸ Rather, we think that there is a more difficult version of the puzzle than the one they presented.

To appreciate the more difficult puzzle, consider premise (2). In virtue of what is an inference rule *basic*? Either an answer to this question excludes (i.e., by definition) the very *possibility* of vindicating that rule's epistemic status with reference to another fundamental inference rule, or it doesn't. Enoch & Schechter regard the property of basicness as an

[...] intuitive one. The belief-forming methods that are basic for a thinker are those methods that are the most fundamental in how the thinker reasons. All other belief-forming methods employed by the thinker are derivative. This characterization of basicness is not fully precise, and it may be somewhat indeterminate which methods are employed as basic by a thinker. But we find it plausible that MP, IBE, reliance on memory and perception, and reliance on normative and modal intuitions (or close relatives of these belief-forming methods) are basic for most adult human thinkers. (Enoch & Schechter 2008, 551)

Notice that one can agree that IBE is basic in the intuitive sense described without being committed to the further (and considerably stronger) epistemic claim that, in virtue of being basic, a belief-forming process could not *possibly* be justified by some other (perhaps also basic) belief-forming method. After all, there is nothing about a belief-forming method's being fundamental to how one reasons that entails that it has this further property. For all Enoch & Schechter tell us about basicness, two basic belief-forming methods, A and B, could potentially be used to justify one another, even if no derivative belief-forming method could be used to justify A or B. Premise (2) of the puzzle is true only if there is no such possibility.⁹

Enoch & Schechter's formulation of the puzzle is challenging to the extent that the premises are plausible and the conclusion problematic. But premise (2), on closer inspection, looks like a premise that we should accept only if we are already committed to an account of basicness

which is stronger than what we must accept by accepting what Enoch & Schechter themselves tell us is involved in a belief forming method's being basic. The fact that one might reasonably accept the account of basicness they provide and still reject (2) vitiates the force of the puzzle. Or, at least, the version of it they've offered.

Here is the crux of the matter. Can the force of the justificatory puzzle be regained by replacing (2) with a weaker premise, one that can be accepted by those who—like Boghossian (2001), for instance—do *not* regard the project of justifying basic inference rules as already excluded by the very definition of basicness?

We think that it can. To appreciate how, let's take as a starting point that the possibility is not foreclosed *ex ante* that we might justify our use of IBE by appealing to some other (basic) belief-forming method(s). One conversational context in which justification for IBE might be requested is a context where our interlocutor subscribes to a very different set of inference rules than we do. Here a thought experiment will be useful. Following Boghossian (2006), let's define an individual's epistemic system or framework as a set of epistemic principles or rules to which the individual subscribes. Imagine now a scenario in which your epistemic framework (for convenience, call this framework 'Western Science') is challenged by an individual who embraces a very different epistemic framework (call this 'Mysticism').

Suppose you attempt to justify the wider system Western Science to your interlocutor, the Mystic, by attempting to justify, one at a time, each of the rules that constitute the framework 'Western Science'. You begin by attempting to justify IBE. Let's add to this story that you take it for granted that justifying IBE by appealing to IBE is objectionably circular (though we'll say more on this point below). Accordingly, you attempt to justify IBE by appealing to another basic belief-forming method (e.g., perception, memory, *modus ponens*, etc.). At this point, your mystic interlocutor reminds you that these other basic inference rules are, no less than IBE, a part of the wider system 'Western Science'. By applying a rule that belongs to Western Science in the service of justifying another rule that's a part of Western Science, you are employing your epistemic framework in support of itself.

Consider at this point Michael Williams' characterisation of an argumentative strategy that has been employed in the service of motivating epistemic relativism:

[...] what about the claims embodied in the framework itself: are they justified? In answering this question, we inevitably apply our own epistemic framework. So, assuming that our framework is coherent and does not undermine itself, the best we can hope for is a justification that is

epistemically circular, *employing our epistemic framework in support of itself*. Since this procedure can be followed by anyone, whatever his epistemic framework, all such frameworks, provided they are coherent, are equally defensible (or indefensible). (Williams 2007, 3-4, *our italics*)

As Williams sees it, the epistemic relativist proposes what is (for our purposes at least) an idea with important relevance—*viz.*, that there is something objectionably epistemically circular about employing our epistemic framework in support of itself. The relevance, specifically, is that that is precisely what one does when one attempts to justify IBE by appealing to some *other* inference rule which is no less a part of one's wider epistemic system than IBE.¹⁰

