Making Exceptions

Author(s): Crispin Wright

Source: *Philosophical Topics*, FALL 2021, Vol. 49, No. 2, Epistemology (FALL 2021), pp. 333-346

Published by: University of Arkansas Press

Stable URL: https://www.jstor.org/stable/10.2307/48676554

PHILOSOPHICAL TOPICS
VOL. 49, NO. 2, FALL 2021

Making Exceptions

Crispin Wright
New York University, University of Stirling

ABSTRACT. Anti-exceptionalism about logic, in its original Quinean incarnation, may be summarized as the thesis that logic is, in effect, simply a deeply entrenched part of empirical-scientific theory. It may thus be taken to involve two principal, distinguishable claims: First, *Corroboration*—that the epistemic good standing of logical principles is properly earned in the same way as the confirmation of all empirical scientific laws. We are justified in accepting such principles by, and only by, their participation in ongoing successful empirical-scientific theory. Second, *Rejection*—that, as with empirical-scientific hypotheses, logical principles are one and all in principle open to rational rejection or revision on purely empirical grounds if the system in which they are participant runs into "recalcitrant experience" and such an adjustment promises to smooth out the wrinkles. It is argued that neither claim can be sustained in full generality.

§1 INTRODUCTION

Quine's *Two Dogmas* famously contains the following emblematic passage:

> Any statement can be held true come what may, if we make drastic enough adjustments elsewhere in the system. Even a statement very close to the periphery can be held true in the face of recalcitrant experience by pleading hallucination or by amending certain statements of

> the kind called logical laws. Conversely, by the same token, no statement is immune to revision. Revision even of the logical law of the excluded middle has been proposed as a means of simplifying quantum mechanics; and what difference is there in principle between such a shift and the shift whereby Kepler superseded Ptolemy, or Einstein Newton, or Darwin Aristotle?[1]

This passage encapsulates Quine's rejection of the analytic-synthetic distinction, which he conceived as requiring the unrevisability of statements regarded as analytic. But it also amounts to a manifesto for one form of what has become known as "anti-exceptionalism" about logic.[2] Quinean anti-exceptionalism holds that the epistemology of explicit logical theory is in no interesting way different to that of theoretical empirical science. That general idea may be taken to involve two principal, distinguishable claims:

> *Corroboration*—that the epistemic good standing of logical principles is properly earned in the same way as the confirmation of all empirical-scientific laws. We are justified in accepting such principles by, and only by, their participation in ongoing successful scientific theory.
>
> *Rejection*—that, as with scientific hypotheses, logical principles are one and all in principle open to rational rejection or revision on purely empirical grounds if the system in which they are participant runs into "recalcitrant experience" and such an adjustment promises to smooth out the wrinkles.

Both theses are integral to the *Two Dogmas* picture of what it is to manage a comprehensive system of empirical belief in a rational fashion. However they are separable claims, and will be treated separately below.

Although he explicitly targeted only the notion of analyticity, Quine's view is usually regarded as ruling out the notion of *a priori* knowledge or justification—the idea that some statements, including par excellence explicit logical laws, may be known or justified by means involving only pure intellection and reasoning, independent of the methods of empirical science. It's notable, however, that *Rejection* carries that implication only if a priori justification is held to be proof against empirical defeat. However it is not clear why in general it should be. In cases of presumed basic (non-inferential) a priori justification—resting perhaps on informal model construction or visual imagination—it seems readily intelligible that the

1. Quine (1951).
2. The term "anti-exceptionalism" seems to have been coined by Williamson (2007). Other prominent contemporary anti-exceptionalists include Penelope Maddy (2002), Graham Priest (2014), and Williamson again (2013). A notable statement of the view is Hjortland's (2017), which begins with these words: "Logic isn't special. Its theories are continuous with science; its method continuous with scientific method. Logic isn't a priori, nor are its truths analytic truths. Logical theories are revisable, and if they are revised, they are revised on the same grounds as scientific theories."

   Not all who profess themselves to be anti-exceptionalists buy into Quine's thoroughgoing empiricism in this way. One who does not is Stephen Read (2019). But it is fair to say that the broad Quinean idea is widely accepted among philosophers who have not published in support of it. It may even be approaching contemporary orthodoxy.

grounds thereby supplied for a proposition might be overridden by empirical findings. A salient example is the role historically played by visual imagination in motivating Euclid's Fifth Postulate.

