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The Adoption Problem in the Philosophy of Logic

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ABSTRACT

In the philosophy of logic, the Adoption Problem is a challenge to the claim that reasoners can, in certain ways, rationally change which logic they use. The (alleged) problem is that if someone does not already infer in accordance with some fundamental logical principles (such as Universal Instantiation or Modus Ponens), then they cannot rationally begin to do so: the “adoption” of these principles is either unnecessary or impossible. In the literature, three issues have emerged as especially contentious: (1) How should we understand the argument for the Adoption Problem? What exactly is the argument’s conclusion, and how is it established, if at all? (2) How could someone who thinks that the rational adoption of logic is possible respond to the Adoption Problem? (3) What are the consequences of the Adoption Problem for related issues in the philosophy of logic? In this paper, we address each question in turn. We suggest that the Adoption Problem is best understood in the form of an inconsistent quartet of theses regarding logical inference. We classify positions on logical adoption in terms of which of these theses is abandoned, and we show that such a taxonomy of positions is useful for delineating the scope and consequences of the Adoption Problem.

1 | Introduction

Logicians disagree about which logical inferences are correct.¹ Advocates of the Logic of Paradox, for instance, reject Modus Ponens; intuitionists do not accept the Law of Excluded Middle; relevantists reject the use of irrelevant premises in inferences; and non-contractivists hold that whether an inference is valid depends on how many times a premise is repeated. Logicians’ theories have also varied over time, from Stoic propositional logic, to medieval theories of *consequentia*, to Fregean quantification.

The diversity of logical theories and practices raises the question of whether, and how, someone could rationally change the

logic they accept and use in their reasoning. Quine (1951) argued that logical theories can be revised in the same way, and for similar reasons, as scientific theories.² The idea is that one can revise not only one’s commitments about logic, but also one’s use of logic. Indeed, this process seems to capture how we make progress in fields such as science: we first find out what the correct theory of something is, and we then let that theory inform our thinking.

In the case of logic, such a change in inferential practice is called the *adoption* of a logic, where adopting a logic is understood as not only accepting it as correct, but also using it (inter alia) in one’s reasoning (Kripke 2024; Priest 2015; Russell 2014). The fundamental idea can be formalized like so:

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Logic-Adoption:

Step 1. We rationally identify a logic as the correct logic.

Step 2. Solely on the basis of our result in Step 1, we rationally change, if necessary, our practices and dispositions regarding intellectual activities, and we thus begin to use the logic identified as correct.

To assume that logical adoption is possible is to assume that which logic one accepts and uses is under one's rational control, in roughly the same way that one's beliefs are under one's control; this control is not necessarily voluntary or intentional, but it is, in some sense, rational (see Boyle 2011; Clarke 2010).³

Motivating Logic-Adoption is the thought that (proper) logical theorizing can improve one's reasoning. The distinction between *logica docens* and *logica utens* provides a useful illustration. *Logica docens* is our logical theory; it is the explicit logical system that one teaches in logic class. *Logica utens* is our logical practice; it is the logic that one uses in one's intellectual activities, including when one reasons. The idea behind Logic-Adoption is that we can identify a desired *logica docens*, and then, based on our findings, change our *logica utens*. As Priest (2015) puts it, "We determine what the best theory of reasoning is (the best *docens*), and simply bring our practice (*utens*) into line with that. How else could one be rational about the matter?" (220). Indeed, as we discuss below, one's understanding of rationality is at the crux of the Adoption Problem.

Logic-Adoption raises several worries. Regarding Step 1, some worry that we cannot determine which logical theory is correct without presupposing the correctness of a particular logical theory (Priest 2015; Russell 2014); this is the so-called Background-Logic Problem. Proponents of the Adoption Problem (Padró and Barrio 2022; Kripke 2024) raise a worry regarding Step 2: Is it really possible for a thinker to rationally begin using new logical principles on the basis of having accepted these principles as correct—and if so, how?⁴ The (alleged) problem, in short, is that one cannot rationally begin to use certain principles, because doing so requires that one *already* be using them.⁵ Many take the logical principles at issue in the AP to include Universal Instantiation (UI) or Modus Ponens (MP): one needs to already use MP, for example, in order to figure out how to apply MP in a particular case.

The Adoption Problem (AP) is independent of the Background-Logic Problem; it is meant to arise even if Step 1 of Logic-Adoption succeeds. This distinguishes challenges of Logic-Adoption based on the AP from challenges based on the Background-Logic Problem or pluralistic worries about whether there is *one* "correct" logic. Rather, the AP is concerned with whether a change in logical practice can be effected *rationally*—and, consequently, with what it means to be rational about logic.⁶

This paper is an introduction to, and overview of the literature on, the Adoption Problem. We pursue these aims by presenting a novel formulation of the AP as an inconsistent quartet of theses. This provides an illuminating way of surveying the extant literature. We do not discuss particular responses to the

AP at length; instead, we aim to helpfully represent the space of possibilities.