The crucial point here is that if employing one's own epistemic framework in support of itself is objectionably epistemically circular (as Williams' epistemic relativist insists that it is), then it looks as though attempting to justify IBE by appealing to some other inference rule which is part of the same epistemic system that IBE belongs to is going to be no more promising as a justification of IBE than would be the objectionably circular strategy of justifying IBE by appealing to IBE itself¹¹. With this point in hand, we can now recast Enoch & Schechter's Justificatory Puzzle for IBE in a way that is more challenging:

*The Justificatory Puzzle for IBE**

4. We cannot justify our use of IBE with a justification that relies upon IBE (or otherwise assumes its privileged epistemic status), since such a justification would be objectionably circular.
5. It is objectionably epistemically circular to employ one's epistemic framework in support of itself.
6. Justifying our use of IBE by appealing to another inference rule that belongs to the same epistemic framework as IBE is to use one's epistemic framework in support of itself.
7. We cannot justify our use of IBE with a justification that relies upon another inference rule that belongs to the same epistemic framework as IBE. (From 5, 6)
8. The only two ways of justifying our use of IBE would involve either relying upon IBE or another inference rule that belongs to the same epistemic framework as IBE.
9. Thus, there is no way of justifying our use of IBE. (From 4, 7, 8)

Note that the force of the modified version of the puzzle (unlike Enoch & Schechter's original version) does not depend on the contentious claim (featuring in premise (2) of the original puzzle) that basic belief-forming methods are, as such, not possibly justifiable by appeal to other basic belief-forming processes. Put another way: the modified version of the puzzle cannot be dismissed as one which trades on a tendentious notion of what it is for a belief-forming method to be basic. This is thus a stronger version of the puzzle, and so poses a trickier challenge when it comes to our ability to justify our use of IBE.

2. RULE CIRCULARITY: A DISTINCTION

Recall that premise (1) of Enoch & Schechter's original puzzle states that we cannot justify our use of IBE in a way that relies upon IBE (or otherwise assumes its privileged epistemic status), since such a justification would be objectionably circular. As it turns out, there is already an established way of thinking about this particular variety of epistemic circularity, one which occurs when justification for an inference rule proceeds by following that very same rule. Stathis Psillos (1999, 82) and Boghossian (2001) call arguments of this kind *rule-circular* (as distinct from what Psillos, following Richard Braithwaite (1953), calls 'premise-circular').¹²

Notice, however, that the kind of circularity Williams' epistemic relativist objects to when denying the legitimacy of employing one's epistemic system in its own defence—i.e., as when one attempts to justify IBE by employing to some *other* inference rule that is part of the same epistemic system as IBE—is *not* a matter of justifying a rule (within a system) by following that very same rule. By regarding it as objectionably epistemically circular to employ one's own epistemic system in one's own defence, Williams' epistemic relativist objects to the justifying of one rule within an epistemic system by employing another rule within the same epistemic system.¹³

We can distinguish then between two kinds of rule circularity which feature in the modified puzzle outlined at the end of §1, *narrow* and *wide*. An argument is *narrow rule-circular* when one uses a particular inference rule in the service of justifying that very *same* inference rule (i.e., by taking at least one step in accordance with this rule). This is the kind of rule-circularity Enoch & Schechter took for granted to be objectionable in (1) of their original puzzle, and which also features in (4) of the modified puzzle. However, with reference to the kind of reasoning Williams attributes to the epistemic relativist, we can describe *wide rule-circular* arguments as ones which employ an epistemic framework in support of itself in the following way: when, for some epistemic framework F, one employs one F-inference rule in support of another F-inference rule.¹⁴

With reference to this distinction between narrow and wide rule-circular arguments, we can now restate the crux of the modified justificatory puzzle for IBE very simply: arguments which attempt to justify IBE will either be narrow rule-circular (because they rely on IBE to justify IBE) or wide rule-circular (because they employ an epistemic system in support of itself, by relying on some other rule that's part of the same system as IBE to justify IBE). If both of these varieties of rule circularity are sufficient to make a piece of reasoning have a defective justificatory structure, then it really does look like IBE cannot be justified in a satisfactory way.

Here, in summary form, is the line that we shall advance against this argument:

- (i) All narrow rule-circular arguments have a defective justificatory structure.
- (ii) But only *some* wide rule-circular arguments have a defective justificatory structure.

The upshot of (i) is that we should simply grant premise (4) of the puzzle and concede that narrow rule-circular arguments have a defective justificatory structure. Such arguments are not *merely*, as Boghossian (2001) and Psillos (1999) have argued, *dialectically ineffective*—i.e., they don't merely lack rational force against one who antecedently doubts the conclusion—but rather are defective *period*.^{15,16} The upshot of (ii) is that we should reject (7), and do so because we reject (5). Wide rule-circular arguments do not necessarily have a defective justificatory structure. Whether a given wide rule-circular argument has a defective justificatory structure depends importantly on just *how* the conclusion depends on the support offered for it.

