



Oxford Studies in Epistemology Volume 6

Tamar Szabó Gendler and John Hawthorne

Print publication date: 2019

Print ISBN-13: 9780198833314

Published to Oxford Scholarship Online: March 2019

DOI: 10.1093/oso/9780198833314.001.0001

Modal Empiricism

What is the Problem?

Albert Casullo

DOI:10.1093/oso/9780198833314.003.0003

Abstract and Keywords

Kant contends that necessity is a criterion of the a priori—that is, that all knowledge of necessary propositions is a priori. This contention, together with two others that Kant took to be evident—we know some mathematical propositions and such propositions are necessary—leads directly to the conclusion that some knowledge is a priori. Although many contemporary philosophers endorse Kant’s criterion, supporting arguments are hard to come by. Gordon Barnes provides one of the few examples. My purpose in this chapter is to articulate and examine his argument. I have two goals in doing so. The first is to uncover several significant gaps in the argument. The second is to show that it suffers from a common defect in rationalist arguments. If the argument were successful against empiricist accounts of modal knowledge, it would apply with equal force to extant rationalist accounts of such knowledge. Hence, the cost of refuting modal empiricism is modal scepticism.

Keywords: modal knowledge, a priori, empiricism, necessity, rationalism

In his introduction to the *Critique*, Kant offers an argument for the existence of a priori knowledge that is striking in its simplicity. He contends that necessity is a criterion of the a priori—that is, that all knowledge of necessary propositions is a priori. This contention, together with two others that Kant took to be evident—we know some mathematical propositions and such propositions are necessary—leads directly to the conclusion that some knowledge is a priori. The burden of Kant’s argument falls on his contention that necessity is a criterion of the a

priori and, hence, the support that his argument offers for the existence of a priori knowledge is only as strong as his supporting argument for that claim.

Kant (1965, p. 43) supports his contention with the terse remark: “Experience teaches us that a thing is so and so, but not that it cannot be otherwise.” Kant’s remark has exerted considerable influence on the tradition. For example, William Whewell (1840, pp. 59–61) maintains that

Experience cannot offer the smallest ground for the necessity of a proposition. She can observe and record what has happened; but she cannot find, in any case, or in any accumulation of cases, any reason for what *must* happen....

Over one hundred years later, Roderick Chisholm (1966, pp. 74–75) quotes the passage above from Whewell and maintains that

Thus, Kant said that *necessity* is a mark, or criterion, of the a priori. If what we know is a necessary truth—if we may formulate it in a sentence prefixed by the modal [*sic*] operator “necessarily,” or “it is necessary that”—then our knowledge is not a posteriori.

The question we must address is: How strongly does Kant’s observation, which is echoed by Whewell and Chisholm, support his criterion?

In order to address this question, the following distinctions are necessary:

(A) S knows the *truth value* of p just in case S knows that p is true or S knows that p is false.

(B) S knows the *general modal status* of p just in case S knows that p is a necessary proposition (i.e., necessarily true or necessarily false) or S knows that p is a contingent proposition (i.e., contingently true or contingently false).

(p.59) (C) S knows the *specific modal status* of p just in case S knows that p is necessarily true or S knows that p is necessarily false or S knows that p is contingently true or S knows that p is contingently false.

(A) and (B) are logically independent; one can know one but not the other. (C), however, is the conjunction of both (A) and (B); one cannot know (C) unless one knows both (A) and (B).

With these distinctions in place, we can now see that Kant’s contention can be read in three different ways:

(KA) If p is necessarily true and S knows that p then S knows a priori that p.

(KB) If p is necessarily true and S knows that p is a necessary proposition then S knows a priori that p is a necessary proposition.¹

(KC) If p is necessarily true and S knows that p is necessarily true then S knows a priori that p is necessarily true.

(KA) is open to two immediate objections. First, it is not supported by Kant's argument.

Kant allows that experience can teach us that "a thing is so and so." Whewell grants that experience "can observe and record what has happened." Both appear to concede that experience can teach us what is the case or the truth value of propositions. What they deny is that experience can teach us, in Kant's words, that "it cannot be otherwise," or, in Whewell's words, that experience "can find any reason for what *must* happen." Second, Kripke's cases of necessary a posteriori truths provide compelling counterexamples.

It may appear that Kripke's cases are also counterexamples to both (KB) and (KC). But the appearances are deceiving. Recall Kripke's (1971, 153) discussion of the lectern case:

In other words, if P is the statement that the lectern is not made of ice, one knows by a priori philosophical analysis, some conditional of the form "if P , then necessarily P ." If the table is not made of ice, it is necessarily not made of ice. On the other hand, then, we know by empirical investigation that P , the antecedent of the conditional, is true—that this table is not made of ice. We can conclude by *modus ponens*...that it is necessary that the table not be made of ice, and this conclusion is known a posteriori, since one of the premises on which it is based is a posteriori.

Kripke's account makes explicit that knowledge of the specific modal status of a proposition involves both knowledge of its general modal status and knowledge of its truth value. Moreover, he maintains that, although knowledge of the latter is a posteriori, knowledge of the former is a priori. Hence, if Kripke is right, then his cases are counterexamples to only (KC). On the other hand, **(p.60)** although he endorses (KB), he offers no supporting argument. Here we face the central question of modal epistemology: Is there any reason to endorse (KB)?²

Although many contemporary philosophers endorse (KB), supporting arguments are hard to come by. Gordon Barnes (2007) provides one of the few examples. My purpose in this chapter is to articulate and examine his argument. I have two goals in doing so. The first is to uncover several significant gaps in the argument. The second is to show that it suffers from a common defect in rationalist arguments. If the argument were successful against empiricist accounts of modal knowledge, it would apply with equal force to extant

rationalist accounts of such knowledge. Hence, the cost of refuting modal empiricism is modal scepticism.

1. Modal Empiricism Rejected

Barnes (2007, 497–8) begins by endorsing an explanationist account of knowledge:

(K) S knows that p if and only if (i) S believes that p, (ii) p is true and (iii) there is a good explanation of why it is no accident that S's belief is true.³

An explanation satisfies condition (iii) if and only if (a) it identifies the processes that form and sustain the belief in question, and (b) it shows why a belief that is formed and sustained in this way is likely to be true. He (2007, 498) goes on to offer an account of a priori knowledge that is intended to articulate the traditional idea that such knowledge is independent of sense experience:

(KAP) S knows *a priori* that p if and only if *the correct explanation of the non-accidental truth of S's belief that p makes no reference to sense experience.*⁴

Let us call an explanation of an item of knowledge that posits only sense experience plus commonly accepted forms of inference an *empirical explanation*. Barnes has two goals. The first is to establish that there is no good empirical explanation of knowledge that p is absolutely necessary. The second, building on the first, is to establish that we have some a priori knowledge.

(p.61) I begin by articulating the structure of his (2007, 498–9) arguments. The first goes as follows:

(1.1) All possible empirical explanations of the non-accidental truth of a belief in some absolute necessity fall into one of two categories: (a) those that do *not* involve an inference from sense experience, and (b) those that *do* involve such an inference.

(1.2) If the explanation does *not* involve an inference from sense experience, then there are two possibilities: (a1) the explanation is in terms of sense experience alone without any further cognitive processing, or (a2) the explanation posits some non-inferential cognitive process that essentially takes experience as input and produces a necessity-belief as output.

(1.3) If the explanation *does* involve an inference from sense experience, then, in order to explain the non-accidental truth of its output beliefs, the inference must be truth-preserving.

(1.4) Therefore, the inference must be a good inference of one of the following types: (b1) deductive, (b2) inductive, (b3) analogical, or (b4) inference to the best explanation.

(1.5) The six options—(a1), (a2), (b1)–(b4)—exhaust all possible explanations of the non-accidental truth of a belief in an absolute necessity.⁵

(1.6) None of the six options can explain the non-accidental truth of a belief in an absolute necessity.

