

THE VACUITY OF LUDWIG VON MISES'S APRIORISM

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Ludwig von Mises's methodological apriorism is often attributed to the broader Austrian School of economics. However, there is considerable controversy concerning the meaning of Mises's justification of his apriorism. There are inconsistencies within and across Mises's methodological writings that engender confusion in the secondary literature. This confusion is aggravated by the fact that his apriorism cannot be interpreted as an artifact of his historical milieu. The two prevailing families of interpretation both treat Mises's apriorism as anachronistic, albeit in divergent senses. I conclude that the primary and secondary literatures on Mises's apriorism indicate its inconsistency and incoherence. We have no idea what justification Mises intended when he asserted the a priori nature of the fundamental propositions of economics. If this is right, then, whatever method(s) they follow, Austrian economists cannot (deliberately) follow Mises's apriorism, because no one knows well enough how Mises meant to justify it to follow it purposefully.

I. INTRODUCTION

Austrian School economists are regularly described as *methodological apriorists*. Ludwig von Mises's interpreters often move from their own interpretation of his methodological writing to unwarranted assertions that it both expresses the historical Mises's true intentions and reflects the Austrian method of economic analysis.¹ Both of

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¹ According to Murray Rothbard (1976), Mises's praxeology is "*The Methodology of Austrian Economists*" (emphasis added). Although Robert Nozick (1977, p. 361) connects apriorism only with "[o]ne branch of Austrian theorists (Mises, Rothbard)," the title of his paper identifies it with "Austrian methodology." According to Mark Blaug (1980, pp. 91–92), Mises's apriorism is the methodology of "Modern Austrians ... a small group of latter-day Austrian economists ... numbering among its adherents such names as Murray

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these inferences, from a particular interpretation of Mises's methodology to the claim that the interpretation represents 1) his true intentions and 2) the actual practice of Austrian economists, are dubious. The evidence suggests that no one knows what Mises intended. If this is right, then no one can deliberately follow his methodology in practice. To the extent that there are self-described methodological Misesians among contemporary Austrians, what they actually follow is their own individual interpretation of Mises's methodology, which—given the confusion about Mises's intended position documented herein—could only accidentally conform to his intended methodology.

The epistemology upon which Mises's apriorism is founded has long baffled commentators, both friends and foes of the Austrian School. Many mutually inconsistent positions have been inferred from Mises's methodological commentaries. The controversy over his methodology concerns the question where his epistemological justification lies along a spectrum of epistemological positions.

To be an apriorist about some proposition *P* is to argue that, for one reason or another, *P* can safely be exempted from empirical testing. Various justifications have been offered by different economists for exempting particular propositions from such testing.² According to one such justification, *P* is known independently of sensory experience, e.g., the truth of *P* is "self-evident" or easily recognized by reflecting upon it using nothing more than the human faculty of reason. Justified in this way, apriorism is a variety of epistemological *rationalism*, the theory of knowledge according to which human rational faculties are, under appropriate conditions, sufficient for knowledge of circumstances external to these faculties. Conversely, this way of justifying the exemption of a proposition is an abomination to epistemological *empiricism*, the theory of knowledge according to which, on its own, pure reason is impotent with regard to knowledge of the world of experience and that, therefore, insists on the necessity of sensory experience for the acquisition of such knowledge.³

Rothbard, Israel Kirzner, and Ludwig Lachmann." Terence Hutchison (1981, p. 214) also associates Mises's apriorism with "modern Austrians," except "Hayek II" and Kirzner (against Hutchison's delineation of multiple Hayeks, see Caldwell 1992 and Scheall 2015). Bruce Caldwell (1982) associates apriorism with "Austrian methodology." According to David Gordon (1994), "The Philosophical Origins of Austrian Economics" support an Aristotelian version of Mises's apriorism. Hans-Herman Hoppe (1995) describes Mises's apriorism as "*The Austrian Method*" (emphasis added). According to Peter Leeson and Peter Boettke (2006, pp. 247–248), "to the Austrian economists who trained with Mises during his New York University period (1944–1969), like Murray Rothbard, adherence to methodological *apriorism* is the distinguishing characteristic of the Austrian school, and alternative methodological positions are interpreted as undermining Mises' strong claim about the nature of economic reasoning" (emphasis in the original). Gabriel Zanotti and Nicolás Cachanosky (2015) identify "Austrian epistemology" with Fritz Machlup's (1955) attempt to align Mises's epistemology with a moderate kind of proto-Lakatosianism (against this, see Scheall 2017b). Alexander Linsbichler's (2017) *Was Ludwig von Mises a Conventionalist? A New Analysis of the Epistemology of the Austrian School of Economics* associates Mises's epistemology (whatever it may have been) with the Austrian School itself.