Our rationale for both (i) and (ii) draws from a wider picture, one which can be found in the recent literature on perceptual warrant, concerning how conclusions may (or may not) depend for support on their premises.

3. PERCEPTUAL WARRANT: AN ANALOGY

In this section, a very plausible general position about *premise circularity* will be outlined, one that has been developed in most detail in the perceptual warrant literature, particularly by Jim Pryor (e.g., 2004).¹⁷ *Modulo* some small refinements, we will be arguing that this position can be extended to *rule-circular* arguments, of both the narrow and wide varieties articulated in §2. A straightforward rationale then emerges for why narrow rule-circular arguments have a defective justificatory structure, but only *some* wide rule-circular arguments have a defective justificatory structure. This rationale implies that we should accept (4) in the modified justificatory puzzle for IBE but reject (5). More generally, this means that while we cannot provide a satisfactory justification for IBE in the way that Boghossian and Psillos think, there are nonetheless some other potential ways to do so.

To this end, consider a general question with regard to which *dogmatists* (e.g., Pryor 2000; 2004) about perceptual warrant and their traditional opponents, *conservatives* (e.g., Wright 2003; 2004; 2007), are divided: *under what conditions does the dependence of an argument's conclusion on one (or more of) its premises undermine the justificatory structure of an argument?*¹⁸ A natural frame of reference here is Pryor's

(2004) discussion of two kinds of conclusion-premise dependence that he calls *type 4 dependence* and *type 5 dependence*, the latter of which he thinks is significantly more problematic than the former:

Type 4 Dependence: the conclusion is such that evidence against it would (to at least some degree) undermine the kind of justification you purport to have for the premises.¹⁹

Type 5 Dependence: having justification to believe the conclusion is among the conditions that make you have the justification you purport to have for the premise. (Pryor 2004, 359-60)

Pryor offers the following piece of reasoning as straightforward instance of Type 5 dependence:

10. I intend to walk to Lot 15 and drive home.
11. So I will walk to Lot 15 and drive home.
12. So my car will still be in Lot 15 when I get there.

The strand of reasoning from (10-12) is Type 5 because, justification for (9) *relies* on your already having justification to believe (10) and so it can't make (10) any more credible for you. Crucially, Pryor takes it that it's possible for an argument to exhibit type 4 dependence while failing to exhibit Type 5 dependence.²⁰

Here is one such example case, which he appeals to in making this point. Suppose you watch a cat stalk a mouse, and so your visual experiences justify you in believing:

13. The cat sees the mouse.

Suppose further that you reason:

14. If the cat sees the mouse, then there are some cases of seeing.
15. So there are some cases of seeing.

Pryor's (2004, 361) assessment is that (13-15) exhibit Type 4 dependence but *not* Type 5 because, firstly, evidence against (15) would undermine the justification one has for believing 13 (13). Secondly, though, Pryor says, 'I don't think you need antecedent justification to believe (15), before your experiences can give you justification to believe (13). I also think it's plausible that your perceptual justification to believe (13) contributes to the credibility of (15).' (*Ibid.*, 361)

In fact, this is precisely what Pryor, as a dogmatist about perceptual warrant, takes to be going on in G. E. Moore's (1939) famous proof of the external world—i.e., type 4 but not type 5 dependence. In contrast, a conservative like Crispin Wright regards Moore's proof as failing to transmit warrant, and so exhibiting type 5. But diagnosing Moore's proof needn't concern us here. Our goal will rather be to first highlight a key *difference* between what dogmatist and conservatives say

about arguments more generally which exhibit type 4 and type 5 dependence and, secondly, to note a point of *agreement* between dogmatists and conservatives about these two kinds of reasoning. Indeed, all that will matter for our purposes going forward is a point that Wright and Pryor can agree upon.

Pryor (2004, §§4-5) contends that arguments that exhibit merely type 4 dependence are *not* epistemologically objectionable—that is, warrant for believing the premise *can* transmit from the premise to the conclusion. According to the dogmatist, however, type 4 arguments are nonetheless *dialectically ineffective* against one who antecedently doubts the conclusion.²¹ That is, dogmatists grant that while type 5 dependence ‘ruins an argument’ (Pryor 2004, 360), type 4 arguments are such that—while there’s nothing wrong with their justificatory structure as such (i.e., justification *does* transmit from premises to conclusion)—they are not effectual in bringing one who *already* doubts the conclusion to rational conviction of the conclusion on the basis of the premises. Conservatives such as Wright, by contrast, deny that warrant transmits in *both* type 5 and type 4 cases; on this view, *both* forms of argument exhibit a defective justificatory structure.