(1.7) Therefore, there is no good empirical explanation of our knowledge of absolute necessity.

The second argument goes as follows:

(2.1) We have some knowledge of absolute necessity.

(2.2) There is no good empirical explanation of our knowledge of absolute necessity.

(p.62) (2.3) The only alternative is an explanation that posits some non-empirical knowledge from which we can derive our knowledge of necessity.

(2.4) Therefore, we have some a priori knowledge.

The bulk of the chapter is devoted to establishing premise (1.6). Hence, my initial focus will be on Barnes's supporting arguments for that key premise.

2. Modal Empiricism Defended

I begin by considering the two possibilities for a non-inferential empirical explanation: (a1) and (a2). According to (a1), the non-accidental truth of a belief in an absolute necessity is explained by sense experience alone. Here Barnes (2007, 500) argues that such explanation is possible only if "the content of our sense experience makes it objectively likely that some belief in necessity is true" but, since necessity is not among the contents of our sense experiences, "if we consider only the contents of our sense experiences, without any further cognitive processing, then the truth of a belief in necessity would have to be deemed accidental."

According to (a2), the non-accidental truth of a belief in absolute necessity is explained by a non-inferential process that takes experience as input and produces true belief in necessity as output. Here Barnes (2007, 501) maintains: "Since necessity is not part of the content of any sense experience, the role of sense experience in this cognitive process cannot be essential to the resulting explanation of our knowledge of necessity." Barnes acknowledges that his argument against (a2) rests on the assumption that if necessity is not included in the representational content of sense experience, then no non-inferential process based on sense experience could generate knowledge of necessity. He (2007, 502) maintains, however, that this assumption is supported by the following true epistemic principle:

(EP) For any mental state M, if M does not have the representational content that p, then M cannot warrant the belief that p directly, without inference.

Barnes concludes that there can be no empirical explanation of the non-accidental truth of a belief in some absolute necessity that does not involve an inference from sense experience.

The first of Barnes's two options for providing an account of non-inferential knowledge of belief in some absolute necessity is a non-starter. The distinguishing feature of (a1) is that it purports to explain the non-accidental truth of a belief in terms of the content of an experience alone without any appeal to the process that forms the belief. Such an explanation, however, cannot satisfy condition (iii) of (K) since an explanation satisfies that condition only if it identifies the processes that form and sustain the belief in question and explains why beliefs formed and sustained in that way are likely to be true. The fact that S has an experience with the representational content that p and forms the belief that p does not ensure that there is a non-accidental explanation of the **(p.63)** truth of S's belief that p. Suppose, for example, that S has an experience with the representational content that this object is red and forms the belief that this object is red via process M. Moreover, suppose that process M also produces the belief that this object is red when S has an experience with the representational content that this object is orange, or that this object is yellow, or that this object is purple. Here there is no explanation of the non-accidental truth of the belief that this object is red.

Option (a2) also faces a serious objection. (EP) is not supported by the general theory of knowledge that Barnes endorses. Warrant, according to Barnes (2007, 521, n. 11), is that feature which, when added to true belief, transforms it into knowledge. Now consider a belief-forming process that generates a true belief that p. According to the theory, all that must be added to a true belief to transform it into knowledge is that there be an explanation of the non-accidental truth of the belief that p. The theory in question does not require any particular type of input into the belief-forming process. Hence, unless Barnes can show that a particular type of input into a belief-forming process is essential to providing an explanation of the non-accidental truth of its output beliefs, Barnes cannot appeal to (EP) to defend the assumption that if necessity is not included in the representational content of sense experience, then no non-inferential process based on sense experience could generate knowledge of necessity.⁶

I now turn to the four options that involve an inference from sense experience. The first three are quickly dismissed. With respect to deductive inference, Barnes (2007, 506) argues: "Since experience alone cannot explain our knowledge of necessity, it is hard to see how a deductive inference from experience alone could fare any better."⁷ He (2007, 509) maintains that

enumerative induction involves a hasty generalization from a single observed world to an indefinite number of unobserved worlds. In the case of analogical argument, (p.64) he (2007, 510-11) argues that since “an analogical inference requires that we begin with a case that we know has the very property that we seek to project onto other cases,” it cannot explain the origin of knowledge of necessity.

The focus of Barnes’s discussion is on inference to the best explanation and, in particular, on the view that he (2007, 511) calls *modal explanationism*:

(ME) Positing a necessity sometimes provides the best explanation of some fact that we know through sense experience, and thus our belief in such a necessity, if true, is non-accidentally true.

Here Barnes considers four models of explanation: deductive-nomological, pragmatic, causal, and unification.⁸ He concludes that the best model for modal explanationism is Kitcher’s (1989) version of the unification model, which he (2007, 516) summarizes it as follows:

According to Kitcher, the best explanation of some phenomenon is the one that belongs to [the] best systematization of our total set of beliefs. The best systematization of our total set of beliefs is the set of arguments which derives all and only beliefs that are acceptable, relative to our total set of beliefs, while simultaneously instantiating the fewest general argument patterns.

Barnes (2007, 516-17) goes on to offer two examples of how positing necessities might contribute to the best explanation of our total set of beliefs:

First of all, identifying the terms of an observed correlation might systematize our total set of beliefs better than positing a brute law of nature. Assuming that identities are absolutely necessary, such an identity brings in its train a belief in necessity...Second, deriving true counterfactual conditionals from general claims of absolute necessity would systematize our acceptance of those counterfactual conditionals, rather than leaving them brute and unexplained.

Hence, modal explanationism appears to provide the basis for an empiricist account of knowledge of absolute necessities. Barnes, however, offers two arguments against the account. These two arguments form the core of his argument against modal explanationism and, consequently, merit careful scrutiny.

The first argument is straightforward. It is based on the assumption that absolute necessity entails nomological necessity but not vice versa. Barnes (2007, 517) maintains that

(p.65) If this assumption is correct, then for any systematization of our beliefs that posits absolute necessities, there will be another systematization of our beliefs that posits merely nomological necessities to do the same explanatory work. Moreover, these two systematizations of our beliefs could unify our beliefs equally well. Thus, there is no good reason to posit absolute necessities, rather than merely nomological necessities.

Hence, according to Barnes, modal explanationism can explain at most our knowledge of nomological necessity but not our knowledge of absolute necessity.

Barnes's first argument fails since it assumes that if positing an absolute necessity systematizes our total set of beliefs, then positing a nomological necessity entailed by that absolute necessity systematizes our total set of beliefs equally well. This assumption is false. Moreover, the two examples offered by Barnes of absolute necessities systematizing our total set of beliefs show why. Suppose that there are laws of nature correlating water with the molecular structure H_2O and correlating gold with the atomic number 79. Identifying water with H_2O or gold with the element having atomic number 79 better systematizes our beliefs than positing brute laws of nature since the identities explain the laws of nature. Since brute laws of nature are nomological necessities, positing nomological necessities to explain them provides only a trivial explanation. There is a similar situation in the case of deriving true counterfactuals from general claims of absolute necessity. Presumably, brute laws of nature support brute counterfactuals. Since there are no other laws of nature that explain the brute laws of nature, the counterfactuals supported by such laws cannot be explained by appeal to other nomological necessities. They can be explained, however, by positing absolute necessities.

The second argument (Barnes 2007, 517–19) is more complex:

(3.1) The explanandum of every explanation has a contrasting alternative.

(3.2) We feel the need for an explanation of some explanandum only if its alternative appears to us to be possible.⁹

(3.3) If it appears to us to be possible that not-p then it is rational for us to believe that it is possible that not-p.

(3.4) Therefore, if we feel that we need an explanation for p then it is rational to believe that it is possible that not-p.