² For a survey of some of these justifications, see Scheall (2017b).

³ It is important to be careful here. There are empiricist (or, perhaps better, *phylogenetic*) versions of apriorism. Indeed, F. A. Hayek ([1952] 2017) explicated and defended a naturalized, evolutionary, conception of a priori knowledge (Scheall 2020, pp. 122–123). This kind of apriorism is harmless on empiricist epistemology as it conceives a priori knowledge as a consequence of—and as contingent upon—the epistemic subject's (or its species') interactions with the environment, i.e., of *experience*, in some sense, rather than as due to the subject's pure, experientially unleavened, rational faculties. Such phylogenetic

It is of course common to think of modern science as primarily an empiricist exercise in using sensory experience to discover, develop, and justify explanatory theories of natural and social phenomena. True, the exact nature of the relationship between empiricism and science is and will likely remain a knotty problem, but most people would agree that any rationalistic approach to science, any attempt to spin explanatory theories out of one's head about the world of experience without said experience, is an artifact of a pre-modern conception of science. This being said, it should be noted that the conception of a spectrum of epistemologies, with traditional foundationalist rationalism on one end, and modern empiricism on the other end, is not my own but one inherited from the relevant literature. It goes at least as far back as the well-known debate between Fritz Machlup and Terence Hutchison in the mid-1950s (for more on that debate and its relevance to the controversy over Mises's apriorism, see Scheall 2017b).

Any attribution of Mises's apriorism to the Austrian School, whether it comes from their intellectual opponents or their defenders, should be understood against this background and recognized, and probably decried, as the dialectical gambit it usually is. Such claims are often leveled at Austrians by their adversaries, who, for some of the reasons just mentioned, consider the accusation of apriorism to be an insult. If Austrians are apriorists, or if important people can be convinced that Austrians are apriorists, then, these intellectual opponents seem to believe, the scientific status of Austrian economics is undermined, and Austrians are revealed to be little better than dogmatists about economic and related (i.e., political) phenomena. Unsurprisingly, this is a popular argumentative tactic of those who wish to challenge the liberal politics typically associated with Austrian economics. What is more surprising, given the latter tactic, is to find a few Austrians explicitly defending something like Mises's apriorism (see, e.g., Rothbard 1957; Maclean 1980; and Hoppe 1995). How can a methodological position that their opponents consider a cudgel with which to beat them be embraced by these Austrians as a shield against said beating? A short and unsatisfactory, if basically correct, answer to this question is that some of these Austrians are simply confused about what methodological apriorism does and does not allow them to accomplish.⁴

On the other hand, there are Austrians (see, e.g., Machlup 1955; Leeson and Boettke 2006; and Zanotti and Cachanosky 2015) who interpret his methodology as more moderate. Indeed, these interpreters ultimately ignore, downplay, or otherwise explain away Mises's seemingly extreme rationalistic justification, and emphasize instead certain of his suggestive references to a kind of pragmatism or conventionalism (see Scheall 2015). These epistemologies are varieties of empiricism that deny the possibility

apriorisms, given their contingent dependence on engagement with the environment, do not ensure truth, which, for Mises (and other praxeologists), was an essential aspect of praxeology.

⁴ I agree with Alexander Linsbichler (2017) that Mises probably adopted apriorism as a way around the problem of induction. But, if Mises adopted rationalistic apriorism as a way to protect the laws of economic science from the problem of induction, then he grasped a poisoned chalice. Rationalistic apriorism does not solve the problem of induction as much as ignore it. Rationalistic apriorism is not a way to establish the veracity of economic laws but a rejection of the need to support such laws with empirical evidence, which thereby leaves the source of our knowledge of economic laws opaque. It denies sensory experience as a source of our knowledge of economic laws and replaces it with a vague promise that this knowledge is already there, somehow, in our heads. If you ask, "How did it get there?" the rationalistic apriorist can only answer that either some higher power placed it there or the human mind possesses some *sui generis* faculty for the discovery of truths about the world of experience without access to this world.

of a priori knowledge as conceived as a product of pure reason. If there are pragmatists or conventionalists among Austrian economists, they are not rationalistic apriorists.