The issue of who’s right in this debate won’t matter for our present purposes. What matters is rather that we can conveniently extract from this debate two entirely general theses about warrant transmission that both dogmatists and conservatives, despite their other differences, can accept:

- ❑ *Type 5 arguments* fail to transmit warrant.
- ❑ *Type 4 arguments* are (at least) dialectically ineffective.

Given that these general theses about type 4 and type 5 arguments are common ground between the two sides, they provide a helpful reference point from which to answer the question of interest to us, which is whether the kind of narrow rule-circular and wide rule-circular arguments at issue in the modified justificatory puzzle for IBE are themselves of a defective justificatory structure.

We’ll do this in two steps, which will be the focus of the next section. First, we’ll construct ‘rule-circular’ analogues to type 4 and type 5 dependence.²² That way, we’ll have a principled basis for explaining why, for a given rule-circular argument, it would either fail to transmit warrant (if corresponding with type 5) or be at least dialectically ineffective (if corresponding with type 4). Next, we’ll conclude by showing how narrow-rule circular arguments (i.e., attempts to justify IBE by reasoning in accordance with IBE) plausibly feature type 5 rule dependence (and so fail to transmit warrant), while at least some but not all wide rule-circular arguments exhibit type 4 rule dependence (and so some but not all wide rule-circular arguments are dialectically ineffective).

4. THE MODIFIED JUSTIFICATORY PUZZLE FOR IBE, REDUX

Arguments that feature type 4 and type 5 dependence are, at least as they are presented by Pryor (e.g. 2004, §4), framed in terms of conclusion-*premise* dependence relations. However, we can very naturally think of type 4 and type 5 arguments as a genus of which type 4 and type 5 *rule-circular* arguments are a species. To bring this idea into sharp relief, let's consider type 4 dependence first. According to Pryor, type 4 dependence occurs when the conclusion is such that evidence against it would (to at least some degree) undermine the kind of justification you purport to have for the premises. Here is a plausible way of thinking about a rule-circular twist on this idea: let's say an argument exhibits what we can call *type 4 rule dependence* when the conclusion is such that evidence against it would (to at least some degree) be evidence against the legitimacy of employing one (or more) rules one reasons in accordance with in moving from premises to conclusion²³. Moreover, we can now say that arguments which exhibit type 4 rule dependence are (like arguments which feature type 4 dependence, more generally) at least dialectically ineffective.

We now need a rule-circular twist on type 5 dependence. This is a bit trickier to model, but a plausible candidate goes as follows. An argument exhibits *type 5 rule dependence* if the legitimacy of reasoning in accordance with the rule—i.e., the conclusion of the piece of reasoning—being justified just is (or is partly constitutive of) the legitimacy one purports to have for moving from premises to conclusion.²⁴ The presence of type 5 rule dependence will ruin an argument just as any type 5 dependence does.

We are in a position to submit the following general theses (modelled from points on which Wright and Pryor agree) about the conditions under which rule-circular arguments are objectionable.

Type 4 Rule Dependence: the conclusion is such that evidence against it would (to at least some degree) be evidence against the legitimacy of employing one (or more) rules one reasons in accordance with in moving from premises to conclusion. (Corollary: Arguments exhibiting type 4 rule dependence, like type 4 arguments more generally, are at least dialectically ineffective).

Type 5 Rule Dependence: The legitimacy of reasoning in accordance with the rule being justified (i.e., the conclusion of the piece of reasoning) just is (or is partly constitutive of) the legitimacy one purports to have for moving from premises to conclusion. (Corollary: Arguments exhibiting type 5 rule dependence, like type 5 arguments more generally, are of a defective justificatory structure: they fail to transmit warrant)²⁵.

These are all the tools we need to now revisit our original puzzle. Let's begin by diagnosing the claim that features in premise (4) of the modified justificatory puzzle for IBE. This premise, recall, states:

4. We cannot justify our use of IBE with a justification that relies upon IBE (or otherwise assumes its privileged epistemic status), since such a justification would be objectionably circular.

We are now armed with a principled way to evaluate whether an attempt to justify IBE that exhibited these features would be (as the premise states) ‘objectionably circular’ in a way that matters for whether one can satisfactorily justify IBE.