(3.5) When we posit an absolute necessity to explain p, we commit ourselves to the absolute necessity of p.

(p.66) (3.6) Consequently, when we explain p by positing an absolute necessity, we contradict our rational belief that it is possible that not-p.

(3.7) Any explanation that posits an absolute necessity to explain some phenomenon contradicts some rational belief that we hold.

(3.8) Therefore, such an explanation does not unify our total system of beliefs better than the set of beliefs that denies this necessity.

Since the unification model of explanation fails to warrant the positing of absolute necessities, Barnes concludes that modal explanationism cannot provide an account of knowledge of absolute necessities.

The argument faces (at least) three serious objections.¹⁰ First, premise (3.2) is not endorsed by Kitcher, and Barnes does not defend it. Moreover, it is questionable. Consider elementary mathematical propositions, such as that $1 + 1 = 2$. If there are any propositions whose alternatives do not appear to us to be possible, they are strong candidates. Russell (1919, 2), however, distinguishes between the epistemological order and the logical order:

(p.67) The most obvious and easy things in mathematics are not those that come logically at the beginning; they are things that, from the point of view of logical deduction, come somewhere in the middle.

Nevertheless, he (1919, 1) maintains that

instead of asking what can be defined and deduced from what is assumed to begin with, we ask instead what more general ideas and principles can be found, in terms of which what was our starting-point can be defined or deduced.

The goal of identifying more general ideas and principles in terms of which such propositions can be derived is not epistemological.¹¹ What is the goal? Whitehead and Russell (1962,1) offer three, the first of which is “[at] effecting the greatest possible analysis of the ideas with which it deals and of the processes by which it conducts demonstrations, and at diminishing to the utmost the number of the undefined ideas and undemonstrated propositions...from which it starts.” This goal echoes Barnes’s characterization of the goal of the unification model of explanation and, as a consequence, supports the contention that the axioms and definitions proposed in *Principia* explain the more obvious elementary mathematical propositions that follow from them.

The second centers on premise (3.3). Modal explanationism is an empiricist account of knowledge of modality. Although Barnes focuses exclusively on its account of knowledge of necessity, it also offers an account of knowledge of possibility. Presumably, that account, like its account of knowledge of necessity, appeals exclusively to explanatory considerations. Premise (3.3) is a modal epistemic principle: one that provides sufficient conditions for the rationality of modal beliefs. But it is not an empiricist principle since the modal appearances to which it appeals are not sense experiences. Since (3.3) is a rationalist modal epistemic principle, invoking it in an argument against modal empiricism is question-begging. Moreover, (3.3) is clearly false since even if the appearance of possibility is a reason to believe that p is possible, it is at best a *prima facie* reason and, in the presence of defeaters, does not make it rational to believe that p is possible. For example, suppose that the modal explanationist is seeking

an explanation for the fact that all and only water samples are composed of H₂O. Even if it were true that it appears possible to us that some water samples are not composed of H₂O, it does not follow that it is rational for us to believe that it is possible that some water samples are not composed of H₂O. Since we have absorbed Kripke's lessons, we have good reason to believe that this modal appearance is deceptive.

(p.68) The third focuses on the transition from (3.7) to (3.8). In defense of that transition, Barnes (2007, 518–19, italics in the original) argues:

The point is that an explanation that posits a necessity in order to explain some phenomenon loses as much overall systematization as it gains, since every such explanation contradicts a belief that is rational for us at the time at which we seek the explanation.

The argument overlooks an important feature of inference to the best explanation. The conclusion of such an inference can be a defeater for other justified beliefs in one's system of beliefs. Consider a very oversimplified example. Let p = the sun revolves around the (stable) earth. The belief that p was justified for early observers of the sky by their visual experiences. Later observers posited that the earth revolves around the (stable) sun and the posit was justified by the fact that it offered a more systematic explanation of their observational data. It also provided a defeater for the justification conferred by visual experience on the belief that p . It provided a defeater because it explained why those visual experiences were unreliable indicators of the motion of the sun. If (3.7) were true, Ptolemaic astronomers would have been in a position to cogently reject the posit that the earth revolves around the (stable) sun by pointing out that it contradicted a rational belief held by many and, consequently, did not unify our total set of beliefs any better than the Ptolemaic theory. This argument, however, is not cogent because it overlooks the role of defeating evidence. Returning to Barnes's argument, the transition from (3.7) to (3.8) is not valid. The fact that an explanation contradicts some rational belief that we hold need not result in a loss of systematization since that explanation could also defeat the justification that one has for the belief in question, with the consequence that the belief is no longer a member of the body of beliefs that we rationally accept.

3. First Sceptical Consequence: Nomological Necessities

So far I have raised questions about the details of Barnes's argument against modal explanationism. There is, however, a more general problem with his overall argumentative strategy. It has two significant sceptical consequences. Barnes (2007, 519) recognizes the first:

The strongest objection to this argument is that there is a parallel argument concerning causal and nomological necessities, yet if causal and nomological necessities are known, then surely they are known empirically.

Here he (2007, 520) responds:

To say that it is nomologically necessary that all F's are G is to say that in relevantly similar counterfactual situations if an F occurs, then it will be G. We can observe a sample of F's in the actual world, and we can see that they are all G. Then if we limit ourselves to relevantly similar F's in other, relevantly similar possible worlds, we can justify an inductive inference to the claim that all of these F's are also G.

(p.69) The argument is opaque. Consider a true accidental generalization:

(AG) All As are G,

and a true law of nature:

(LN) All Ls are N.

Presumably, we can justify an inductive inference from observed As and Ls, to, respectively, (AG) and (LN). The crucial question, however, is how do we justify the inference from (LN) to

(LN*) It is nomologically necessary that all Ls are N.

Barnes's response consists of two claims. First, (LN*) is equivalent to

(LN+) In relevantly similar counterfactual situations, if an L occurs, then it will be N.

Second, the argument from (LN) to (LN+) is "some sort of strong, non-deductive argument." But this response is not sufficient to explain our knowledge of nomological necessities such as (LN*). If it were, one could employ the very same response to show that there is a strong non-deductive argument from (AG) to

(AG*) It is nomologically necessary that all As are G.

But an account of our knowledge of nomological necessities such as (LN*) must provide an account of the inductive method that allows us to move from (LN) to (LN*), but prohibits us from moving from (AG) to (AG*).

4. Second Sceptical Consequence: Modal Rationalism

The second sceptical consequence, which Barnes does not recognize, is more general and more significant. Let us call the following view *modal empiricism*: there is a good empiricist explanation of our knowledge of absolute necessity. Suppose that we concede that all the premises of Barnes's initial argument are plausible and that his argument is valid. It follows that modal empiricism is false. Let us call the following view *modal rationalism*: there is a good rationalist explanation of our knowledge of absolute necessity. The second general problem

is that there is a parallel empiricist argument whose conclusion is that modal rationalism is false.

Premises (1.1)—(1.3) of Barnes's argument make reference to the empiricist's account of the ultimate source of all knowledge of necessity: sense experience. Therefore, the three initial premises of a parallel argument against rationalism must make reference to the rationalist account of the ultimate source of knowledge of necessities. There is, however, no generally accepted rationalist account of such knowledge. Hence, for purposes of constructing the parallel argument, let us call the source of such knowledge **(p.70)** *rational experience*. The empiricist can now offer the following parallel version of Barnes's argument:

(1.1*) All possible rationalist explanations of the non-accidental truth of a belief in some absolute necessity fall into one of two categories: (a) those that do *not* involve an inference from rational experience, and (b) those that *do* involve such an inference.

(1.2*) If the explanation does *not* involve an inference from rational experience, then there are two possibilities: (a1) the explanation is in terms of rational experience alone without any further cognitive processing, or (a2) the explanation posits some non-inferential cognitive process that essentially takes rational experience as input and produces a necessity-belief as output.