Section 2 presents the AP in the form of a dialog, as it was first introduced by Kripke and Birman. Section 3 discusses possible reconstructions of the problem and introduces our inconsistent quartet. Section 4 provides a taxonomy of responses to the AP based on this quartet. Section 5 concludes.

2 | The Adoption Problem

The question of adoption was first broached by Kripke in the 1970s. Four decades later, it resurfaced in Birman's⁷ work, in which she coined the term "Adoption Problem." The resulting debate centers around three questions: Is the AP *really* a problem for Logic-Adoption? If adoption is impossible, what about logic or inference makes it so? And if it is in fact possible, where does the AP go wrong?

Kripke rejected the idea that thinkers might "choose their logic" (Berger 2011; Kripke, 2024). Inspired by Carroll's (1895) dialog between Achilles and the Tortoise, Kripke argued that any thinker who attempted to adopt a fundamental logical principle would be faced with a problem: if they didn't already "see" the logical relation between the principle's termini, their acceptance of the principle wouldn't change the matter. And if they did already see the connection, acceptance would be superfluous.⁸ Hence, an agent cannot begin to reason in accordance with a logical principle merely by accepting or believing it.⁹

Kripke and Birman both introduced the issue using a dialog. Imagine someone ("the Adopter") who cannot currently reason with Universal Instantiation (UI)—"who somehow just doesn't see that from a universal statement each instance follows" (Kripke 2024, 15).¹⁰ The Adopter is reasonable and cooperative.

Adopter: All ravens are black.

You: Here is a closed box, with a raven inside. Is it black?

Adopter: I don't know.

You: OK. Here's a new logical principle for you to use in your reasoning about this raven: All universal statements imply each of their instances.

Adopter: OK. I accept and now believe this principle.

You: Is this raven black?

Adopter: I don't know.

You: Well, "All ravens are black" is a universal statement, and "This raven is black" is an instance. So, this raven is black.

Adopter: I'm not entirely sure. I believe that all ravens are black and that from each universal statement, each instance follows; but I don't see why this would imply anything about this raven.

In this dialog (adapted from Kripke 2024), you give the Adopter testimony that UI is correct; the Adopter assumes (correctly and

rationally, let's suppose) that the testimony is true, reliable, and trustworthy. This gives the Adopter knowledge of the logical principle, thereby accomplishing Step 1 of Logic-Adoption. No additional ingredients—such as an explanation of the connection between the premises and conclusions of UI inferences—are required by Logic-Adoption. But when you present them with an opportunity to demonstrate their new logical knowledge, by inferring an instance from a universal statement, the Adopter is unable to perform the inference.

The Adopter is stuck. In order to be guided by UI in their reasoning, they would need to recognize “All ravens are black” as a universal statement, and then to perform an intermediary inference, from “All universal statements imply each of their instances” to “*This* universal statement implies each of *its* instances.” However, by hypothesis, they cannot do this, since this inference is itself an instance of UI.

That the Adopter is unable to perform the desired inference is, according to advocates of the AP, neither an intuition nor an empirical claim. Rather, the point is that there is no argument that (a) starts from only the premises “This is a raven,” “All ravens are black,” and “All universal generalizations imply their instances”; (b) uses only rules of inference that the Adopter can, by hypothesis, use; and (c) reaches the conclusion “This raven is black.”

Birman argues that the same problem arises for Modus Ponens, and possibly Adjunction, Non-Contradiction, and Identity (Padró 2015); the literature focuses mostly on UI as an archetypal case.¹¹

Three remarks are warranted:

First, the AP assumes that some relatively clear change in one's inferential practice is rationally demanded by one's acceptance of a new logical principle. Philosophers who hold that logical theory is not in the business of improving or informing our inferential practice—such as Harman (1986)—might reject the relevance of the AP. This is one way of setting aside the issue entirely, but it requires substantial prior commitments.

Second, an opponent might object that, as a matter of psychology, the Adopter's belief in the UI principle will cause them to “see” the connection between the premises and conclusion directly, thus disarming the problem. Advocates of the AP will retort, however, that it is unclear why such a causation of the requisite “seeing” ought to be considered rational. They will ask their opponent to explain how such a case differs from cases where the Adopter's “seeing” is caused by, say, ingesting a pill or receiving a blow to the head. We further discuss such disagreement in §4.