First, let’s consider: what would an argument look like which used IBE to justify IBE? Here’s an example: suppose you attempt to justify IBE by pointing to the fact that IBE, if correct, would best explain some body of evidence (e.g., success of certain scientific theories). Is the conclusion of this reasoning (i.e., that IBE is an epistemically justified rule) such that evidence *against* it would (to at least some degree) be evidence against the legitimacy of employing one (or more) rules in accordance with which one reasons in moving from premises to conclusion? Absolutely. Evidence against IBE would be at the same time evidence against the legitimacy of employing one of the rules one reasons with here—namely, IBE. Thus, we have a principled explanation for why this form of reasoning (like any type 4 argument) is at least dialectically ineffective. The next relevant question is this: is the legitimacy of reasoning in accordance with IBE (the conclusion of the argument) also whatever legitimacy one would have for moving from premises to conclusion? It’s hard to see how it would not be. After all, the legitimacy of the reasoning in accordance with the rule that argument attempts to justify (when reasoning via IBE to IBE) *just is* the legitimacy one has for reasoning to the conclusion in the way one does in such a case, by IBE. What this suggests, though, is that *narrow circular* arguments are in fact in worse shape than Boghossian and Psillos have thought. Such arguments are best understood as not merely dialectically ineffective, but moreover as having, *qua* a type 5 argument, a defective justificatory structure. A more general point here is that we have a principled rationale for why an attempt to justify IBE via a narrow rule-circular argument really is objectionably circular (as per premise (4) of the modified puzzle). It’s objectionably circular because it is not merely dialectically ineffective, but it also has a defective justificatory structure.

What is the epistemic status of wide rule-circular arguments? These, recall, are when one attempts to use one’s epistemic system in its own service (an activity Williams’ epistemic relativist objects to) by employing one basic rule within the same system to justify another.²⁶ For example, this will be the case when a thinker attempts to justify IBE by relying on perhaps one or more other basic rules which also form part of that thinker’s broader epistemic system, such as perception, memory, *modus ponens*, and so on. Are such arguments, like narrow rule-circular arguments,

objectionably circular? As with the case of narrow-circular arguments, we simply need to ask whether such arguments feature merely type 4 rule dependence or also type 5 rule dependence.

Let's consider such a case. For example, suppose one attempts to justify IBE by reasoning in accordance with *modus ponens* (i.e., by taking at least one step in accordance with *modus ponens*), which is also a basic inference rule within the wider system that this thinker accepts (again, let's just call this Western Science). Because the reasoning described is an instance of employing one's epistemic system in support of itself, it is widely rule-circular. In assessing to what extent the alleged circularity is objectionable, we can quickly point out that the argument does *not* feature type 5 rule dependence. After all, the legitimacy of reasoning in accordance with IBE (i.e., the rule which the thinker is attempting to justify with the argument) is independent of whatever legitimacy one has for moving from premises to conclusion by *modus ponens*. The wide rule-circular argument described is thus not a type 5 argument.²⁷

But, interestingly, the argument also does not feature type 4 rule dependence either. Consider: would the reasons one has for antecedently doubting (IBE) also constitute a reason to doubt the legitimacy of reasoning via *modus ponens*? It's not obvious at all that it does. To see why, consider, for example, Bas van Fraassen's (1989) criticism of certain probabilistic versions of IBE. The reasons for van Fraassen's criticisms have to do with considerations about Bayes' Theorem and Dutch Book Arguments. These are simply not considerations that count against *modus ponens*. They are, rather, orthogonal to *modus ponens*.

What this means is that at least *some* kinds of wide rule circular arguments are not themselves epistemically objectionable in a way that features either type 5 or type 4 rule dependence, and so would *not* have a defective justificatory structure. Moreover, such arguments needn't be dialectically ineffective either. Note that we have not attempted to defend the idea that appealing to *modus ponens* *suffices* to justify IBE. That would depend on whether a particular instance of doing so is sound. Our point, rather, is that if one were to do so, such an argument—even though widely circular in the sense discussed in §2—is not such that we can give any principled reason for why it is epistemically objectionable. This much is already reason to reject premise (5) of the modified justificatory puzzle for IBE. Not *all* wide rule-circular arguments are problematic.

We suggested at the outset that while all narrow rule-circular are epistemically objectionable, *some* kinds of wide rule-circular justifications for IBE are considerably less objectionable than others. We've already seen how at least one kind of wide rule-circular justification for IBE is not obviously objectionable (in that it exhibits neither type 4 nor type 5 rule dependence). We conclude by noting

why *some* wide-rule circular arguments are in a worse position than others (and, thus, why not all wide rule circular arguments are equally epistemically objectionable/unobjectionable).