(1.3*) If the explanation *does* involve an inference from rational experience, then, in order to explain the non-accidental truth of its output beliefs, the inference must be truth-preserving.

(1.4) Therefore, the inference must be a good inference of one of the following types: (b1) deductive, (b2) inductive, (b3) analogical, or (b4) inference to the best explanation.

(1.5) The six options—(a1), (a2), (b1)–(b4)—exhaust all possible explanations of the non-accidental truth of a belief in an absolute necessity.

(1.6) None of the six options can explain the non-accidental truth of a belief in an absolute necessity.

(1.7*) Therefore, there is no good rationalist explanation of our knowledge of absolute necessity.

Armed with (1.7*), the empiricist can now offer a parallel version of Barnes's second argument whose conclusion is that we have empirical knowledge of necessities:

(2.1) We have some knowledge of absolute necessity.

(2.2*) There is no good rationalist explanation of our knowledge of absolute necessity.

(2.3*) The only alternative is an explanation that posits some empirical knowledge from which we can derive our knowledge of necessity.

(2.4*) Therefore, we have some empirical knowledge of necessities.

Consequently, unless Barnes can show that (1) there is a rationalist response to the empiricist version of his argument and (2) this response is better than any empiricist response to his version of the argument, he has not shown that empiricism is any worse off than rationalism in providing an account of our knowledge of absolute necessities.

The prospects for a rationalist response to the empiricist version of his initial argument are quite limited. According to Barnes, a mental state can warrant directly—i.e., without inference—the belief that necessarily p only if it has the representational content that necessarily p . So the rationalist is faced with two **(p.71)** options. Either some rational experiences have the representational content that necessarily p or not. If not, then rational experience can warrant the belief that necessarily p only by inference. However, the objections that Barnes offers against sense experience inferentially warranting a belief that necessarily p apply with equal force to rationalism. If rational experience alone cannot explain our knowledge of necessity, then it is hard to see how a deductive inference from rational experience alone could do so. An enumerative inductive inference from premises warranted by rational experience about the character of the actual world to the way things are in all possible worlds is a hasty generalization. Analogical argument cannot explain the origin of knowledge of necessity since it requires that we begin with a case that we know has the property that we wish to project on other cases. Finally, let us call the following view *rationalist modal explanationism*: positing a necessity sometimes provides the best explanation of some fact that we know through rational experience. The two arguments that Barnes offers against empiricist modal explanationism apply with equal force to rationalist modal explanationism. First, for any systematization of our beliefs that posits absolute necessities, there will be another that posits only nomological necessities and does the same explanatory work.¹² Second, any explanation that posits a necessity to explain some phenomenon loses as much overall systematization as it gains. So the only response open to the modal rationalist requires a defense of two claims: (R1) some rational experiences are mental states that have the representational content that necessarily p , and (R2) there is a good explanation of why a belief that necessarily p formed and sustained on the basis of such a rational experience is objectively likely to be true.

4.1. Modal Rationalism and (R1)

This result is disastrous for modal rationalism. The view that comes closest to meeting (R1) is traditional rationalism, which maintains that, via rational experience, we apprehend relations of inclusion and exclusion among properties and that such apprehensions warrant us in believing that certain propositions are necessarily true. Its recent proponents include Chisholm and Bonjour. Upon **(p.72)** closer examination, however, their accounts do not satisfy the

requirement that rational experiences have the representational content that necessarily p.

Chisholm offers the most explicit rationalist account of the process of acquiring non-inferential knowledge of necessary truths. He maintains that it begins with perceiving particular objects, for example red objects and blue objects, and, via a process of abstraction, coming to grasp the properties of being red and being blue. Chisholm (1977, 38) makes explicit the role of rational experience, or intuitive apprehension, in warranting belief in necessary propositions:

3. There is the intuitive apprehension of certain relations holding between properties—in the one case apprehension of the fact that being red excludes being blue,...
4. Once we have acquired this intuitive knowledge, then, *ipso facto*, we also know the truth of reason expressed by “Necessarily, everything is such that if it is red then it is not blue”...

There are two striking features of Chisholm’s account. The first is that the content of the intuitive apprehension is *nonmodal*: it has the content that one property stands in a certain relation to another. The second is that the key transition from knowledge of the *nonmodal* proposition that being red excludes being blue to knowledge of the *modal* proposition that necessarily, everything is such that if it is red then it is not blue is left unexplained.

BonJour’s account shares these two striking features. He (1998, 162) offers the following “intuitive picture” of the process of acquiring non-inferential knowledge of necessary truths: “A person apprehends or grasps, for example, the properties redness and greenness, and supposedly ‘sees’ on the basis of this apprehension that they cannot be jointly instantiated.” What is the content of the apprehension in question? Here he (1998, 162) maintains that the apprehending in question is “simply that involved in thought in general.” His leading idea is that, for the content of a thought to represent a property, the property that it represents must somehow be involved in that thought. BonJour (1998, 184–5) concludes that “If having a thought whose content is, for example, the claim that nothing can be red and green all over at the same time involves being in a mental state that instantiates a complex universal of which the universals redness and greenness are literal constituents, then at least much of the mystery surrounding my access to those universals and my ability to intuitively apprehend the relation of incompatibility between them is removed.” Hence, for BonJour, like Chisholm, the content of the intuitive apprehension involved in rational experience is *nonmodal*: by virtue of instantiating a complex universal of which the universals redness and greenness are constituents, one apprehends that the two universals stand in the relation of incompatibility to one another. Moreover, BonJour, like Chisholm, fails to explain how the *nonmodal*

apprehension justifies belief in the *modal* proposition that nothing can be red and green all over at the same time.

(p.73) Barnes's argument also rules out rationalist accounts of knowledge of necessity that appeal to inconceivability. To see why, consider the following two principles:

(C) If p is conceivable, then p is possible.

(I) If p is inconceivable, then p is impossible.

(C) and (I) will not do as epistemic principles. As Bealer (2002, 75–6) notes:

Conceivability and inconceivability would not be suited to play their reputed evidential role in modal epistemology. That it is possible, or impossible, to conceive that p is itself a mere modal fact. But in order for someone to acquire evidence (reasons), something must *actually happen*: a datable psychological episode must occur...Modal facts do not occur.

So let us replace (C) and (I), respectively, with:

(C*) If S conceives that p, then S is prima facie justified in believing that p is possible; and

(I*) If S attempts but fails to conceive that p, then S is prima facie justified in believing that p is impossible.

An immediate problem with (C*) and (I*) is that different theorists use the terms 'conceivable' and 'inconceivable' to refer to different states or processes. Yablo (1993, 29) is sensitive to the problem and offers the following account of the terms:

Conceiving that p is a way of imagining that p; it is imagining that p by imagining a world of which p is held to be a true description. Thus p is conceivable for me if (CON) I can imagine a world that I take to verify p. Inconceivability is explained along similar lines: (INC) I cannot imagine any world that I don't take to falsify p.

Utilizing Yablo's account, we can now articulate (C*) and (I*), respectively, as follows:

(C**) If S imagines a world that S takes to verify p, then S is prima facie justified in believing that p is possible; and

(I**) If, S attempts to imagine a world that verifies p but, for every world that S imagines, S takes that world not to verify that p, then S is prima facie justified in believing that p is impossible.

How do (C**) and (I**) square with modal rationalism?