Finally, one might worry that the dialog is just not credible: we cannot make sense of a rational thinker who understands the UI principle but cannot make UI inferences. Inferentialists about the logical constants, for instance, hold that one's understanding of the logical constants is constituted by one's dispositions or ability to reason in accordance with the inferential rules that govern those constants (see Boghossian and Wright 2024). However, most proponents of the AP dismiss this objection as premature. Birman (2024, §4), for example, argues that any

objection to the AP which relies on the idea that the Adopter in the dialog does not genuinely understand UI only pushes the problem to the level of meaning.

Furthermore, those who want to defend the possibility of logical adoption have reason to be cautious in raising this inferentialist concern. If understanding the logical constants requires that one reason in particular ways, it is difficult to see how one could change one's beliefs about basic logical principles without changing what one means. This, however, makes it difficult to understand as genuine the logical disagreements that motivate logical adoption.

Nevertheless, it is partly because of such complications regarding the original dialogical presentation of the AP that we aim to present the problem in a different form.

3 | Reconstructions

In this section, we explain previous reconstructions of the AP and present a novel formulation of the problem as an inconsistent quartet. This allows us to mediate disagreement on questions such as: How should we understand the argument featured in the AP as it was originally intended? What exactly is the conclusion, and how is it established, if at all?

We first differentiate two ideas:

The Adoption Problem:

Certain basic logical principles cannot be adopted because, if a subject can already infer in accordance with them, no adoption is needed, and if they cannot do so, no adoption is possible (see Padró 2015, 41–42).

The Adoption Hypothetical:

- i. Let the Adopter be a person who cannot infer in accordance with a logical principle.
- ii. Imagine that the Adopter does whatever adoption of that logical principle requires them to do, according to a given account of adoption—including accepting the principle itself.
- iii. Next, the success of their adoption is tested by seeing whether they can now infer in accordance with that principle.
- iv. If the Adopter still cannot do so, then adoption of that principle is impossible, assuming our given account of adoption.

The Adoption Problem is a thesis to be proved or disproved, whereas the Adoption Hypothetical is an argument sketch for doing so, of which Kripke's dialog is one instantiation. The Hypothetical is a blueprint for constructing such a dialog, and as such it does not tell us in advance whether the adoption of any particular principle is possible. The Hypothetical can be filled out in various ways depending on one's theory of logical inference, including the demands of rational adoption.

This explains why responses to the AP have been so varied (see below). To the extent that there is common ground in the literature, it is in the use of *some* version of the Hypothetical to prove or disprove the Problem. But because different accounts disagree regarding which version of adoption should be appealed to in the Hypothetical, and about the consequences of such choices, the ongoing debate does not seem to converge on a resolution.

Rather than using a Hypothetical, we formulate the AP in the form of an inconsistent quartet. This allows us to step back from the debate, analyze the problem in a new way, and classify different authors' responses.

Before doing so, we need one more ingredient: How should the inferences involved in the Hypothetical be understood? According to the original view presented in Padró (2015), in the dialog above, the Adopter is asked to perform two inferences. Although their exact formulation varies, they are variants of the following:

Principle-Level Inference

- P1-1:** All universal statements imply each of their instances.
P1-2: "All ravens are black" is a universal statement.
C1: "All ravens are black" implies each of its instances.

Ground-Level Inference

- P2-1:** All ravens are black.
P2-2: This is a raven.
C2: This (raven) is black.

This striking—and, we think, underexamined—picture of logical inference, according to which inferring in accordance with a new logical principle involves performing two distinct inferences, is crucial for many positions in the AP literature. It is motivated by the idea that Step 1 of Logic-Adoption puts in place a belief, and the only way to rationally utilize this belief is to reason from it as a premise.

It's natural to think of the first inference (from P1-1 and P1-2 to C1) as an inference in a meta-language, and the second (from P2-1 and P2-2 to C2) as an inference in an object-language. Authors differ in their formulations of the premises and conclusions; Susanszky (2023) words them as first-person epistemic statements, while Besson (2019) presents them more formally using a turnstile. Depending on the exact formulation of the Principle-Level Inference, one may also add further inferential steps to this reconstruction. But these differences don't matter for our purposes. The important point is that, in all reconstructions, there are (at least) two inferences, both of which are instances of UI.

A crucial claim in Kripke's and Birman's argument against adoption is the idea that Logic-Adoption entails a dependence of the second inference on the first, and this dependence is what makes adoption of UI impossible. If the Adopter couldn't

(by assumption) previously perform the second inference, then they won't be able to perform the first one, since both inferences have the same logical form. But if they can't perform the first inference, then they will not be able to perform the second, since—and this is the crucial idea—the second *depends* on the first. The Adopter's acceptance of the UI principle (P1-1), therefore, does not enable them to make either of the two inferences.