Seventy years on from the publication of Quine's paper, contemporary philosophers of logic have become somewhat inured to the kind of view he propounded of the epistemology of logic. Arguably, though, it should still impress as deeply counter-intuitive. Can anyone really (lucidly) envisage circumstances in which laws like

(Identity)	If P, then P
(Universal Instantiation)	If (∀x)Fx, then Fa
(Modus Tollens)	If (if P, then Q), but not Q, then not P

might justifiably be regarded as under *empirical* pressure? And don't we (most of us) have a sense when contemplating such basic logical principles of being *completely* justified in accepting them, independently of any considerations about their track record in empirical theory and the role they have played in our theorizing about the world? To be sure, we might find—indeed occasionally have found—that some seemingly intuitively evident logical principles lead to paradox so that something needs to be revised. Our intuitive impressions about basic logic are certainly not infallible. But paradox-driven revision of logic would be revision of logic on a priori grounds not on empirical ones.

Still—within a broadly empiricist contemporary philosophical milieu, and reinforced no doubt by the well-known difficulties that confront the project of developing a satisfactory non-empirical epistemology of logical theory—Quine's conception of the epistemological status of logic has continued to be widely received. My aim in what follows is to deflate it to some—a not insignificant—degree. I will argue that from a neutral standpoint—that is a standpoint with no prior investment in any form of contrary apriorist rationalism—both *Corroboration* and *Rejection* can be seen to be unsustainable in full generality. The anti-exceptionalist has to recognize that some logical judgments—when that class is broadly understood so as to include judgments about what follows logically from what—must be regarded as exceptions to *Corroboration*: that rational empirical inquiry requires that we regard some such judgments as justified in some way other than is recognized by the Quinean model. And some principles of logical inference must be regarded as exceptions to *Rejection*: even if logic in general is unexceptional, some of the most basic laws of logic must be held to be above the fray in any rational process of empirical theory testing.

§2 ANTI-EXCEPTIONALISM: THREE INITIAL MISGIVINGS

I begin with some more familiar objections to the Quinean view than those I will subsequently develop, partly to remind readers of them, if they need reminding, partly to show that I am aware of them and feel their pull.

First, logical laws like the three cited above tend, characteristically, to impress us as both *immediately* obvious and as necessary—as good for reasoning about an arbitrary counterfactual situation in a way in which even the most entrenched of physical laws is not. It is out of respect for this datum that many philosophers interested in the epistemology of logic have made proposals invoking some faculty of a priori immediate 'intuition' or of direct rational sensitivity to the logical relations that these propositions depict.[3] To be sure, others have regarded any such idea as *ad hoc* and wholly unexplanatory. In the view of the present author, there is, indeed, some justice in that charge. But the opposed thought, that our knowledge of such laws is just more a posteriori knowledge, continuous with and grounded in a manner essentially no different to that of our knowledge of the generalizations of empirical science, has no evident resources to explain the datum, no evident resources to explain the phenomenology of reflective obviousness characteristic of the principles concerned. That we find such principles obvious can, for the Quinean, at best be regarded as a kind of motivational prompt, an anthropological quirk of no particular epistemic significance. For Quinean anti-exceptionalism, knowledge of the good standing of such propositions, properly so regarded, will come on the scene only after the proven success of empirical theory in which the patterns of inference they codify are perceived to play an essential role. This is egregiously unsatisfying. It goes against the grain to suppose that someone who reflects on the pattern of inference by *Vel-introduction* for the first time and concludes that it is obviously valid has accomplished nothing relevant to the question whether they now *know* that it is valid.

Second, that we treat such principles as necessary, as *counterfactually* exceptionless, poses a separate challenge. For we do not so regard even the most entrenched laws of physical science. What may the anti-exceptionalist say to explain how we are justified in this differential treatment?

One response would proceed by elaboration of the thought that, if we are to engage in hypothetical reasoning at all, (some of) the principles that govern it must be conceived—treated—as counterfactually robust. This would suggest a kind of conventionalism. But whether it should best proceed in that direction or in some other, I do not know that those philosophers who accept Quine's thoroughgoing empiricism have generally recognized that they owe a non-epistemic account of our treatment of basic logical laws as good for counterfactual reasoning about an arbitrary scenario.