The primary question before us is whether a modal rationalist can offer an account of knowledge of necessity that is compatible with the empiricist version of Barnes's argument. Since our primary question pertains to knowledge of necessity, (I**) is the relevant principle. (I**), however, runs afoul of Barnes's requirements. On a conceivability-based account, beliefs about possibility are justified on the basis of *instantiating* a particular type of mental state. To find p conceivable is to be in a state that you take to verify p and being in such a state justifies the belief that possibly p. Beliefs about impossibility or necessity are justified on the basis of *failing* to instantiate a particular type of mental state. Finding p inconceivable is *not* being in a mental state that justifies the belief that p is impossible. Justified beliefs about impossibility and necessity are based on the *failure* to instantiate a mental state that you take to verify p. Since beliefs about impossibility are not justified on the basis of instantiating some mental state that has the representational content that p is impossible, conceivability-based accounts do not satisfy (R1). Moreover, on a conceivability-based account, beliefs about necessity are inferentially justified. A single failure to instantiate a mental state that you take to verify p is not sufficient to justify the belief that p is impossible. Multiple attempts are necessary to ensure that one has not overlooked a world that verifies p. Perhaps background beliefs to the effect that the failure to imagine such worlds is not due to a cognitive or methodological deficiency are also necessary. The most appropriate model for the type of inferential justification involved appears to be inference to the best explanation, which is ruled out by the empiricist version of Barnes's argument.

One might wonder whether conceivability-based accounts of knowledge of possibility are compatible with the empiricist version of Barnes's argument. Since beliefs about possibility are directly justified on the basis of instantiating a particular type of mental state, according to the account, (C**) is not open to the objection faced by (I**). Although justified beliefs about possibility are based on a particular type of mental state, this is not sufficient to satisfy Barnes's standard for non-inferential justification. In order to non-inferentially justify a belief that possibly p, a mental state must have the *representational content* that possibly p. Yablo (1993, 6, italics in the original) offers the following observations regarding the act of conceiving that p:

So, the truth conditions of an intentional state cannot be read off its content alone;...the state's psychological mode or manner is also relevant. This is crucial because one thing I will be taking "conceivability involves the appearance of possibility" to mean is that the truth conditions of an act of conceiving that p include, not the condition that p, as in perception, but the condition that possibly p. From now on I will express this by saying that p's possibility representatively appears to the conceiver.

The question before us is whether an act of conceiving p has the representational content that possibly p . The answer appears to be 'no', although unclear terminology presents an obstacle to offering a definitive answer. Note that Yablo explicitly distinguishes between the content of a state and its truth conditions. For Yablo, to say that p representatively appears to the conceiver is to say something about the truth conditions of the act of conceiving p and not something about its content. On the other hand, Barnes slides freely between talking about the 'content' of sense experience and talking about the 'representational content' of sense experience. The two expressions are used interchangeably. Hence, even if Yablo is correct in claiming that p 's possibility representatively appears to the conceiver, it does not follow that p 's possibility is part of the content of the act of conceiving.

(p.75) George Bealer maintains that intuitions are evidence. His defense takes place within the context of what he calls the "Standard Justificatory Procedure" (SJP): "the procedure we standardly use to justify our beliefs and theories" (1992, 100). He maintains that the SJP counts not only experience, observation, memory, and testimony as *prima facie* evidence, but also intuition. In support of this thesis, he (1992, 100) invites us to consider one of the familiar counterexamples to the justified true belief analysis of the concept of knowledge:

We find it intuitively obvious that there could be a situation like that described and in such a situation the person would not know that there is a sheep in the pasture despite having a justified true belief. This intuition... and other intuitions like it are our evidence that the traditional theory is mistaken.

Before turning to Bealer's account of intuition, two points of clarification are necessary. First, Bealer's description of the counterexample that provides our evidence against the justified true belief analysis of the concept of knowledge suggests that it involves only a single intuition. There are, however, two distinct types of intuition involved: (1) a *modal* intuition that the state of affairs described in the counterexample is possible and (2) a *classificatory* intuition that the state of affairs described in the counterexample is not a case of knowledge.¹³ Second, Bealer distinguishes specific concrete case intuitions and theoretical intuitions. Here he maintains that the former have greatest evidential weight; the latter have less. Bealer does not articulate the difference between the two types of intuition, but the contrast with specific concrete case intuitions suggests that theoretical intuitions are general. An example is the intuition that the naive comprehension axiom is true.

Traditional rationalists, such as Bonjour and Chisholm, focus on *general* intuitions as the source of non-inferential knowledge of general principles. Bealer's focus is on the role of *concrete case* intuitions in the distinctively

philosophical project of conceptual analysis. Concrete case intuitions do *not* non-inferentially justify general principles about the application of some concept. Instead, they non-inferentially justify beliefs about the application of some concept to particular cases. Concrete case intuitions play two distinct roles in the justification of general principles: positive and negative. In Gettier cases, their role is negative. They provide evidence that the justified true belief analysis is false. My focus is on the positive role of intuitions in providing support for the truth of a particular analysis of some philosophical concept such as knowledge. How do concrete case intuitions justify general principles?

On the standard picture, one begins by considering specific cases, both actual and possible, and dividing them into three categories: clear cases of knowledge, clear cases of ignorance, and unclear or borderline cases. One then attempts to generalize from the verdicts about the specific cases to general **(p.76)** principles. A general principle that parses the clear cases correctly is alleged to be supported by the fact that it yields the correct results regarding the clear cases. One that does not parse the clear cases correctly is alleged to be disconfirmed unless it can successfully explain away the initial classification of the cases that conflict with it. Perhaps additional confirming evidence comes from either explaining why the borderline cases are borderline or by providing a principled division of them into cases of knowledge and ignorance. The details are not important for our purposes. What is clear is that if the concrete case intuitions justify some general (necessary) principle then that justification is inferential. Moreover, the type of inference involved is an inference to the best explanation. But, as we have seen, the arguments that Barnes presents against empiricist modal explanationism apply with equal force to rationalist modal explanationism. Hence, if Barnes's arguments against the former are correct, then modal rationalism must reject the standard view of conceptual analysis, according to which intuitions about concrete cases provide evidence for general (necessary) principles.

As was noted earlier, Bealer distinguishes between concrete case and theoretical intuitions. Although he maintains that the former have greatest evidential weight, he does not deny that the latter count as evidence. He defends the view that all intuitions are evidence. Moreover, when he introduces and explains his account of intuition, he (1998, 207) features examples involving general logical principles:

When you have an intuition that A, it *seems* to you that A. Here 'seems' is understood, not in its use as a cautionary or "hedging" term, but in its use as a term for a genuine kind of conscious episode. For example, when you first consider one of de Morgan's laws, often it neither seems true nor seems false; after a moment's reflection, however, something happens: it now just seems true. The view I will defend is that intuition (this type of

seeming) is a sui generis, irreducible, natural...propositional attitude that occurs episodically.

Moreover, Bealer (1998, 207) maintains that there are both rational (or a priori) and physical intuitions, and that what is characteristic of rational intuitions is that they present themselves as necessary:

We have a physical intuition that, when a house is undermined, it will fall. This does not count as a rational intuition, for it does not present itself as necessary: it does not seem that a house undermined *must* fall;...By contrast, when we have a rational intuition—say, that if P then not not P—this presents itself as necessary: it does not seem to us that things could be otherwise; it must be that if P then not not P.

Hence, it appears that Bealer's account offers the prospect for a rationalist explanation of modal knowledge that meets the requirements of Barnes's argument. If necessity is constitutive of the content of rational intuitions and such intuitions directly justify necessary truths, then the major objection to empiricist explanations of modal knowledge appears to have been circumvented.

(p.77) This approach to offering a rationalist explanation of modal knowledge faces several obstacles. First, there is an interpretive issue. Bealer does not explicitly endorse the view that, in the case of rational intuition, necessity is a constituent of the content of the intuition. In fact, he seems to deny this. For example, he (1998, 205, italics in the original) maintains

When I say that intuitions are used as evidence, I of course mean the *contents* of the intuitions count as evidence...Consider an example. I am presently intuiting that if P then not not P. Accordingly, the content of this intuition—that if P then not not P—counts as a bit of my evidence; I may use this logical proposition as evidence (as a reason) for various other things.