What is the dependence between the two inferences? Birman holds the strictest view, namely that the Ground-Level Inference is *inferentially* dependent on the Principle-Level Inference. On her account, the Adopter's acceptance of UI is supposed to provide a new conditional premise, from which they infer, via MP, the desired conclusion.¹² Accordingly, the second inference would be:

Ground-Level Inference—2

- P2-1:** All ravens are black.
P2-2: This is a raven.
P2-3: *If all ravens are black, then this raven is black. (From C1)*¹³
C2: This raven is black.

According to Birman, the Adopter should perform the inference from P1-1 to C1, and from that conclusion, extract a conditional statement that will serve as an additional premise in the inference from P2-1 to C2. This turns the Ground-Level Inference into an instance of MP, which we may assume the Adopter *can* perform. Adoption is still impossible, however, because the Adopter cannot perform the Principle-Level Inference that is needed to get to P2-3.

Birman's inferential model has been criticized (Boyd 2022; Boghossian and Wright 2024; Hattiangadi 2023). In a broadly similar way to Birman, Besson (2019) provides a reconstruction of the Adopter's reasoning that also includes an extra conditional premise, and Chudnoff (forthcoming) describes P2-3 as an "inferential seeming." However, both authors later argue against these accounts of adoption. Others have rejected the inclusion of anything like P2-3 in their reconstructions of the problem. One alternative account of the dependence relation between the Principle-Level and Ground-Level Inferences, implicit in Finn (2019), is to treat it as *causal*, not inferential—so that if the Adopter manages to perform the Principle-Level Inference and reach C1, then the Adopter can make the Ground-Level Inference from P2-1 to C2 without any additional premises. This causal (or perhaps constitutive) connection might be understood in several ways, all of which would explain how the Adopter could, after having performed the first inference, perform the second *without any further premises*.

How the dependence relation is spelled out does not, by itself, change whether the adoption of UI is possible: either way, the second inference depends (causally or inferentially) on the first, and Kripke's point is that the Adopter is *incapable of performing the first*. This inference dependence is the crux of the argument implicit in the Adoption Hypothetical.

We can now explain the sense in which the AP is a “*reductio*” of Logic-Adoption.¹⁴ The four theses below form an inconsistent quartet, and Birman takes Logic-Adoption to involve a commitment to all four (where *A* is the Adopter and *LoP* is the logical principle they mean to adopt):

1. *Rationality*

- A* can rationally adopt *LoP* only
 - i. *A* does not already infer in accordance with *LoP*; and
 - ii. *A* can start to infer in accordance with *LoP* in virtue of accepting *LoP*.

2. *Inference Dependence*

A can start to infer in accordance with *LoP* in virtue of accepting *LoP* only if *A* can make two successive inferences, namely a Principle-Level Inference in which *LoP* figures as a premise and a dependent Ground-Level Inference in which *LoP* is applied.

3. *Fundamentality*

Some logical principles are “fundamental”, meaning that the Principle-Level Inference associated with adopting such a principle (in the sense spelled out by 1 and 2) is an instance of that very same principle. If *LoP* is fundamental, then *A* can make the Principle-Level Inference in which *LoP* figures as a premise only if *A* can already infer in accordance with *LoP*.

4. *Logical Choice*

Rational adoption of *all* logical principles, including fundamental ones (in the sense of 3), is possible.

To see that 1–4 are inconsistent, notice that 1–3 jointly imply the following claim, which contradicts 4.

The Fundamental Adoption Problem

If *LoP* is fundamental, then one cannot rationally adopt *LoP*.

For, suppose that *LoP* is fundamental. Then by 3, the Principle-Level Inference associated with adopting *LoP* is an instance of *LoP*. By 1 ii, in order to rationally adopt *LoP*, one must start to infer in accordance with *LoP* in virtue of accepting *LoP*; and by 2, in order to do so, one must be able to make two successive inferences, the first of these being an instance of *LoP*. But this requires that one already infers in accordance with *LoP*, contradicting 1 i. So, by *reductio*, one cannot rationally adopt *LoP*.

These four theses can be extracted from Birman’s (2024) presentation of the AP. *Rationality* states what it means to rationally adopt a logical principle according to a view like Logic-Adoption. The explicit mention of rationality means that proponents of the AP are not primarily concerned with empirical, psychological facts about how people do *in fact* adopt logical principles—the question is whether people could ever do so in the way spelled out by *Rationality*.

Condition i should be understood in such a way that it does not merely say that the Adopter *happens* not to infer in accordance with *LoP*, but rather that they are not *capable* of doing so. Furthermore, the “in virtue of” phrasing in ii is meant to rule out certain undesired instances of “adoption” that do not satisfy the rationality requirements of the AP (see Boghossian and Wright, 2024, 91).