I have suggested elsewhere (Scheall 2017a), albeit without offering an explicit argument in defense of the claim, that we ultimately do not know what justification Mises intended when he asserted that the most basic assumption of economic theory is known a priori. Mises did not provide the material necessary to determine the correct interpretation of his apriorism—or rather, more exactly, such material as Mises provided in this regard points in so many different directions that a conclusive determination of its intended justification is impossible. It is difficult to avoid the conclusion that there is something of an effort in Mises’s methodological proclamations to both eat cake and keep it. The end result is a muddle. As I put the point in that prior essay,

Any proposition can be inferred from a contradiction. The fact that many mutually impossible epistemological propositions have been inferred from Mises’ writings is an abductive warning that there may be nothing of substance—no “there”—there. ... Ultimately, we simply do not know what the historical Ludwig von Mises believed about epistemology. (Scheall 2017a, p. 114)⁵

My goal in the present paper is to further develop and defend this thesis.

As exemplified in the tendency to draw unjustified conclusions about both Mises’s intentions and actual Austrian practice from nothing more than a particular interpretation of his apriorism, there are several distinct issues that are frequently conflated in the literature on Mises’s methodology, which, in the interests of clarity of thought, are better kept separate. The present paper is also an effort to delineate distinct issues that have previously been insufficiently distinguished.

II. THE PROBLEM OF THE PRIMARY LITERATURE, PART 1: THE APPARENT INCONSISTENCY OF MISES’S WRITINGS ON ECONOMIC METHODOLOGY

The chief issue at stake in the literature on Mises’s apriorism concerns not the *extent* of his apriorism—i.e., not how many or how few of the fundamental propositions of economic theory he thought to be a priori—but the *epistemological status* of the so-called action axiom that constitutes the theoretical foundation of praxeology (Scheall 2017b), Mises’s general science of human action, the “best-developed part of” which is economics (Mises [1949] 1998, p. 237). The action axiom states that *human*

⁵ This comment appears in a review of Linsbichler (2017). Though he does not develop the point—indeed, Linsbichler’s conclusion is that Mises was *almost*, but not really, a conventionalist—Linsbichler seems sympathetic to the notion that, because Mises did not provide the material to determine its significance, we are simply ignorant of the intended justification of Mises’s apriorism: “Mises repeatedly and vehemently insists on the aprioristic character of praxeology. However, as a closer look shows, it is not clear what exactly he claims by stating ‘Praxeology is *a priori*’ (Mises 1962, p. 45), and how his scarce arguments therefore are to be interpreted” (Linsbichler 2017, p. 73). It should be noted, however, that, unlike several other authors cited here, Linsbichler (also see Linsbichler 2021 and Lipski 2021) is more concerned to provide a reformist agenda that preserves what is interesting and valuable about praxeology than with defending a moderate interpretation of Mises’s epistemology against critics of its seeming extremeness.

action is purposeful behavior (Mises [1949] 1998, p. 11). Mises made several claims about the epistemology of human action that have struck many readers over the decades as extreme and dogmatic, if not unscientific.

I have described two of these extreme epistemological claims elsewhere as the “Reason without Experience” and “Greater Certainty” theses (Scheall 2017b). According to the first, our knowledge of human action is due entirely to the faculty of reason, i.e., to pure reason, intuition, introspection, or reflection on “inner experience,” entirely unaided by prior sensory experience. According to the Reason without Experience thesis, our engagement with the world of “outer experience” is impotent with respect to this knowledge; the external world neither leads us to nor can undermine our knowledge of human action.