Consider now the following example: suppose you attempt to justify IBE by using simple enumerative induction, a move which has been made by, among others, Alexander Bird (1998), Richard Fumerton (1980, 2016), Philip Kitcher (2001) and Douven (2002).²⁸ As Douven writes:

The common idea of these attempts is that every newly recorded successful application of abduction—like the discovery of Neptune, whose existence had been postulated on explanatory grounds [...] adds further support to the hypothesis that abduction is a reliable rule of inference, in the way in which every newly observed black raven adds some support to the hypothesis that all ravens are black. (Douven 2011, §3.2)

In short, each time inferring to the best explanation seems to work, we have more evidence to believe its true—and given its track record of success, we've thus got substantial evidence in its favour. IBE and enumerative induction are separate inference rules, so attempting to justify IBE by enumerative induction is not to simply justify IBE *via* IBE (as, for instance, Boyd (e.g., 1984) is inclined to).²⁹ But since IBE and enumerative induction are both rules that feature within the same framework, such an argument is wide rule-circular.

Whereas, as we've seen, a wide-circular argument which attempts to justify IBE by using *modus ponens* exhibits neither type 4 nor type 5 dependence (at least, not in virtue of taking a step in accordance with *modus ponens*), we suggest now that attempting to justify IBE by using induction in the fashion sketched above does exhibit at least type 4 rule dependence, and possibly also type 5.³⁰

In order to bring this point into focus, let's ask: in a situation where a thinker attempts to justify IBE by enumerative induction, would reason to doubt IBE be at the same time reason to doubt the legitimacy of reasoning in accordance with enumerative induction? This is a difficult question, but we submit that, plausibly, it would. After all, suppose a thinker doubts IBE on the grounds G, where G is some very general belief the thinker has about the relation between explanation and inference. It's not hard to imagine that some such general doubt about the relation between explanation and inference could at least to some degree count against the legitimacy of reasoning by induction—*viz.*, by reasoning from observed frequencies. After all, explanatory considerations plausibly play at least an implicit role in inductive inferences. It seems, then, that such reasoning exhibits type 4 rule dependence and will accordingly be dialectically ineffective. Given that induction and IBE are closely connected—Gilbert Harman (1965), for example, thought the former was really just a species of the latter—this should not be entirely surprising.³¹

While justifying IBE by induction wouldn't obviously exhibit type 5 rule dependence, we can imagine some wide rule-circular arguments which plausibly would do so: for example, using *modus tollens* to justify *modus ponens*, or some forms of induction to justify some very closely related forms of induction. So there is at least the possibility that type 5 rule dependence is present here too, at least until it is demonstrated otherwise.

The moral of the story is that while all narrow rule-circular arguments have a defective justificatory structure, only *some* wide rule-circular arguments have a defective justificatory structure. Moreover, in the case of wide rule-circular arguments, whether such arguments have a defective justificatory structure (and furthermore, whether such arguments are dialectically ineffective) depends importantly on which particular basic inference rules are being justified, and by which other rules. In slogan form: employing our own epistemic system in support of itself is less objectionable in some cases than in others, and taking a cure from the perceptual warrant debate provides a rationale for explaining why.

5. CONCLUSION

The aim of this paper has been to show, first, how the task of justifying IBE has been for various reasons regarded as a philosophically problematic. Second, we've argued that Enoch & Schechter's (2008) version of the puzzle can be reformulated in a way that is considerably more challenging to address. Third, in the service of addressing this more challenging version, we've drawn some connections from an already established debate in the literature on perceptual warrant in order give a principled response to the puzzle. Our response is broadly pessimistic in the case of narrow rule-circularity, but considerably less so in the case of wide rule-circularity. More importantly, though, we hope to have moved the debate forward by showing how some distinctions in the literature on perceptual warrant offer very useful applications with respect to the issue of how, and why, basic inference rules such as IBE might be satisfactorily justified.³²

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NOTES

¹ See, for example, Boyd (1981; 1984), Lipton (1991; 2004), and Psillos (1999). Moreover, IBE is widely taken to underwrite certain popular arguments for scientific realism on the basis of the success of science.

² See, for instance, Adler (1994) for an argument to the effect that IBE routinely features in our justification for accepting testimony. See here also Fricker (*this volume*).

³ Another potential response would be to appeal to the ubiquity of inductive knowledge and then reason that inductive knowledge requires IBE.

⁴ Cf., Fumerton (*this volume*) for a view on which IBE is not interestingly different from induction.

⁵ Boghossian (2001, 3) formalises this strand of reasoning, which he engages with, as follows:

1. Assume that there are objective facts about which epistemic principles are true.
2. If there are objective facts about which epistemic principles are true, these facts should be knowable: it ought to be possible to arrive at justified beliefs about them.
3. It is not possible to know which epistemic principles are objectively true, therefore
4. There are no objective facts about which epistemic principles are true.

⁶ Boghossian (2006) revisits this line of reasoning. See Wright (2001) for a reply to Boghossian (2001).

⁷ Boyd (e.g., 1984) has been charged with defending IBE in such a way. See Fine (1984) for a criticism.