Third but closely related, there is an issue of the scope of logical law. Frege famously thought of truths of logic as "Laws of Thought." Part of the content of that idea is that their validity knows no bounds: that if a logical principle is good at all, it is good for any thinkable domain. By contrast, the one clear historical case where a philosopher has recommended revision of logic on empirical grounds—Putnam's (1969) suggestion that the classical distributivity laws

3. Thus BonJour (1998) and Bengson (2015).

governing conjunction and disjunction might be suspended in reasoning about quantum phenomena—implicitly provides houseroom to the idea that logics might have a merely *local* validity. Indeed it seems that anti-exceptionalism is in its nature invested in that possibility, for it is part and parcel of our ordinary conception of physical law that a law that passes muster for a while might prove to be good only for some restricted class of phenomena, or under some restricted set of initial conditions. One does not have to buy into the Fregean conception of "Laws of Thought" to suppose at some level, the validity of at least some logical principles must be domain-unspecific, that it belongs to the essence of valid reasoning that at least some of the constraints to which it confirms should be topic-neutral and absolute.

The foregoing are, I suppose, relatively entrenched kinds of objection to the type of view that Quine promoted. But in each case, they are open to the rejoinder that they merely issue from a conception of the status of logic that is exactly what anti-exceptionalism questions and intends to supplant. That is not the character of the objections to which I now turn, which turn rather on demands made by the Quinean methodology of theory revision itself and are thus in a sense internal to anti-exceptionalism.

§3 ON CORROBORATION

Is a Quinean account of the epistemology of basic propositional logical knowledge so much as coherent?[4] Quine's idea, notoriously, was that in any situation of potential confirmation or disconfirmation of an empirical hypothesis, a holism is activated to the effect that not only that hypothesis but all other ingredients in play, including statements of the evidence, statements of initial conditions, predictions elicited from the hypothesis on the assumption of the initial conditions, *and the underlying logic* that mediates those predictions, are likewise in the firing line and may legitimately be taken as confirmed or disconfirmed. Initially, this is apt to seem incoherent on grounds that resonate with a point that Wittgenstein expressed figuratively in *On Certainty*, when he wrote that "If I want the door to turn, the hinges must stay put."[5] Dispensing with the figure, the point is that a proposition cannot both be up for test and part of the apparatus of testing. An optometrist can test whether my eyes are functioning well by having me try to read the letters on a chart. But she cannot simultaneously test the proposition that the chart configures such-and-such letters in such-and-such an array *and* whether my eyes are functioning well enough to read them. The idea Wittgenstein was gesturing

4. I first presented a version of the following objection to Quine in my (1986). I ask readers familiar with that paper to indulge my reiteration of it here. I think the thrust of the objection may be clearer in the formulation to follow than in its predecessor.

5. *On Certainty* §343.

at is that propositions of logic—more specifically, propositions about what follows from what—always play a role in the testing of empirical theory comparable to the role in eye-testing of propositions about the configuration of letters on the chart. For that reason, they cannot be up for test in the same context in which a prediction that they sanction is up for test, and the idea that they might be empirically accredited or discredited by a long-running series of such tests, and so come to earn a place at the center of the 'web', is accordingly not a runner.

Now, the Quinean has, of course, a tried and trusted reply to this line of objection, well captured by Neurath's image of boat repair while at sea. Indeed, the example of eye-testing itself suggests it. For of course the proposition that the chart configures such-and-such letters in such-and-such an array can be *independently* empirically tested. It is just that it cannot be confirmed or disconfirmed by my responses in a context in which it is being relied on to test my vision. And so, likewise, for propositions concerning what follows from what. We have to acknowledge that they cannot be up for test in a context in which the consequences they ascribe to a hypothesis, and thereby that hypothesis itself, are being tested. Still, is there any reason why they cannot themselves be subject to test in a different context? Such a context will necessarily involve further propositions about logical consequence that feature as part of the testing apparatus and so will in turn not themselves be under test therein. But they too will be eligible for testing in yet other contexts. So, what's the problem?

Well, if we pursue this reply a little, it transpires that it teeters into incoherence with the proposed empiricist epistemology. Let T be a theory that is to be tested against experience and let L be its underlying logic. Testing T will involve the derivation from it in L of conditional predictions telling us what observations we should expect relative to certain specified initial conditions.