[W]hat we know about our action under given conditions is derived not from experience, but from reason. What we know about the fundamental categories of action—action, economizing, preferring, the relationship of means and ends, and everything else that, together with these, constitutes the system of human action—is not derived from experience. We conceive all this from within, just as we conceive logical and mathematical truths, *a priori*, without reference to any experience. Nor could experience ever lead anyone to the knowledge of these things if he did not comprehend them from within himself. (Mises [1933] 2003, pp. 13–14)⁶

According to the second thesis, the Greater Certainty thesis, by virtue of being introspectable, intuitable, etc., our knowledge of human action is more secure, more certain, than knowledge acquired through experience of the external world. Indeed, according to Mises, our knowledge of the purposefulness of human action is *absolutely* secure or “apodictically certain.” Theorems validly deduced from the action axiom “are not only *perfectly certain and incontestable*, like the correct mathematical theorems[, t]hey refer, moreover, with the full rigidity of their apodictic certainty and incontestability *to the reality of action as it appears in life and history*. *Praxeology conveys exact and precise knowledge of real things*” (Mises [1949] 1998, p. 39; emphasis added).⁷

Putting these theses together, we get the outlines of a rationalist epistemology according to which it is possible to possess apodictically certain and incontestable knowledge about “real things”—that is, about human action in the external world of outer experience (“in life and history”) without any contact with, or input from, this same

⁶ Mises reiterated this thesis several times over the course of his career. For substantively similar statements in later writings, see Mises ([1949] 1998, p. 64; 1962, pp. 71–72). It would be difficult, I think, to make the case that Mises changed his mind about the Reason without Experience thesis.

⁷ Again, this is a thesis that Mises put forward several times across the decades. He asserted it both before ([1933] 2003, p. 18) and after (1962, p. 45) the passage quoted in the text. Rather oddly, however, amid these assertions of the absolute certainty of purposeful human action, Mises ([1957] 2005, p. 165) claimed it was “impossible to demonstrate satisfactorily by ratiocination that the alter ego is a being that aims purposively at ends.” The fact that he asserted the Greater Certainty thesis both before and after this latter claim suggests two possibilities: either Mises changed his mind about the thesis sometime between 1949 and 1957, and then subsequently changed his mind back before reasserting the thesis in 1962, or he failed to understand its implications. In combination with the Reason without Experience thesis (which he repeated several times and seemingly never denied), the Greater Certainty thesis implies the falsity of the 1957 claim about the impossibility of demonstrating the purposiveness of “the alter ego’s” action.

world. It is not necessary to excavate far below the surface of Mises's methodological writings to find what seems a fairly radical rationalist epistemology.

This being said, however, there are other places in relevant texts where Mises made subtle gestures toward more moderate epistemological stances. It is here that the problem of finding an internally consistent reading of Mises's methodological writings is manifest, for these elusive hints of more moderate epistemological attitudes do not sit comfortably with his strong statements of the Reason without Experience and Greater Certainty theses.

Mises ([1949] 1998, pp. 35, 85–86; 1962, pp. 14–16) made comments that seem to imply that human knowledge might be subject to evolutionary processes over historical time. Yet, he never explained how his seemingly rationalistic justification of the apriority of the action axiom fit within this sketch of a proto-evolutionary epistemology. If human knowledge evolved over time, it is not immediately obvious how the part of it that concerns human action “in life and history” could have been exempted from the effects of experience.

I do not mean to suggest that a consistent story is impossible to tell here, merely that combining the Reason without Experience and Greater Certainty theses in an evolutionary epistemology is not *obviously* consistent and, therefore, requires some explanation. Indeed, given the creative ways that intelligent thinkers often find of unifying their seemingly inconsistent ideas, the problem is more that Mises provided no guidance for determining which of the many ways his claims might be made consistent he intended.

Or, again, consider the fact that Mises made strong assertions of human epistemic fallibility (Mises [1949] 1998, p. 68), yet never explained why his fallibilism stopped short of the action axiom. Anyone who thinks his knowledge of human action is apodictically certain is manifestly not a fallibilist about *this* knowledge.

Similarly, Mises seemed favorably inclined to a sort of pragmatism (Mises [1957] 2005, p. 248; 1962, p. 96) but rejected a pragmatic interpretation of the apriority of the action axiom—it was not, according to Mises ([1949] 1998, pp. 39–40, 85; 1962, pp. 17–18), merely an assumption made for reasons of scientific convention, ease and convenience, or practical utility.

Thus, the evidence from the primary literature indicates that Mises said some things that suggest a fairly radical rationalism and some other things that undercut to some degree the extremeness of this rationalism.⁸ However, these things do not—or, at least, do not obviously—all sit comfortably together. The combination of claims for a priori “*exact and precise knowledge of real things*” due to pure reason with evolutionary or pragmatist epistemology is somewhat unusual in the history of ideas. Most epistemological fallibilists are fallibilists about *all* of human knowledge. Limiting his fallibilism, as Mises did, to everything but the action axiom is a non-standard epistemological stance. Some elucidation is in order. Unfortunately, Mises never explained how his radically rationalist statements were, in his mind, consistent with his more moderate statements.