This suggests that the presentation as necessary, which is characteristic of rational intuition, is more naturally viewed as constitutive of the attitude. On the other hand, in other remarks, Bealer (1998, 207) offers, but does not endorse, an analysis of rational intuition on which necessity is constitutive of the content rather than the attitude of such intuitions:

I am unsure how exactly to analyze what is meant by saying that a rational intuition presents itself as necessary. Perhaps something like this:
necessarily, if x intuits that P, it seems to x that P and also that necessarily P. But I wish to take no stand on this.

Consequently, Bealer fails to articulate the characteristic feature of rational intuition.¹⁴

Given that Bealer fails to articulate the characteristic feature of rational intuition, it is difficult to assess whether his account meets the requirements of Barnes's argument. There is, however, reason to be doubtful. Barnes's challenge is to explain knowledge of propositions whose content is modal. Bealer's account faces a problem in providing such an explanation. Consider, for example, a Gettier case. Such a case is a counterexample to the justified true belief analysis of the concept of knowledge only if it is possible. On Bealer's account, an intuition of possibility provides evidence that such a case is possible. But, if the intuition is rational, then it presents itself as necessary. If the presentation as necessary is constitutive of the content of the intuition, then the intuition has the content that it is necessary that the Gettier case is possible. This does not appear to be an accurate description of the content of the intuition and it is not the way that Bealer describes it. A similar problem arises when we consider a priori justification for the belief that necessarily P. In order **(p.78)** for S's belief that necessarily P to be justified a priori, S must have a rational intuition that necessarily P. Rational intuitions, however, present themselves as necessary. If the presentation as necessary is constitutive of the content of the intuition, then the intuition has the iterated modal content that it is necessary that necessarily P. Bealer, however, does not maintain either that we have such iterated modal intuitions or that they are necessary for basic a priori modal knowledge that necessarily P.

An analogous problem arises if one maintains that the presentation as necessary characteristic of rational intuition is constitutive of the attitude. Consider again some Gettier case. On Bealer's account, an intuition of possibility provides evidence that such a case is possible. But, if the intuition is rational, then it presents itself as necessary. If the presentation as necessary is constitutive of the attitude then, if S has the rational intuition that the Gettier case is possible, it seems necessary to S that the Gettier case is possible. Once again, this does not appear to be an accurate description of the intuition and it is not the way that Bealer describes it. Similarly, in order for S's belief that necessarily P to be justified a priori, S must have a rational intuition that necessarily P. If the presentation as necessary is constitutive of the attitude, then it must seem necessary to S that necessarily P. Bealer, however, does not maintain either that we have such intuitions or that they are necessary for basic a priori modal knowledge that necessarily P. Hence, it is doubtful that Bealer's account meets the requirements of Barnes's argument.¹⁵

4.2. Modal Rationalism and (R2)

My discussion to this point has focused on (R1). I now turn to (R2), which requires that there be a good explanation of why a belief that necessarily p formed and sustained on the basis of such a rational experience is objectively likely to be true. Such an explanation, in turn, must satisfy two conditions: (a) it must identify the processes that form and sustain the belief in question, and (b) it must show why a belief formed and sustained in this way is likely to be true.

My goal is to show that the two accounts of rational experience that come closest to satisfying (R1)—the traditional account, which takes such experiences to consist in the apprehension of features of abstract entities, and the more contemporary account, which takes them to be rational intuitions or seemings—fail to satisfy (R2).

Empiricist criticisms of rationalist accounts of a priori knowledge have focused on the traditional account. They frequently allege that the traditional rationalist accounts are “mysterious” or “obscure.” Upon closer examination, such criticisms can be seen as maintaining that the accounts fail to satisfy (R2). Take, for example, Devitt’s (2005, 114) explanation of the obscurity charge:

(p.79) What non-experiential link to reality could support insights into its necessary character? There is a high correlation between the logical facts of the world and our beliefs about those facts which can only be explained by supposing that there are connections between those beliefs and facts. If those connections are not via experience, they do indeed seem occult.

Devitt’s focus is on condition (a): identifying the process of rational experience. Field’s (1989, 25) focus is on condition (b):

the challenge...is to provide an account of the mechanisms that explain how our beliefs about these remote entities can so well reflect the facts about them. The idea is that *if it appears in principle impossible to explain this*, then that tends to *undermine* the belief in mathematical entities, *despite* whatever reason we might have for believing in them.

The challenge is to provide an explanation of why beliefs formed on the basis of rational experience are likely to be true.

BonJour (1998, 161) concedes that if rational experience requires a quasi-perceptual relation to abstract entities that is analogous to sense perception, then his account cannot address this challenge. Moreover, he also concedes that his intuitive characterization of rational experience in terms of apprehending properties and “seeing” on this basis that some propositions are true suggests the perceptual account. In response, BonJour rejects the analogy with sense experience and maintains that the apprehension of properties involved in rational insight is simply that involved in thought in general. Such an account, according to BonJour (1998, 185), removes the mystery surrounding access to universals since “there is no need to regard the apprehension of properties as a perceptual relation involving some mental analogue of vision that somehow reaches out to the Platonic realm.”

There are three shortcomings in BonJour’s account of rational experience, each of which is sufficient to prevent his account from satisfying (R2). The initial step in the process of rational experience is the apprehension of properties. It

provides the input into the belief-forming processes whose output is belief in various necessary propositions. Although Bonjour claims to have provided an alternative to the quasi-perceptual account of property apprehension, his alternative model falls short of that goal. Here it is important to distinguish between a thought about things that instantiate a property, such as green things, as opposed to a thought about the property itself, such as greenness. The first shortcoming is that what Bonjour (1998, 184) offers is an account of the former rather than the latter: “The key claim of such a view would be that it is a necessary, quasi-logical fact that a thought instantiating a complex universal involving the universal triangularity in the appropriate way...is about triangular things.” In order to provide an account of our apprehension of properties, he must provide an account of the difference between thinking about things instantiating properties and thinking about the properties themselves. Second, satisfying condition (a) in (R2) requires identifying the belief-forming process involved in rational experience—i.e., **(p.80)** the process that begins with the apprehension of the properties of redness and greenness and results in the belief that nothing can be both red and green all over at the same time. Bonjour has focused his attention exclusively on providing an account of the initial stage of the process—the apprehension of properties—but has said nothing about the process itself. He has not explained how the apprehension of properties provides insight into their intrinsic natures or relational properties. This is Devitt’s complaint. Third, in the absence of the characterization of the belief-forming process in question, it is impossible to determine whether it is reliable, let alone to explain *why* it is reliable. This is Field’s complaint.

Bealer’s account differs from the traditional rationalist account. Rational intuitions are seemings and seemings do not involve the apprehension of abstract entities. Moreover, Bealer (1998, 218) maintains that he can provide an explanation why it is no accident that beliefs based on rational intuitions are likely to be true. His explanation proceeds in three steps. At the ground level, he argues that intuitions are evidence by appeal to the fact that (a) the SJP sanctions them as a source of evidence and (b) empiricism cannot justify its departure from the SJP. The second step offers a modal reliabilist account of basic sources of evidence, where a source of evidence is basic if and only if its deliverances have an appropriate kind of strong modal tie to the truth. Bealer (1998, 217) maintains that sources of evidence are either basic or derived, where “something is a derived source of evidence relative to a given subject iff it is deemed (perhaps mistakenly) to have a reliable tie to the truth by the simplest comprehensive theory based on the subject’s basic sources of evidence.” Since, according to Bealer, (1998, 217–18), empiricist explanations of the reliability of intuitions fail, it follows that intuitions are a basic source of evidence. Since intuitions are a basic source of evidence, they have a strong modal tie to the truth. Here a version of Field’s challenge surfaces. What explains this strong modal tie to the truth? The third step in the argument is an explanation in terms

of a theory of concept possession. Bealer's (1998, 225) basic idea is to distinguish between nominal and determinate concept possession, where (to a first approximation):

x determinately possesses a given concept iff, for associated test property-identities p:

x would have intuitions which imply that p is true iff p is true.