Let $I \rightarrow O$ be a particular such conditional prediction. A body of evidence, E, will then count as confirmatory if it provides, or appears to provide, grounds for accepting both I and O but *recalcitrant* if it provides, or appears to provide, grounds for accepting I but rejecting O. But recall that according to the standpoint of Quine's holistic empiricism, *every* element contributing to such a verdict of overall recalcitrance is potentially open to rational revision. The potential suspects therefore include not only

(i) the theory, T, itself;

(ii) the logic L that mediates the derivation of the testing conditional, $I \rightarrow O$;

(iii) the claim that E does indeed corroborate both I and not-O and

(iv) the *bona fides* of the evidence E,

but also

(v) the claim that the relevant testing conditional is indeed an L-consequence of T.

Should there be any doubt about (v), then we do not yet have a situation where any modification of the theory, or of its underlying logic, or of any of the other components in the situation is called for, nor therefore is there so far any cause to make adjustments that might, all being well, lead to an overall strengthening of our belief system and a justified further entrenchment of core ingredients in it. The very process of gradual improvement of a system of belief in response to empirical findings thus demands a relative epistemic security, in any testing context, for the type of judgment that (v) typifies.[6] Simply: before we can move to consider what improvements apparently recalcitrant data should occasion, we need to know that we are indeed in trouble—that the data, if accepted, are indeed recalcitrant for predictions which are indeed consequences, relative to the logic used, of certain of our theoretical beliefs.

The reader will anticipate the obvious next question: if the only way in which any judgment can acquire the status of knowledge is by increasingly entrenched participation in successful empirical theory, how can our judgment that (v) is true possibly have acquired that status? For (v) is—or so we may suppose—a *new* judgment which we have never made before, attributing a new prediction to the theory, T. Of course (v) may be an instance of a general (meta-) logical judgment that we have already made. But in that case, that it is so will itself be a novel judgment if (v) has not previously been formulated.

The point, in short, is that a fully self-conscious process of theory refinement and improvement must, on the Quinean model, commit the theorist to judgments about logical consequences whose epistemic good standing is presupposed if the process itself is to be in epistemic good standing but which cannot in general yet have acquired the only kind of epistemic good standing that anti-exceptionalism recognizes for general laws: viz. entrenchment in successful empirical theory.

When, as the Quinean insists, T's underlying logic, L, is treated as simultaneously participating in the confirmational/disconfirmational 'swim', as it were, the judgments we have focused on will be metalogical and relative: they will concern what follows from what in L, and they will typically be arrived at by reasoning about L. If they indeed *are* knowledgeable, it would seem that we must say that knowledge of them is achieved by such reasoning, and that it will therefore depend on our knowledge of the first principles that determine the metalogic in which the reasoning is given. But these principles will be versions of the rules for the conditional, the universal quantifier, and so on, our knowledge of whose good standing is what the Quinean is challenged to vindicate and explain in broadly empiricist terms. According to the argument just concluded, that explanation cannot proceed in terms of gathering entrenchment in successful empirical theory. And if it is to proceed in terms of what we do by way of actually convincing ourselves of the

6. As the reader will note, (v) is a *metalogical* statement about the proof-theoretic capacities of L. It could be accepted by someone who rejected L—and indeed would likely be so if in the recalcitrant context envisaged, suspicion fell on L—and, conversely, it might be rejected as a misrepresentation of the consequence relation encoded in L.

soundness of the principles concerned, it would appear that it must inevitably be non-empirical, so exceptional.

§4 REJECTION AND THE R-PICKLE

It's a striking feature of the way Quine himself tended to write about these issues that the logic whereby we orchestrate and apply any empirical theory, T, is effectively regarded as part of that theory and has accordingly to answer before "the tribunal of experience" along with the rest of T. He predominantly speaks in terms of logical *truths* and logical *laws*, thereby obscuring the point that the 'logic' of T may not exist except as embodied in the inferential practices of the theorists: there need be no explicitly formulated body of axioms or rules. But now an objection surfaces. Logic, conceived as inferential practice rather than a compendium of propositions, is simply not the right kind of thing to be just part, albeit a deeply entrenched part, of empirical theory and thus not the right kind of thing, either, to be adjudged to square well, or to come into collision, with empirical data. Has the anti-exceptionalist made a simple category mistake?

We need a more judicious formulation of the Quinean view. What can come into collision with empirical data is indeed not inferential practice as such but explicit *logical theory*: logic, that is, schematized in propositional form. Before we can hold logic accountable, as the anti-exceptionalist holds we should, to empirical evidence, we will need to theorize it: to explicitly cast the logic whereby an empirical theory is conducted in a form suitable for explicit augmentation of that theory. Let it be that our most basic logical principles have their original home in routine inferential practice. Still, we can formulate them explicitly nonetheless and submit the resulting body of statements to empirical testing. An inferential practice can, in this way, be held straightforwardly accountable to the "tribunal of experience."