⁸ According to Enoch & Schechter (2008), it is plausible that employing IBE (or a close relative) is needed for successfully engaging in what they call ‘the explanatory project’, the project of understanding and explaining the world around us. The explanatory project is itself a *rationaly required project*; we are, on their view, justified in employing any belief-forming method needed for successfully engaging in a rationally required project.

⁹ Put another way, consider Wright’s (2001, 4) question, ‘Is some substantial form of justification in principle possible for a range of basic beliefs that we have—and if so, what is it?’. Wright takes this to be a meaningful question. If basicness excluded such a possibility, this question would be nonsensical.

¹⁰ For a critical treatment of Williams’ (2007) treatment of epistemic relativism, see Pritchard (2010; cf. Pritchard 2009). Note that those, such as Fumerton (*this volume*) who think IBE is justified only if it’s an instance of enumerative induction disagree; however, Williams’ in response could recast this problem to Fumerton. For discussion on justifying IBE via enumerative induction, and whether and to what extent we regard this as objectionable, see §4.

¹¹ A point of clarification. By ‘one’s own epistemic framework’, we mean specifically the epistemic framework which one subscribes to, as a function of which epistemic principles one embraces.

¹² We will say more about ‘premise-circular’ arguments below, in distinguishing between some varieties of premise-circularity as noted by Pryor (2004).

¹³ For related discussion on this issue, see Poston (2014, §6.2.2)

¹⁴ See Poston (2011, 413-15) for a related suggestion to the effect that the explanatory virtues are plastic in the sense that they aren’t specific, fixed rules.

¹⁵ Cf., McCain (*forthcoming*) for a qualified defence of such a rule-circular defense of IBE.

¹⁶ For a defence of rule-circular arguments for induction, see van Cleve (1984) and Papineau (1993).

¹⁷ As Moretti & Piazza (2014, §1) note, most epistemologists who weigh in on this debate use the term ‘warrant’ though ‘they all seem to use the term ‘warrant’ to refer to some kind of epistemic justification’ and in doing so ‘broadly identify the epistemic property capable of being transmitted with *propositional* justification’. We shall use these terms interchangeably in the present discussion as nothing really hangs (for our purposes) on this terminological difference.

¹⁸ Alston (1986) offers the following view of what would be both necessary *and* sufficient for a belief *p* to confer warrant to another belief *q*. (A) S is justified in believing the premises, *p*. (B) *p* and *q* are logically related in such a way that if *p* is true, that is a good reason for supposing that *q* is at least likely to be true. (C) S knows, or is justified in believing that the logical relation between *p* and *q* is as specified in (B). (D) S infers *q* from *p* because of her belief specified in (C).

Boghossian rightly worries that Alston’s criteria are too demanding. These criteria require, as a necessary condition that one must know or justifiably believe, that the premises and conclusion are logically related in such a way that if the premises are true, that is a good reason for supposing the conclusion is likely to be true. But this criteria quickly leads one into the trap of Carroll’s (1895) regress. As Boghossian puts it:

‘[...] at some point it must be possible to use a rule in reasoning in order to arrive at a *justified* conclusion, without this use needing to be supported by some knowledge about the rule that one is relying on. It must be possible to simply move between thoughts in a way that generates justified beliefs, without this movement being grounded in the thinker’s justified belief about the rule used in the reasoning’. (Boghossian 2001, 27)

¹⁹ Note that type 4 dependence is not the claim that the conclusion is such that evidence against it would (to at least some degree) be evidence (directly) against one of the premises. Rather, the idea is that the conclusion is such that

evidence against it would (to at least some degree) undermine the kind of *justification* you purport to have for the premises, and this is a claim about the relation between the conclusion and what you take to *justify* your premises.

²⁰ Neta (2007, 17) criticises this case by remarking that ‘for the example above to do the argumentative work that Pryor wants it to do, we need to know why we should believe that what makes me propositionally justified in believing the conclusion is not precisely the same thing that makes me propositionally justified in believing the premises.’

²¹ For a similar move, with respect to the variety of epistemic circularity that arises in bootstrapping arguments, see Markie (2005).

²² See Carter (2016) for a more general strategy for making this kind of move.

²³ For example: suppose you have two closely connected inference rules, *I* and *I**, such that inferring in accordance with *I* will usually not violate *I**, and vice versa. Suppose further that you know this, and so are aware of the significant overlap. Now, suppose you are reasoning attempting to prove *I** by reasoning in accordance with *I*. In such a circumstance, evidence against *I** will at least to some extent be (defeasible) evidence against the legitimacy of moving from premise to conclusion via rule *I*.