Internal consistency might seem to be the least we can reasonably expect from a theory of knowledge, but I want to suggest the possibility that Mises's epistemology fails

⁸ For more on the few suggestions of moderation to be found in Mises's methodological writings, see the section titled “Traces of Analyticity and Conventionalism in Mises' Defense of Praxeology” in Linsbichler (2021, pp. 3376–3378).

to meet even a weaker criterion: taken in its entirety, Mises's epistemological commentary is so unclear and, relatedly, as we will see below, the personal circumstances that informed it so uncertain that, ultimately, we do not know what his theory of knowledge was, and cannot tell even whether it was internally consistent or not. Mises's epistemology fails to meet even a criterion of minimal clarity required to discern its internal consistency.

III. THE PROBLEM OF THE SECONDARY LITERATURE: RECAPITULATING THE INCONSISTENCY OF MISES'S WRITINGS ON ECONOMIC METHODOLOGY

The most prominent line of interpretation in the secondary literature reads the epistemology at the core of Mises's apriorism as a kind of extreme rationalism. Such a reading can be found in Terence Hutchison (1938, 1981), Murray Rothbard (1957), Paul Samuelson (1964), Mark Blaug (1980), Gillis Maclean (1980), Bruce Caldwell (1982, 1984), Hans-Herman Hoppe (1995), Maurice Lagueux (1998), Wade Hands (2001), Dimitris Milonakis and Ben Fine (2009), Eugen Schulak and Herbert Unterköfler (2011), and Scott Scheall (2015). Most, but not all, of these interpretations are negative: Rothbard, Hoppe, and Maclean defend, rather than criticize, the apparent extremeness of Mises's apriorism and, in varying respects and to differing degrees, the Kantian epistemology upon which it seems to have been founded.⁹

It is, of course, precisely those strains of moderation mentioned in the previous section—Mises's gestures toward evolutionary epistemology, fallibilism, and pragmatism—that interpreters take up who wish to save him from accusations of extreme rationalism. Mises's apriorism has been variously interpreted as assimilable in some degree to Popperian falsificationism (see Champion [manuscript]; Di Iorio 2008); to Imre Lakatos's (1968) methodology of scientific research programs (see Machlup 1955; Rizzo 1983; Zanotti and Cachanosky 2015); and to W. V. O. Quine's (1951) epistemological holism (see Leeson and Boettke 2006). Alexander Linsbichler (2017) reads Mises as *almost* a conventionalist.

Unfortunately for these interpreters of Mises as a merely moderate apriorist, as noted above, he explicitly undercut several of these readings elsewhere in his writings. Those moderate readings that are not explicitly undercut are implicitly undone by extreme statements like the Reason without Experience and Greater Certainty theses.

I have argued that moderate readings of Mises's apriorism can ultimately be sustained only if the most prominent criticisms that have been set against it in the secondary literature are simply ignored (Scheall 2017b). Interpreters of Mises's apriorism as moderate do not so much confront and counter these criticisms, or provide a moderate reading of his extreme statements of the Reason without Experience and Greater Certainty theses, as pretend they do not exist. Nevertheless, those furtive hints of a

⁹ The Kantian interpretation of Mises's epistemology can be found in, e.g., Rothbard (1957, [1973] 1997), Milford (1992), Radnitzky (1995), Hoppe (1995), Prychitko (1998), Hands (2001, p. 41), Otter (2010), and Schulak and Unterköfler (2011, p. 139). Kurrild-Klitgaard (2001, p. 127) and Koppl (2002, p. 33) doubt the connection between Mises's epistemology and Kantianism. Barrotta (1996) argues that, if Mises meant to be interpreted as a Kantian, then he misunderstood Kantian transcendental idealism.

more moderate Misesian epistemology *are* present in his writings. It is no more legitimate to ignore them simply because they might seem to be dominated by his more rationalistic comments than it is for the interpreters of Mises as moderate to ignore the latter.