Inference Dependence expresses the idea that in order to change one’s inferential practice on the basis of a newly endorsed principle, one must first use the principle as a premise in a (Principle-Level) inference, which will then enable one to make the (Ground-Level) inferences sanctioned by the principle. As discussed above, this dependence relation may be understood either inferentially or causally.

Fundamentality spells out the factor that determines which logical principles are subject to *The Fundamental Adoption Problem*. A principle is fundamental if using it as a premise in an adoption requires inferring in accordance with it. One way to motivate the idea that there must be such fundamental principles is to point out that, if we wanted to rebuild our logical practice from scratch, then the first principle we adopted would have to be fundamental: the only alternative would be to adopt it by inferring in accordance with another principle, which we haven’t yet adopted.¹⁵

Finally, *Logical Choice* is the view that every proponent of Logic-Adoption must take on board—namely that rational adoption of all logical principles is possible and relates to what we mean when we speak of “choosing one’s logic.”

Whether this argument stands—and which thesis is best suited for the proponent of Logic-Adoption to reject, if it does stand—is a controversial issue. Furthermore, the problem extends beyond Logic-Adoption, in the sense that everyone must reject at least one of theses 1–4. A satisfying response to the AP should tell us not only which of the four theses one ought to reject, but also whether and where the picture of logical inference in 1–4 goes wrong, and what a better picture may look like.

4 | Responses to the Adoption Problem

We now turn to suggested solutions to the AP: we classify positions in the literature according to which of theses 1–4 they reject. This classification is not mutually exclusive, and we do not have the space to discuss positions at length. The taxonomy is nevertheless sufficient to establish that existing contributions to the literature are *genuinely disagreeing*: such disagreement is helpfully described as disagreement about how to respond to the inconsistent quartet.

We sketch the responses as follows:

- Non-intellectualism***: Reject clause ii of *Rationality*
Possible motivation: Adoption requires dispositions or intuitions or insights that cannot be acquired by

merely accepting a logical principle.

Unmediated change: Reject *Inference Dependence*

Possible motivation: Accepting a logical principle can change one's inferential practice in an unmediated way, without occurring as a premise in another inference.

Unprincipled substructure: Reject *Fundamentality*

Possible motivation: The reasoning required to get from the acceptance of a logical principle to inferring in accordance with it is possible without relying on logical inferences. If there is a Principle-Level Inference, it is not an instance of any logical principle.

Restricted logical choice: Reject *Logical Choice*

Possible motivation: Fundamental logical principles cannot be rationally adopted; they are essential to any inferential practice. Logical theory choice is restricted to non-fundamental principles.

The motivations for these options are not mandatory; perhaps one can find further motivations. Moreover, the boundaries between options are fuzzy, since rejecting one thesis might incite one to reject another. We now classify extant responses to the AP according to this taxonomy.

4.1 | Non-Intellectualist Responses

Non-intellectualist responses reject clause ii of *Rationality*—that *A* can adopt *LoP* only if *A* can start to infer in accordance with *LoP* in virtue of accepting *LoP*. Non-intellectualists question whether such a strict conception of rational adoption, as captured by the “in virtue of” phrasing, is justified. Once one rejects ii, one can insist that what makes the adoption of a principle rational is simply whatever made the prior *acceptance* of that principle rational. If a thinker has chosen their principle rationally, their subsequent change in inferential practice will be rational—regardless of how it comes about (perhaps in “non-rational” ways). In this sense, non-intellectualist responses might be understood not as “solutions” to the AP, but rather as advocating a different understanding of what it means for a change in one's inferential practice to be rational.

The most popular non-intellectualist response to the AP is the idea that adopting a logical principle involves only the acquisition of a disposition. “Dispositionalist” non-intellectualists tend to be sympathetic toward Logic-Adoption, and they are committed to the possibility of the rational adoption of all logical principles, in whatever revised sense of *rational* they suggest. Williamson (2024), for example, defines logical adoption as “a special case of coming to accept a new scientific theory,” grounded in one's gradual development of “defeasible dispositions” to infer according to certain principles.

Similarly, Devitt and Roberts (forthcoming) understand logical inference as a rule-governed skill or practical competence.

The AP then becomes a general problem about how to gain “knowledge how” via “knowledge that” (Ryle 1946). According to Devitt and Roberts, the Adopter cannot learn how to infer according to UI by being told a propositional form of the principle (or rule). Rather, they must develop the appropriate inferential dispositions—which they can do with the help of a coach who will tell them *when* to infer *what* until, over time, they develop the ability to do so independently.