²⁴ The term ‘legitimacy’ is used here so as to make type 4 rule circularity as closely analogous as we can to Pryor’s type 4 (premise) circularity—*viz.*, just as the kind of justification you purport to have for believing a premise can be undermined, so analogously the, and we are using this term inclusively, *legitimacy* you have for following a rule can be undermined. Here is a paradigmatic case: if, for example, you have excellent reason to believe that *modus ponens* is false, then this counts against the legitimacy of reasoning in accordance with *modus ponens*.

²⁵ A paradigmatic instance of this kind of reasoning would be as follows: where some piece of reasoning attempts to justify *modus ponens*. And, further, this piece of reasoning proceeds to do this by taking at least one step in accordance with *modus ponens*. In such a case, note that the legitimacy of reasoning in accordance with the rule being justified (i.e., in this case, *modus ponens*) just is (or is partly constitutive of) the legitimacy one purports to have for moving from premises to conclusion. We discuss cases like this in more detail further in this section.

²⁶ An interesting issue, in connection with wide rule circularity (and the epistemic status of arguments which feature it) is the matter of the epistemic status of the more general methodology of reflective equilibrium as a method of justifying epistemic principles. We are open to an interpretation of wide rule circularity according to which it is a form of reflective equilibrium; it is beyond the scope of the present paper, however, to assess more generally the epistemic status of the methodology of reflective equilibrium (under its various guises).

²⁷ At this point, it is worth considering the following line of objection: that any defense of a basic inference method, such as IBE, will have to make use of IBE somewhere as either a step in the argument or as a support for the premise. Does that mean that all arguments for IBE are doomed to type 5 dependence? The right response here, we think, is to deny the supposition that any defence of IBE must make use of IBE somewhere. A position according to which it would what Fumerton (2016) calls ‘extreme explanationism’. We should accept the supposition that any defence of IBE must make use of IBE somewhere only if embracing an overly inclusive conception of what counts as reasoning in accordance with IBE. For example, we see no reason to think that all instances of reasoning in accordance with *modus ponens* are thereby reasoning with IBE, even if reasoning in accordance with *modus ponens* is *compatible* with reasoning in accordance with IBE. Thanks to the editors for requesting elucidation on this point.

²⁸ See Douven (§3.2) for discussion.

²⁹ This point is disputed by some, such as Fumerton (1980; *this volume*). Fumerton (*this volume*), in suggesting that IBE is best understood as just a form of induction, attempts to show how Peirce’s (1903) description of abductive reasoning can be redescribed as inductive reasoning. Peirce’s case involved the discovery of fossilized remains of fish skeletons in rocks that aren’t far from any body of water. Fumerton (*ibid.*, 8) remarks:

‘It strikes us that this needs an explanation [...]. Perhaps we have a half-way decent inductive argument that when we look hard enough for causal explanations we eventually find them. In the case of our desert rock with remains of fish, it probably wouldn’t have been that hard for ancient people to have reached the conclusion that the water once covered the land where the remains were found. They might have made a further epistemic leap by also inferring that the most common way that water ends up covering land that is usually dry is through flooding—and when the dry land is a long way from any water the flood must have been impressive indeed. Eureka!—we have an explanation of the prevalence of flood myths in ancient cultures.’

If Fumerton is right that IBE is a kind of induction, then one obvious result on our model is that inductive attempts to justify IBE will be type 5 as well as type 4, and so be of a defective justificatory structure. However, this might be an academic point. For one thing, Fumerton’s shown how a case of IBE can be redescribed as a case of multiple inductions. Harman (1965) has appealed to similar considerations of redescription to suggest a move in the opposite direction: that induction is a form of abductive reasoning. We are agnostic about whether cases of potential redescription recommend pulling toward a reduction in one direction rather than another. Our point is that unless we have good

reason to think that potential redescription cases favour Fumerton's direction of reduction, we've no *pro tanto* reason to align ourselves with his reduction. And, again, even if we did, the result on our model would simply be a type 5 diagnosis in all cases of justifying IBE by induction. Thanks to the editors for requesting we engage with Fumerton on this point.

³⁰ Note that some arguments that reason in accordance with *modus ponens* will also rely on some other inference rule in order to establish IBE. For example, suppose an argument for IBE that proceed via enumerative induction claimed that certain facts entail that IBE is reliable. Notice that such an argument relies on *modus ponens and* induction. The point we advance in this section implies that *if* such an argument exhibits type 4 or type 5 dependence, it won't be *in virtue* of taking a step in accordance with *modus ponens*.

³¹ Likewise, as the editors have noted, some philosophers, including McCain (2014) and Poston (2014), suggest that explanatory reasoning is required in order to make the projection from observed cases to unobserved cases justified.

³² Thanks to Kevin McCain and Ted Poston for very helpful comments on an earlier version of this paper.