We are obligated by the *principle of interpretative charity* to assume that Mises had some clarifying idea in mind that unified his seemingly inconsistent epistemological statements. However, Mises did not provide this explanation himself. The task of unifying his apriorism was left to his descendants in the Austrian tradition. The variety of conflicting interpretations adds to, rather than diminishes, the confusion surrounding the primary literature. Anyone who sought to understand Mises's methodology and who found frustration in the master's own writings would find no solace, and probably only additional frustration, in the commentary upon these writings. In this regard, the secondary literature on Mises's methodology decidedly fails to fulfill its function of clarifying the primary material.

The evidence from the primary literature suggests the possibility of internal inconsistency. The fact that the secondary literature exhibits such varied and mutually inconsistent interpretations, each supported to varying degrees by reference to Mises's own texts (or, as we will see below, to certain of his extra-textual remarks), reinforces the impression of the possible internal inconsistency of his epistemology without bringing us closer to a definitive determination. It is of course perfectly normal to find tension among different interpretations in any body of secondary literature, but Mises's epistemology offers an especially egregious example. Tension in the secondary literature is normal; it is not normal to find in the secondary literature of a coherent thinker mutually exclusive interpretations each more or less equally supported—and undermined—by the relevant texts (or by some extra-textual remark).

We are left in the awkward position of granting to Mises the charitable notion that some unifying conception underlies his seemingly inconsistent assertions, even though the clues we possess regarding this explanation are themselves inconsistent, leading in multiple directions at once. This is another way of saying that, if there is an internally consistent reading that unifies the whole of Mises's methodologically relevant writings—i.e., an interpretation that does not just emphasize this or that aspect of his writings while ignoring other aspects that undercut the interpretation—we do not know what this interpretation might be.

IV. THE PROBLEM OF THE PRIMARY LITERATURE, PART 2: MAKING SENSE OF MISES WITHIN HIS MILIEU

If it could be shown that Mises's epistemology was an artifact of his milieu, there might be hope for understanding it by considering the circumstances from which it emerged. This is not possible in Mises's case. It is difficult to recognize his methodological arguments as artifacts of the historical and geographical context in which they were propagated. The two leading families of interpretations in the secondary literature both treat Mises's apriorism as radically anachronistic, albeit in opposite senses.

In its extreme interpretation, Mises's apriorism is, as F. A. Hayek (1978, p. 137) put it, a relic of "almost eighteenth-century rationalism." Mises seemed to have missed much

of what the nineteenth century added to the history of philosophy and science, at least outside of economics. Mises penned his methodological writings at around the same time and almost literally across the University of Vienna quadrangle from the room in which the members of the Vienna Circle of Logical Positivism were rewriting the philosophy of science. Yet, Mises's writings on economic methodology reflect a near complete ignorance, or innocence, of the scientific and philosophical problems that led the Viennese Positivists (and many other philosophers of the era) to deny the possibility of synthetic a priori knowledge and to reconceptualize the epistemological significance of analyticity.

This is not the place to recount this history in detail. Suffice it to say that such was the impact of Immanuel Kant's ideas that the status of a priori knowledge, analytic or synthetic, became one of the central intellectual problems of the nineteenth and early twentieth centuries, occupying philosophers, mathematicians, logicians, and physical scientists. Over the course of the sesquicentenary that separated Kant from Mises, various claims that Kant had made for the apriority of particular domains of knowledge were successively whittled down to effectively nothing by the time Mises was writing. First, in the 1830s, the mathematician Bernard Bolzano showed the inadequacy of Kant's arguments for the synthetic a priori nature of arithmetic (Coffa 1991, pp. 22–40). Around the same time, several scholars—the Hungarian János Bolyai and the Russian Nikolai Ivanovich Lobachevsky (1829–1830), and, a bit later, Bernhard Riemann (1854)—established the possibility of non-Euclidean geometries. Not long after, that giant of nineteenth-century science Hermann von Helmholtz showed that these possibilities call into considerable doubt Kant's claim for the apriority of the Euclidean nature of our spatial perceptions (Coffa 1991, pp. 47–60). Einstein's writings on relativity in the first decades of the twentieth century called such claims into further doubt (Coffa 1991, pp. 317–320; also see Reichenbach [1920] 1965).

Mises's methodological writings do not engage with these developments. There are passages in his writings that indicate he was either not privy to or did not appreciate the significance of many recent (and often local) developments in contemporary philosophy and natural science. It is not that Mises-the-rationalist argued for the possibility of (synthetic) a priori knowledge against the many arguments that had been advanced against it in the previous century and a half; he simply ignored (or was unaware of) them.