Let's pursue this. Suppose we have somehow arrived at a plausible (by whatever criteria) formulation of a logical theory, L, which is intended to explicitly encode our antecedent inferential practice of an empirical theory, T. Consider the new enlarged theory, L+T. To subject this enlarged theory to empirical test, we are taking it the anti-exceptionalist will claim, is tantamount to subjecting, *inter alia*, our previously inexplicit inferential practice to test.

Very well. However if L+T is to be subjected to empirical testing, we will need to equip *it* with an underlying logic. We will need to make inferences to and from ingredients in it, exploring consequences and potential inconsistencies. So: what is to be the system of inference, L*, in which the testing of L+T is to be thus conducted?

Ideally, L* would be disjoint from L, and would be independently highly credible. Only then would it offer a medium for properly independent testing and accreditation of L+T. But this ideal looks unrealistic. If L is, e.g., a propositional and quantificational logic of any normal degree of strength, L* will surely significantly

overlap with it. *How can we test the empirical credentials of a logic by using what is essentially the same or a substantially coincident logic?*

This way be Dragons! Suppose we deduce a contradiction between elements of T+L and observational data, O, and are tending to the view that it is not T, but L that is to blame—specifically, that the rogue may be one of L's basic principles, R. In order for this suspicion to be a rational option, *we have to remain confident that the original derivation of the contradiction is good*, that is, that we really have shown that T+L conflicts with the observational data. So we had better have no qualms about the good standing of the L*-principles essentially involved in that derivation. What if a counterpart of R *itself* is so involved?

Casually regarded, the situation might seem merely to be a form of *reductio* of R. But that reaction is not dialectically stable. Rather, if R is indeed essentially involved, not as a premise, but as a rule of inference in the reasoning whereby we obtain the contradiction, treating the situation as a reductio of R plunges us into a state of aporia. For in order rationally to justify a proposal to revise R on the basis of the contradiction, we need to repose trust in the consequence relation for L*—to trust that L*-consequences *really are* consequences; and in order to trust in that, we need to trust that conclusions licensed by R, as one of the L*-principles involved, *genuinely follow*. So we wind up both distrusting R—our proposed Quinean conclusion—and committed to trusting it—otherwise we cannot justify the distrust. R becomes, as it were, an unreliable witness to its own unreliability.

If this is right, then we should reject the Quinean thought that when one is led to a situation of "recalcitrance" in the practice of a scientific theory, it can in principle be rational to hold to account not merely the empirical scientific premises, but *any* aspect of the inferential machinery involved. There is incoherence in the idea that the case for revising a rule of inference, R, might rest on a derivation of a Problem—a situation of "recalcitrance"—in circumstances where the derivation relies essentially on R itself.[7] The key thought is that the belief that *you really have a Problem*, which rationality requires you to remedy, must rely on the belief that your derivation is sound, so on a belief that R is good. If you then query that, you undermine your reason for thinking that you have a Problem in the first place.

It may be questioned[8] whether in order to draw the conclusion that R is unreliable we need, in the way suggested, to presuppose R's reliability. Is not the situation rather like that where a witness, Fred, (we can add: under oath) says, "I am unreliable." We exactly *don't* need to trust Fred in order to rationally accept what he has said. Rather we can reason by dilemma: Either he is reliable or not. If he is, we can accept what he has said, so he isn't; and if he isn't, well then he isn't. Either way, he isn't reliable. Likewise with R: if it is sound, then the derivation shows there

7. We needn't worry what exactly the nature of the 'Problem' might be—above we worked with the toy idea of getting results inconsistent with observation, but that was just to fix ideas; the key point is only that something that our methodology bids us regard as a Problem be arrived at by inference from L+T in L*.

8. I am here indebted to Joshua Schechter.

is a Problem with assuming it to be sound; and if it isn't sound, then it isn't sound. So either way, we can rationally take it to be unsound.