Hence, determinate concept possession guarantees that intuitions with respect to test property-identities are truth-tracking.

There are three significant problems with Bealer's explanation of the reliability of intuitions, each of which is sufficient to prevent his account from satisfying (R2). With respect to the first step, the order of justification is critical. Bealer does not conclude that intuitions are evidence by appeal to their reliability. He concludes that intuitions are reliable by appeal to their status as evidence, and defends their status as evidence by appeal to the SJP. The key premise of his argument is the contention that empiricism cannot justify a departure from the SJP that excludes intuition as evidence. **(p.81)** In defense of this contention, Bealer (1992, 114–18) maintains that the empiricist cannot explain how empiricism differs from views such as visualism, the view that visual experience is the only source of evidence, that arbitrarily exclude sources of evidence admitted by the SJP. I (2012, 245–8) contend, however, that his argument proves too much. If it were correct, Bealer would face an analogous problem. He would not be able to explain how the SJP differs from views that arbitrarily introduce basic sources of evidence not admitted by the SJP, such as the pronouncements of a political authority. Hence, his argument for the reliability of intuition never gets off the ground. Second, Bealer's contention that the empiricist cannot offer an explanation of the reliability of intuitions rests on equating empiricism with Quine's version of empiricism, according to which the simplest comprehensive theory based on the subject's basic sources of evidence is a theory free of modals. Since such a theory would not deem there to be a reliable tie between modal intuitions and the truth, Bealer concludes that such intuitions are a basic source of evidence. Clearly, empiricism need not be committed to Quine's version of empiricism and most contemporary empiricists are not. So it remains an open question whether empiricists can offer an explanation of the reliability of modal intuitions. Finally, Bealer's appeal to a theory of determinate concept possession to explain the reliability of intuition raises questions. The most pressing is whether there is any independent reason for accepting it apart from the fact that it delivers the results that he needs.¹⁶ The problem is exacerbated by the fact that there are competing accounts available of the possession conditions for concepts and, as a consequence, the issue of choosing among them is not of merely theoretical interest. Perhaps Bealer can maintain that the conditions for possessing (or determinately possessing) the concept of *concept*

underwrite his theory. This response has the unwelcome consequence that those who endorse different accounts of the possession conditions for concepts either fail to possess (or determinately possess) the concept of *concept* or have a different concept of *concept*.

5. Conclusion

One of the most resilient arguments in favor of the existence of a priori knowledge derives from Kant's contention that necessity is a criterion of the a priori. The most plausible reading of this contention maintains that if p is necessarily true and S knows that p is a necessary proposition then S knows a **(p.82)** priori that p is a necessary proposition. Although this contention is widely endorsed, supporting arguments for it are difficult to come by. Barnes offers one of the few available arguments in support of it.

I maintain that his argument fails. In section 3, I present three serious objections to his argument: one premise is questionable, another is question-begging, and its final transition is invalid. These objections constitute sufficient grounds for rejecting the argument. One natural reaction to these objections is that they focus on matters of detail and that the argument can be revised to circumvent these problems. That reaction spells disaster for proponents of modal rationalism. For, as I go on to show in section 4, if Barnes's argument is sound, then it has two significant sceptical consequences. First, it can be extended to show that empirical knowledge of nomological necessities is not possible. Second, a parallel version of the argument shows that there is no good rationalist explanation of knowledge of absolute necessities.

The arguments of section 4 complement and reinforce those of section 3. If one is tempted to view my objections to Barnes's arguments as mere matters of detail, one should make the necessary changes to Barnes's argument and ask if the revised version of the argument retains the sceptical consequences of the original. This test provides a check against a glib dismissal of the objections to the original argument.

In fact, most, if not all, contemporary rationalists reject the two leading epistemic premises of Barnes's argument: (a) his explanationist analysis of the concept of knowledge (and, *a fortiori*, his explanationist analysis of the concept of a priori knowledge), and (b) his contention that a mental state can warrant a belief that necessarily p only if it has the representational content that necessarily p .¹⁷ None of the proponents of rationalism surveyed in section 4 endorse either (a) or (b). Hence, they are not saddled with the sceptical consequences of his argument. This benefit, however, comes with a cost. They cannot coherently endorse his argument against modal empiricism.

There is a more general lesson worth noting. Barnes's argument suffers from a characteristic defect of many rationalist arguments against empiricism: parallel versions of the arguments apply with equal force to rationalism. Hence, such

arguments suffer from a form of self-defeat: if they succeed in showing that the target empiricist theory is untenable, they also show that versions of rationalism are untenable. Three prominent examples of such arguments are Bonjour's (1998) argument in support of the conclusion that radical empiricism leads to scepticism and his two arguments directed at Quinean radical empiricism.¹⁸ Hence, rationalist proponents of arguments against radical empiricism **(p.83)** should always ask whether parallel versions of their arguments apply with equal force to rationalism.¹⁹

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Notes:

(¹) I am assuming here that *p* is a truth-functionally simple statement. Truth-functionally compound statements require a more nuanced version of (KB). For further discussion of this issue, see Casullo (2003, sec. 7.4) and Strohming and Yli-Vakkuri (2017).

(²) For a more general discussion of the relationship between the a priori and the necessary, see Casullo (2010).

(³) Here Barnes (2007, 497) tells us:

So if we think of knowledge as non-accidentally true belief, then in every case of knowledge there will be a good explanation of why it is no accident that the belief in question is true. A good explanation of the non-accidental truth of a belief will explain why a belief that is formed and sustained in this particular way is objectively likely to be true...When there exists such an explanation of the non-accidental truth of a belief that is formed and sustained in this particular way, then that belief qualifies as knowledge.

(⁴) There are at least two problems with this conception of the a priori. First, he does not specify what counts as “sense experience”. Second, it precludes merely enabling conditions based in sense experience from playing a role in the explanation of the non-accidental truth of a belief known a priori.

(⁵) Both referees raise questions about testimony and modal knowledge. One asks whether Chisholm denies the possibility of a posteriori knowledge of modal propositions via testimony. The other asks whether Barnes overlooks this possibility. Chisholm (1977, 47) has reservations about the possibility of such knowledge on the grounds that one knows a proposition only if one accepts it. But when, for example, a person reads a logical text, finds a formula that expresses a certain logical principle and concludes that the formula is true, the person may not accept the logical principle but only “the contingent proposition to the effect that a certain formula in a book expresses a logical principle that is true.” Barnes’s position is more vexing. He (2007, 505) maintains that testimony is a source of non-inferential warrant and that “for testimony to warrant a belief that *p* without inference, the testimony itself must have the content that *p*.” Since testimony can have the content that necessarily *p*, it follows that testimony can directly warrant beliefs in modal propositions. Hence, in order to sustain his claim that experience cannot directly warrant belief in modal propositions, it appears that Barnes must deny that all testimonial warrant is a posteriori. There is precedent for such a move in Burge (1993). Barnes, however, does not address the issue. Since testimony raises some special problems that require independent treatment, I set it aside for purposes of this chapter and attempt to show that Barnes’s argument fails even apart from considerations about

testimony. For a discussion of some of the special issues raised by testimony, see Casullo (2007).

(⁶) One might balk at my argument on the grounds that although the general theory of knowledge that Barnes endorses does not require any particular input into knowledge-producing processes, his account of a posteriori knowledge requires that sense experience play an essential role in explaining the non-accidental truth of a posteriori warranted true beliefs. Hence, a posteriori warrant does require sense experience as input. One must be careful here. Suppose that some empiricist maintains that there is a belief-forming process that takes perception as input and produces true beliefs in necessity as outputs. Such a theorist need not be committed to the thesis that perceptual input into a process requires some mental state with representational content.