Mises ([1949] 1998, pp. 72–91) argued against the possibility of multiple logics long after polylogism was a well-established empirical fact. This ignorance or negligence is particularly odd, given the contributions of his Viennese colleagues Karl Menger ([1932] 1979) and Kurt Gödel (1930, 1931, 1932) to the relevant literature. Mises knew Menger, in particular, very well. In addition to being a professor of mathematics at the University of Vienna and a member of the Vienna Circle, Menger was the son of the founder of the Austrian School of economics, was active in Viennese economic circles throughout the 1920s and early 1930s (Mises left Vienna in 1934; Menger, in 1937), made scholarly contributions to the school, and, in one of these (Menger [1936] 1979), even warned Mises that his loose approach to deductive logic failed to meet modern standards of mathematical logic. Menger said, "Mises wrote me that he learned a great deal from the paper" (Menger [1936] 1979, p. 279). Despite this, Mises ([1949] 1998, pp. 72–91) seemed to think that his rejection of racial- and class-based relativizations of logic sufficed to counter polylogism. However, this is an obvious non sequitur: though it was perhaps an admirable stance to defend in the wake of Nazism and Stalinism, it does

not follow from the fact that logics are not relative to race or class that they cannot be relative to anything at all.

Recall that, in apparent ignorance or innocence of the dubiousness of making such an assertion in 1933, Mises's statement of the Reason without Experience thesis includes the claim that "[w]e conceive all this [i.e., the action axiom] from within, just as we conceive logical and mathematical truths, *a priori*, without reference to any experience" (Mises [1933] 2003, pp. 13–14). That Mises saw no problem with trying to justify the (synthetic) apriority of the action axiom by referring to the apriority of logic and mathematics, and saw no need to explain the latter claim in light of relevant historical circumstances—i.e., Bolzano, Menger, and others—does not support the notion that he was familiar with recent developments in these fields. Similarly, as late as his last methodological work, 1962's *Ultimate Foundation of Economic Science*, Mises (1962, pp. 12–14) argued for Euclidean geometry as an example of the Kantian synthetic *a priori*, a position undermined by Helmholtz's work in the nineteenth century (Caldwell 1984, p. 368, makes a similar point).¹⁰ Mises ([1949] 1998, p. 35) claimed that "[m]an acquired ... the logical structure of his mind in the course of his evolution from an amoeba to his present state" right after asserting that the "character of the logical structure of the human mind" was "essential and necessary" (Mises [1949] 1998, p. 34), a conjunction of propositions that suggests confusion, either about the highly contingent nature of evolutionary processes or the multiple meanings of necessity by then common in the philosophical, logical, and scientific literatures.

On the other hand, in its moderate interpretation as a kind of evolutionary epistemology, Lakatosianism, or Quineanism, Mises's apriorism is a foreshadow of philosophical ideas that emerged later as potential resolutions of the very same debates over the possibility of *a priori* knowledge, of which, if the extreme interpretation is sound, he was seemingly either ignorant or unaware. The German-language literature on evolutionary epistemology is typically dated from Konrad Lorenz's ([1941] 2010) "Kant's Doctrine of the *A Priori* in the Light of Contemporary Biology," but there is no evidence that Mises was familiar with this work (in any case, his conception of *a priori* knowledge ignores Lorenz's arguments).¹¹ The field of evolutionary epistemology really burgeoned

¹⁰ As noted by an anonymous reviewer of an earlier draft of the current paper, Mises (see, e.g., 1962, pp. 12–14) was seemingly aware of various arguments against the synthetic *a priori* nature of geometry and of the development of non-Euclidean geometries, but denied their significance for the allegedly *a priori* nature of the action axiom, albeit without providing a substantial argument for such a denial.