But there is no relevant parallel. Here's why. The situation with R will be complicated by the fact that in any actual case, there will be, for Quinean reasons, a *holism* of factors contributing to the apparent Problem besides the use of R. True, we presented the case as involving some strong background reason why R is prima facie supposedly especially suspect, but even so, the Fred analogy becomes questionable when we reckon with the holism in any R-case. For the holism entails we *don't have* the conditional we need for the first horn of the above dilemma: viz., "If R is sound, then the derivation shows there is a problem with it." Rather we should think that if R is sound, then the Problem unearthed by the derivation is *not* to be attributed to R but must after all be attributed to some other factor(s) in the holism. On the dilemma's first horn, what we should do, rationally, is reassess our judgment that R is the prime suspect in the genesis of the Problem. So the dilemma collapses.

The illustrated pickle—let's call it the 'R-pickle'—won't arise if the L*-principles involved in the original derivation happen not to include any counterpart of R. It is of interest that there are ways to ensure that they don't—to an extent. Many readers will recall that before the more recent vogue for teaching elementary logic by reference to systems of natural deduction, older textbooks would outline axiomatic systems. The rules of inference involved in the latter were usually pretty sparse. Where for example a natural deductive exposition might include a primitive rule of disjunction elimination, an axiomatic text might include an axiom like

$$((P\&R \rightarrow T)\ \&\ (Q\&S \rightarrow T)) \rightarrow (((PVQ)\ \&\ (R\&S)) \rightarrow T),$$

whose application in proofs would then be left to rules of admissible substitution for the sentential letters involved, and, of course, to *modus ponens*.[9] So to avoid the R-pickle in any particular case, we can axiomatize R, add it to T+L, and fall back on an underlying logic containing just substitution rules and *MPP*. So L* can indeed always be quite a bit sparer than L may be.

"Quite a bit," but only provided it contains resources for detachment and instantiation. Casting rules of inference in the form of conditional schematic axioms accomplishes nothing unless we have an out-rule in L* for the conditional, tantamount to detachment, and rules for the legitimate instantiation of schemata that are arguably epistemically tantamount to special cases of Universal Instantiation. To attempt to call *these* rules to account before the tribunal of experience must, it seems, be to succumb to the R-pickle.

The hard-line anti-exceptionalist does have a little wiggle room. They might seek to formulate a restriction such that, in the undoubtedly far-fetched kind of a scenario where modus ponens or universal instantiation are reasonably regarded

9. Pedagogically, this kind of thing placed great (often unmeetable) demands on the substitutional insights of even very good students.

as under empirical pressure, it is only *unrestricted* versions of them that are under suspicion of spawning a Problem, and only *restricted* versions that are needed in the L* -reasoning on which we need to rely in order to be rationally confident that there is indeed a Problem to be dealt with. But the project of persuading us of plausible examples of how this might work I am happy to leave to the anti-exceptionalist.

What we may conclude is that *some versions* of modus ponens and universal instantiation respectively must indeed be treated as exceptional within any coherent management of sufficiently rich systems of empirical belief. Principles of detachment and instantiation may be 'tweaked' but they cannot rationally be abandoned wholesale. The reason is that the overall patterns of reasoning licensed by these principles cannot be regarded as challenged outright and in full generality by experience except at the cost of the cognitive incoherence of the R-pickle.

§5 THE METHODOLOGY OF EXPERIENCE-DRIVEN BELIEF REVISION

We can presume that anti-exceptionalism will be invested in some general methodology of experience-driven revision of empirical theory, logic included, prescribing when and why such revisions are rationally acceptable. Such a methodology, call it M, will presumably admit of explicit principled articulation. Presumably the principles of M will take a general conditional form, along the lines: whenever such-and-such a situation develops, you should modify the theory in one of such-and-such ways, and then review the results in the light of subsequent experience in accordance with such-and-such criteria. While, to be sure, there is no need to suppose that any theorist who manages a theory rationally by the lights of M follows its precepts as explicit rules, the anti-exceptionalist must at least presumably allow this: that episodes of rational empirical belief management can always be (retroactively) justified by appeal to such an M—that an explicit articulation of the *rationale* for an adjustment, or sequence of adjustments, if one is possible at all, will involve adverting to the mandate for them that is entailed by the relevant methodological principles plus some description of the specific predicament into which the theory in question has fallen.

Well, the question is simply: how could the provision of such an explicit rationale avoid instantiating the general principles of M to the specific situations concerned and detaching across the conditionals resulting from those instantiations? In addition, since it seems that spelling out the idea of "recalcitrance" of evidence for theory will need appeal to a notion of inconsistency, an explicit justification for the idea that revision is even called for in the first place, will need to appeal to the validity of some version of *reductio* (a negation-introduction) rule.