(⁷) Barnes (2007, 506–8) considers and rejects two other options: (a) a trivially valid argument whose premises are about sense experience and whose conclusion is a necessary truth, and (b) the view that we perceive some identities directly through the senses and derive the necessity of those identities by a non-trivially valid deductive inference. A referee astutely notes that the empiricist has some options that Barnes overlooks: inferring necessarily actually *p* from an empirically justified belief that *p*, and inferring that necessarily *a* is not *b* from an empirically justified belief that *a* and *b* are numerically diverse. I suspect that Barnes would respond that each inference is mediated by a rule of inference, that belief in the conclusion is justified only if belief in the rule of inference is justified, but that such justification cannot be empirical. This response takes a controversial stance on the requirements of inferential justification which requires independent treatment.

(⁸) Barnes rejects the first three models for different reasons. The deductive-nomological model is open to counterexamples. With respect to the pragmatic model, he (2007, 513) maintains “that the very idea of inference to the best explanation is that satisfying the goals of explanation is *truth-conducive*,” but there is no reason to think that its merely satisfying our curiosity makes a belief objectively likely to be true. Against, the causal model, Barnes (2007, 515) contends that, in order to use it to construct an account of knowledge of modality, it must be supplemented with “an account of how we could come to know that a *necessity* is the cause of some event.” Since we do not directly observe necessities via the senses, the only way we could come to know this is to infer that the best explanation of some event is that it was caused by some necessity. Here Barnes maintains that the real epistemological work is being done by the fourth account.

(⁹) Barnes (2007, 517–18) begins with two claims and an explanation of the second:

Explanation is *contrastive*, which is to say that what we explain is why it is the case that *p*, rather than that *q*, for some *q*. In other words, the *explanandum* of every explanation has a contrasting alternative...Moreover, and more importantly, we feel the need for an explanation of why the explanandum holds, rather than the alternative, *only when we can at least conceive of the alternative obtaining*...When I say that we can conceive of the *explanandum* failing to obtain, I mean that at the time at which we seek an explanation it appears to us to be possible that the *explanandum* fail to obtain.

(¹⁰) Here are two others. Consider the initial premise of the argument. Kitcher's version of the unification theory embraces van Fraassen's account of the pragmatics of explanation. Hence, he maintains that explanation is contrastive. Barnes rejects the pragmatic model of explanation on the grounds that there is no reason to think that explanations meeting the goal of satisfying curiosity are likely to be true. Kitcher's version of the unification theory, however, is open to a variant of that objection: there is no reason to believe that meeting the goal of unifying our beliefs is truth-conducive. Consider Kitcher's (1989, 497) conception of a *true* statement and a *correct* explanation:

Conceive of science as a sequence of practices, each of which is distinguished by a language, a body of belief, and a store of explanatory derivations. Imagine the sequence extending indefinitely forward into the future, and suppose that its development is guided by principles of rational transition, including the principles about unification outlined in the previous section...[T]rue statements are those that belong to the belief corpus of scientific practice in the limit of its development under principles of rational transition. Finally,...*correct* explanations are those derivations that appear in the explanatory store in the limit of the rational development of scientific practice.

Clearly, both the conception of a *true* statement and the conception of a *correct* explanation are *epistemic*. They are defined in terms of the beliefs and explanations that belong to some idealized rational development of scientific practices. Hence, Kitcher's version of the unification theory offers a reason for thinking that those beliefs that emerge at the limit of idealized rational development of our scientific practices are likely to be true only if one embraces his anti-realist conception of truth. Hence, unless Barnes is willing to embrace Kitcher's anti-realism, he should reject Kitcher's version of the unification model. But, if he does so, his leading premise is unsupported.

The second is that Barnes's final conclusion depends on a misconception regarding Kitcher's version of the unification model. Barnes maintains that, according to the model, a good explanation unifies our *total* set of

beliefs. This assumption is crucial to his overall argument since (3.7) presupposes that the system of beliefs being unified includes the subject's belief that it is possible that not-p. But Kitcher's account does not support that assumption. He (1989, 497) maintains that a good explanation unifies the set of statements endorsed by scientific practice. But that set of statements does not contain statements about the beliefs of particular individuals.

(¹¹) Whitehead and Russell (1962, iv) are more explicit on this point:

In mathematics, the greatest degree of self-evidence is usually not to be found quite at the beginning, but at some later point; hence the early deductions, until they reach this point, give reasons rather for believing the premises because true consequences follow from them, than for believing the consequences because they follow from the premises.

(¹²) One might suggest that this objection does not apply with equal force to rationalist modal explanationism on the grounds that (1) rational experience warrants belief in elementary mathematical propositions and (2) some other mathematical beliefs, such as the Peano Axioms, are warranted by the fact that they explain the elementary mathematical propositions. However, the response continues, the nomological necessity of the Peano Axioms does not explain the truth of the elementary mathematical propositions. Only their absolute necessity provides such an explanation. This response does not favor rationalist modal explanationism since the proponent of empiricist modal explanationism can offer the same response to that objection. Since Barnes allows that sense experience can warrant belief in the *truth* (as opposed to the *necessity*) of necessary propositions, the empiricist can maintain that (1) sense experience warrants belief in elementary mathematical propositions and (2) some other mathematical beliefs, such as the Peano Axioms, are warranted by the fact that they explain the elementary mathematical propositions.

(¹³) Bealer (1998, 207) states that "in the Gettier example we have a rational intuition that the case is possible, and we have a rational intuition that the concept of knowledge would not apply to the person in the case."

(¹⁴) A referee raises the following concern regarding Bealer's view: If seemings are the only source of prima facie justification and the distinction between a priori and physical intuitions is drawn in terms of the contents of seemings, then the distinction between a priori and a posteriori justification does not appear to be epistemically significant. It is no more significant than the distinction between beliefs justified by seemings that concern colors and beliefs justified by seemings that concern shape. I am sympathetic to the concern and suggest that it provides Bealer with a strong consideration in favor of drawing the distinction between a priori and physical intuitions in terms of a difference in attitude

rather than a difference in content. For a more detailed discussion of Bealer's view, see Casullo (2012b).

(¹⁵) Thanks to Margot Strohminger and Tim Williamson for pressing me to clarify this argument.

(¹⁶) There are at least two others. The first is whether any actual cognizer determinately possesses any concepts. The second is whether Bealer's explanation actually explains the reliability of intuitions. Determinate possession of the concept C explains the reliability of one's intuitions with respect to the concept C, according to Bealer, because it is constitutive of determinate possession of the concept C that one's intuitions with respect to the application of concept C are reliable. This explanation strikes me as vacuous.

(¹⁷) Jenkins (2008, 2010) may appear to be an exception. However, as I argue in Casullo (2012c), her accounts of arithmetical and modal knowledge are not a priori accounts.

(¹⁸) For Bonjour's (1998) arguments, see sections 1.1 and 3.7. For parallel versions of his arguments, see Casullo (2000, and 2003 sections 4.6 and 4.7). For further discussion, see Thurow (2009) and Watson (2014).

(¹⁹) Earlier versions of this chapter were presented at the International Workshop: Directions in the Epistemology of Modality, Stirling University, October, 22–4, 2015; the Mountain-Plains Philosophy Conference, University of Colorado at Colorado Springs, October 6–8, 2016; the Workshop on Modal Knowledge, Bielefeld University, March 16–17, 2017; and the Conceivability and Modality International Conference, Sapienza University, Rome, June 19–20, 2017. Thanks to the audiences at these presentations and to two anonymous referees for *Oxford Studies in Epistemology* for their challenging questions.