4.2 | Unmediated-Change Responses

Unmediated-change responses reject *Inference Dependence*. Someone who holds this view might accept *Rationality*, and agree that a logical principle must play a cognitive role in its adoption, but insist that this role need not involve the principle serving as a premise in a Principle-Level inference, as *Inference Dependence* demands.

Articulating clear instances of this view has proven difficult. Indeed, *Inference Dependence* and *Rationality* hang together nicely: if logical adoption is a rational process that involves changing one's inferential practice in virtue of accepting a logical principle, what kind of role could the principle play that doesn't involve the Adopter reasoning from it? One needs to provide an account of the principle's cognitive contribution that would enable the Adopter to infer in accordance with it as soon as they have accepted it. Some authors, such as Hattiangadi (2023) and Boyd (2022), point in this direction without suggesting a clear path for replacing *Inference Dependence*.

Boghossian and Wright (2024) propose an alternative to *Inference Dependence* which is grounded in linguistic understanding: the Adopter can start inferring in accordance with a logical principle in virtue of having accepted it only if *they understand the logical vocabulary involved in the formulation of that principle*. But Boghossian and Wright conclude that rational adoption of certain principles is still impossible, because for some logical expressions, a statement of their inferential profile must use these expressions themselves. This shows that rejecting one of theses 1–3 will not necessarily allow one to accept 4. In general, those who reject *Rationality* and *Fundamentality* tend to maintain *Logical Choice*, but those who reject *Inference Dependence* do not.

4.3 | Unprincipled Substructure Responses

Unprincipled-substructure responses reject *Fundamentality*. They do so usually by positing a principled distinction between logic and some other kind of reasoning that is (also) involved in speaking a language or in being a competent cognitive agent. This provides one way of maintaining *Rationality* and *Logical Choice* together. Consequently, unmediated-change responses might overlap with unprincipled-substructure responses, depending on one's view about which cognitive acts count as instances of reasoning: the former view holds that the acceptance of a logical principle yields an inferential ability without involving an act or process of reasoning, while the latter holds

that a process or act of reasoning is required but does not involve logical inferences.

Cohnitz and Nicolai (forthcoming) argue that if someone knows how to speak a compositional language and perform basic inferences of any kind, then they already know how to perform schematic substitution and reason conditionally—and they thus have all of the skills required to adopt any formal logical principle. In other words, assuming we already speak a language, *Fundamentality* doesn't apply to any principle we may ever actually want to adopt—not even MP or UI.

Besson (2019) grounds the Adopter's cognitive capacities not in linguistic competence, but in the ability to “recognize patterns as the same” (185). According to Besson, no logical principle is fundamental: logical adoption requires only that the Adopter recognize patterns and perform schematic substitution.

Chudnoff (forthcoming) also grounds the possibility of logical adoption on our cognitive capacities: the progression from newly accepted logical principles to particular “inferential seemings,” as he calls them, does not require any inference. Thus, “while logic might be basic to inference,” he writes, “inference is not basic to cognition—including cognition that is responsive to evidence.”

4.4 | Restricted Logical-Choice Responses

Finally, advocates of the fourth response reject *Logical Choice* and hold that some logical principles cannot be adopted. Finn (2019, 2021), for example, takes the AP to pose serious constraints on inferential practice, and her reconstruction of the Hypothetical is close to Birman's original presentation. According to Finn, the source of the Adopter's troubles is the form that logical principles need to take in order to guide reasoning in the way demanded by *Rationality* and *Inference Dependence*. Logical principles are understood as universalized conditionals, which are grasped at the meta-inferential level and subsequently “underwrite” a thinker's object-level logical inferences (2021, 4905). This means that, as *Fundamentality* makes explicit, UI and MP are *self-governed rules of inference* (2019, 248) and cannot be adopted, though all other logical principles can be. Susanszky (2023) modifies Finn's argument to show that Adjunction is also unadoptable.

5 | Conclusion

We have summarized recent literature on the AP and provided a taxonomy of reactions to it. The AP, when understood as an inconsistent quartet, is a substantial problem in the philosophy of logic—one that extends beyond debates regarding Logic-Adoption. No matter one's position regarding logical inference, one must avoid the inconsistency of theses 1–4. There are many ways of doing so: by rejecting one or several theses, modifying them, or a combination of both.

What are the consequences of the AP for related issues in the philosophy of logic? More specifically,

- A. Is the adoption of certain logical principles impossible? (If so, which ones?)
- B. If so, does this fact impose a substantial constraint on our logical inferential practice?
- C. Is Logic-Adoption defensible?