What follows is that in order fully to rationalize the judgment that a specific revisionary proposal is required by, or is at least in keeping with, whatever methodology

of logical revision a theorist endorses, the theorist will unavoidably have to advert to claims about what that *general* methodology entails for the *specific* situation that has arisen. This will inevitably embroil them in instantiational and conditional thinking. And if their methodology requires the obviation of 'recalcitrance'—and so obviation of inconsistency between data and predictions—they will need, in order to justify their specific proposed revisions, to rely on reasoning in accordance with something like *reductio ad absurdum*. To hold that these principles have been put in doubt by certain empirical findings, if it is to be more than an ad hoc unprincipled judgment, will be methodologically justifiable, if at all, only by appeal to reasoning involving these very principles.

§6 CONCLUSION

We have found three considerations that require at the least some degree of mitigation of a generalized Quinean anti-exceptionalism about the epistemology of logic.

First, *Corroboration* is false in full generality: judgments about what follows from what (in such-and-such a logical system) cannot coherently be conceived as justifiable only by their track record in successful empirical theory.

Second, *Rejection* is false in full generality. If there are logical principles for which experience might conceivably generate negative pressure, they must be taken to exclude (maybe qualified forms of) modus ponens and universal instantiation (and arguably *reductio ad absurdum* too).

Third, versions of those principles must indispensably feature in any systematic rationalization of a decision to reject or qualify logical principles in the light of recalcitrant experience.

We should conclude with a qualification to the significance of these findings. Simply, that successful argument that logical judgment in general cannot enjoy the status that anti-exceptionalism accords it does, of itself, no direct favors to rationalism or to friends of the a priori. All that immediately follows is that one radically empiricist global account of the epistemology of logic is incorrect. Still, that it is incorrect is something that it is as well to know; and something anti-exceptionalists will do well to acknowledge and accommodate if there is ever to be a fully credible articulation of the kind of view to which they are attracted.[10]

10. This paper draws extensively on the joint work with Paul Boghossian reported in our paper, "Kripke, Quine, the "Adoption Problem" and the Empirical Revisability of Logic", forthcoming in *Mind*. The central ideas have benefited from discussion at a presentation to the Cogito group in Glasgow in April 2021, at a workshop held in connection with the *Knowledge Beyond Natural Science* project funded by the John Templeton Foundation at Stirling from 2017 to 2019, and at the dedicated seminars associated with that project. I gratefully acknowledge the support of the Templeton Foundation. In addition, Paul and I received very helpful feedback during our graduate seminar on the Epistemology of Logic at NYU in the spring of 2020.

REFERENCES

Bengson, John. 2015. "The Intellectual Given." *Mind* 124:707–60.

BonJour, Laurence. 1998. *In Defense of Pure Reason*. London: Cambridge University Press.

Hjortland, Ole. 2017. "Anti-exceptionalism about Logic." *Philosophical Studies* 174:631–58.

Maddy, Penelope. 2002. "A Naturalistic Look at Logic." In *Proceedings and Addresses of the American Philosophical Association*, 76 (2): 61–90.

Priest, Graham. 2014. "Revising Logic." In *The Metaphysics of Logic*, edited by P. Rush, ch. 12, 211–23. Cambridge: Cambridge University Press.

Putnam, Hilary. 1969. "Is Logic Empirical?" *Boston Studies in the Philosophy of Science* 5:216–41.

Quine, W. V. O. 1951. "Two Dogmas of Empiricism." *Philosophical Review* 60 (1): 20–43. doi:10.2307/2181906. Reprinted in his (1953) *From a Logical Point of View*. Cambridge, MA: Harvard University Press.

Read, Stephen. 2019. "Anti-Exceptionalism about Logic." *Australasian Journal of Logic* 16 (7): 298.

Williamson, Timothy. 2007. *The Philosophy of Philosophy*. Oxford: Blackwell.

Williamson, Timothy. 2013. *Modal Logic as Metaphysics*. Oxford: Oxford University Press.

Wittgenstein, Ludwig. 1969. *On Certainty*, edited by G. E. M. Anscombe and G. H. von Wright. Oxford: Blackwell.

Wright, Crispin. 1986. "Inventing Logical Necessity." In *Language, Mind and Logic*, edited by J. Butterfield, 187–209. Cambridge: Cambridge University Press.