In short: it depends. The AP is best understood as a tool that investigates the compatibility of logical adoption with various other philosophical commitments, thus pushing philosophers to make explicit prior commitments and disagreements regarding the nature of logical inference. Nevertheless, we take the taxonomy in §4 to provide an overview of the space of possibilities for answering these questions. If you accept *Rationality*, then endorsing *Inference Dependence* and *Fundamentality* will commit you to a positive answer to A, which will then inform your answers to B and C. If you are a non-intellectualist who rejects *Rationality*, however, then other options are open to you for maintaining the possibility of *Logical Choice* and answering A–C accordingly. In that case, however, your picture of rational adoption, like that of Devitt and Roberts (2024), will have substantially changed from the one proposed by Logic-Adoption.

Birman's *reductio* therefore convincingly shows that Logic-Adoption—of the kind championed by, for example, Priest (2015)—can likely not be defended from the AP in its full generality. A modified version of Logic-Adoption (one with a more modest scope, or one compatible with the rejection of *Inference Dependence*) seems to be the best option for anyone who would like to defend the view.

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Endnotes

¹ See, for example, Dummett (1991); Putnam (1968); Priest (2015); Read (1988). Although, in what follows, we write as though there is exactly one correct logic, this is merely for ease of exposition; as far as we can tell, the issue of logical monism/pluralism is orthogonal to our topic.

² More recently, the same view has been defended by some so-called *anti-exceptionalists* about logic (Hjortland 2017).

³ The adoption of logic also poses problems that do not arise in the case of beliefs, because it requires, in addition to a change in one's beliefs, a change in which inferences one makes (see Chudnoff, forthcoming).

⁴ Padró and Barrio (2022, 207) describe the target of the AP as the thesis that we can accept logical principles and rules of inference in the same way that we accept scientific hypotheses and, on the basis of such acceptances, develop new inferential practices.

⁵ Note that advocates of the AP do not necessarily deny that the logical principles we use can change, or that someone can learn to reason logically; they deny that we can change our logical reasoning *merely by accepting principles (or rules)*—that is, they reject Logic-Adoption.

⁶ Indeed, not just *any* change in inferential practice would satisfy the person who aims to adopt a logical principle; they could not, for

example, ingest a psychoactive drug that inexplicably changes their inferential practice. Baked into Logic-Adoption is the requirement that there be something rational—however one chooses to understand such a requirement—about the change.

⁷ Birman was publishing under the name Padró at the time.

⁸ The AP is not concerned, then, with the possibility of making one's already-instituted logical practice explicit, nor with removing principles from one's logical practice. It concerns only the adoption of new principles.

⁹ Although the problem is often formulated in terms of a reasoner being able to “see” some logical connection, the issue is not merely psychological but rather epistemological: it concerns rationality (though not necessarily knowledge or justification).

¹⁰ Following the general trend in the AP literature, we use the following version of UI:

Universal Instantiation: From “All Fs are Gs [or have property G]” and “x is an F”, infer “x is a G [or has property G].”
(Or the variant: from “All Fs are Gs”, infer “This F is G.”)

The difference between this rule (also known as Universal Modus Ponens) and the rule usually used in formal systems won't matter for our current purposes, which are to introduce readers to the AP. See Devitt and Roberts (2024), Finn (2019), and Birman (2024) for more on this point.

¹¹ Which logical principles cannot be adopted according to the AP is controversial. As will become clear, many consider MP and UI to be the AP's primary targets because they reconstruct principles of inference as universally quantified conditionals. Below, we present a formulation of the AP that allows us to stay neutral on this issue.

¹² This is based on Birman's writing, as well as conversations with her.

¹³ The precise connection between C1 and P2-3 depends on the details of one's logical theory. Using a model-theoretic approach, one can read “All ravens are black” implies each of its instances” as shorthand for “In every model in which ‘All ravens are black’ is true, ‘is black’ is satisfied by all objects that satisfy ‘is a raven’.” Assuming that what preserves truth-in-all-models preserves truth, it follows that if “All ravens are black” is true, then “This raven is black” is true (ignoring complications regarding “this”). Assuming a truth-elimination rule infers “A” from “A” is true”, we get: “If all ravens are black, then this raven is black.” As this illustrates, a rigorous formalization of these matters would be complex, involving issues such as the semantic paradoxes. However, these complications are not crucial for our presentation of the AP. The issue is also discussed in Birman (2024, 41–42).

¹⁴ Birman (2024, 40) presents the AP as a *reductio* of what she calls Inferential Cognitivism, which is similar to Logic-Adoption.

¹⁵ It is controversial which principles are fundamental in this way (e.g., Finn 2019; Suzanszky 2023; Boghossian and Wright 2024). See footnote 11.

References

Berger, A. 2011. “Kripke on the Incoherency of Adopting a Logic.” In *Saul Kripke*, 177–207. Cambridge University Press.

Besson, C. 2019. “Knowledge of Logical Generality and the Possibility of Deductive Reasoning.” In *Inference and Consciousness*, edited by A. Ness and T. Chan, 172–196. Routledge.

Birman, R. 2024. “The Adoption Problem and the Epistemology of Logic.” *Mind* 133, no. 529: 37–60. <https://doi.org/10.1093/mind/fzad009>.

Boghossian, P., and C. Wright. 2024. “Kripke, Quine, the ‘Adoption Problem’ and the Empirical Revision of Logic.” *Mind* 133, no. 529: 86–116. <https://doi.org/10.1093/mind/fzad011>.

Boyd, D. 2022. “The Adoption Problem and Relativism About Logic.” *Análisis Filosófico* 42, no. 2: 249–275. <https://doi.org/10.36446/af.2022.389>.

Boyle, M. 2011. “Making Up Your Mind’ and the Activity of Reason.” *Philosophers’ Imprint* 11, no. 17: 1–24.

Carroll, L. 1895. “What the Tortoise Said to Achilles.” *Mind* 4, no. 14: 278–280. <https://doi.org/10.1093/mind/iv.14.278>.

Chudnoff, E. Forthcoming. “Reasoned Change in Logic.” In *Evidentialism at 40: New Arguments, New Angles*, edited by K. McCain and M. Steup, Routledge.

Clarke, R. 2010. “Making Up One’s Mind.” In *Action, Ethics, and Responsibility*, edited by J. K. Campbell, Oxford University Press.

Cohnitz, D., and C. Nicolai. Forthcoming. *How to Adopt a Logic*. Dialectica.

Devitt, M., and J. R. Roberts. 2024. “Changing Our Logic: A Quinean Perspective.” *Mind* 133, no. 529: 61–85. <https://doi.org/10.1093/mind/fzad010>.

Dummett, M. 1991. *The Logical Basis of Metaphysics*. Duckworth.

Finn, S. 2019. “The Adoption Problem and Anti-Exceptionalism About Logic.” *Australasian Journal of Logic* 16, no. 7: 231–249. <https://doi.org/10.26686/ajl.v16i7.5916>.

Finn, S. 2021. “Limiting Logical Pluralism.” *Synthese* 198, no. S20: 4905–4923. <https://doi.org/10.1007/s11229-019-02134-8>.

Harman, G. 1986. *Change in View*. MIT Press.

Hattiangadi, A. 2023. “Logical Conventionalism and the Adoption Problem.” *Aristotelian Society Supplementary* 97, no. 1: 47–80. <https://doi.org/10.1093/arisup/akad008>.

Hjortland, O. 2017. “Anti-Exceptionalism About Logic.” *Philosophical Studies* 174, no. 3: 631–658. <https://doi.org/10.1007/s11098-016-0701-8>.

Kripke, S. 2024. “The Question of Logic.” *Mind* 133, no. 529: 1–36. <https://doi.org/10.1093/mind/fzad008>.

Padró, R. 2015. *What the Tortoise Said to Kripke: The Adoption Problem and the Epistemology of Logic*. CUNY Academic Works.

Padró, R., and E. A. Barrio. 2022. “El problema de la adopción de reglas lógicas.” *Análisis Filosófico* 42, no. 1: 33–42. <https://doi.org/10.36446/af.2022.542>.

Priest, G. 2015. “Revising Logic.” In *The Metaphysics of Logic*, edited by P. Rush, 211–223. Cambridge University Press.

Putnam, H. 1968. “Is Logic Empirical?” *Boston Studies in the Philosophy of Science*: 216–241. https://doi.org/10.1007/978-94-010-3381-7_5.

Quine, W. V. O. 1951. “Two Dogmas of Empiricism.” *Philosophical Review* 60, no. 1: 20–43. <https://doi.org/10.2307/2181906>.

Read, S. 1988. *Relevant Logic*. Basil Blackwell Press.

Russell, G. 2014. “Metaphysical Analyticity and the Epistemology of Logic.” *Philosophical Studies* 171, no. 1: 161–175. <https://doi.org/10.1007/s11098-013-0255-y>.

Ryle, G. 1946. “Knowing How and Knowing That.” In *Proceedings of the Aristotelian Society*, Vol. XLVI.

Suzanszky, P. 2023. *Trying to Adjunct without Knowing How: Adjunction and the Adoption Problem*, anac055. Analysis.

Williamson, T. 2024. “Accepting a Logic, Accepting a Theory.” In *Saul Kripke on Modal Logic*, edited by R. Padró and Y. Weiss, Springer.