¹¹ See Lorenz ([1941] 2010, pp. 231–232): "The biologist convinced of the fact of the great creative events of evolution asks of Kant these questions: Is not human reason with all its categories and forms of intuition something that has organically evolved in a continuous cause-effect relationship with the laws of the immediate nature, just as has the human brain? Would not the laws of reason necessary for *a priori* thought be entirely different if they had undergone an entirely different historical mode of origin, and if consequently we had been equipped with an entirely different kind of central nervous system? Is it at all probable that the laws of our cognitive apparatus should be disconnected with those of the real external world? Can an organ ["or more precisely the functioning of an organ" (Lorenz [1941] 2010, p. 233)] that has evolved in the process of a continuous coping with the laws of nature have remained so uninfluenced that the theory of appearances can be pursued independently of the existence of the thing-in-itself, as if the two were totally independent of each other? In answering these questions the biologist takes a sharply circumscribed point of view.... [S]omething like Kant's *a priori* forms of thought do exist. One familiar with the innate modes of reaction of subhuman organisms can readily hypothesize that the *a priori* is due to hereditary differentiations of the central nervous system which have become characteristic of the species, producing hereditary dispositions to

with Karl Popper's (1962) *Conjectures and Refutations* and the work of Donald T. Campbell in the 1960s. Other moderate readings try to make Mises's methodology out to be a foreshadow of proto-Lakatosian conventionalism (Machlup 1955; Rizzo 1983; Zanotti and Cachanosky 2015), or proto-Quinean holism (Leeson and Boettke 2006), several decades before Lakatos (1968) or Quine (1951) made their seminal contributions to philosophy of science and epistemology. Such readings implicitly attribute remarkable prescience to Mises as a prophet of philosophical change.

The difficulty of understanding Mises's methodology as an artifact of its time and place is complicated by the fact that the personal circumstances from which it emerged are largely obscured. It is not obvious from his writings which contemporary philosophers and scientists he had read, or with whom he might have argued, who could have encouraged the development of his seemingly unique epistemology. The rediscovery in the 1990s of much of Mises's Vienna library, long thought lost, in a Soviet state archive has not brought clarity to this issue.

It is difficult to square the Mises whose epistemology seems to reveal an almost eighteenth-century rationalist with the Mises who both gestured at the possibility of an evolutionary epistemology and defended (albeit in a limited way) fallibilism and pragmatism. More to the present point, it is hard to understand why Mises would have advanced his seemingly extreme statements of the Reason without Experience and Greater Certainty theses at the time and place that he did: Vienna in the early 1930s.¹² It is difficult to square the notion, implied in the latter anachronism, that Mises was ahead of his time in matters epistemological with some of the seemingly naive things he said about the same fields from which mid-century conventionalism would eventually emerge. Mises did not seem to appreciate the significance of the problems in mathematics, geometry, logic, epistemology, physics, etc. that led many scholars in (and philosophers of) these fields to modern conventionalist philosophy of science.¹³

think in certain forms. *One must realize that this conception of the 'a priori' as an organ means the destruction of the concept: something that has evolved in evolutionary adaptation to the laws of the natural external world has evolved a posteriori in a certain sense, even if in a way entirely different from that of abstraction or deduction from previous experience*" (italics added). To the extent that Mises addressed these questions, the evidence suggests his confusion—e.g., Mises's conjunction of the claim that the "character of the logical structure of the human mind" was "essential and necessary" (Mises [1949] 1998, p. 34) with the notion that "[m]an acquired ... the logical structure of his mind in the course of his evolution from an amoeba to his present state" (Mises ([1949] 1998, p. 35). Readers of Hayek's *The Sensory Order* ([1952] 2017) are likely to note similarities between Lorenz's "a priori" and Hayek's naturalized, evolutionary, "a priori." This may be no accident. Hayek knew Lorenz and his work well (see Vanberg 2017, pp. 42–44).

¹² In the next section, I consider the possibility that Mises's stance was more rhetorical than a deeply held conviction.

¹³ A second anonymous reviewer suggested that, though Mises's epistemological position may have been out of date relative to the philosophy of (natural) science of his time, it may have been less anachronistic in the light of then-contemporary philosophy of social science. While it is true that Mises occasionally engaged with the ideas of various writers in this literature—Wilhelm Dilthey, Wilhelm Windelband, Heinrich Rickert, and, especially, Max Weber, come to mind—this cannot save his seemingly extreme justification of the action axiom, exemplified by his stark assertions of the Reason without Experience and Greater Certainty theses, from the complaint of anachronism. First, the fact that Mises distinguished the philosophy of social science from the philosophy of science is itself rather anachronistic (and certainly controversial). The Viennese Positivists recognized no such distinction. Second, there is nothing in the writings of the philosophers named above (or, to my knowledge, any other philosopher of social science of the late nineteenth or early twentieth centuries) that supports Mises's apparently extreme position on our knowledge of the action axiom. To offer

In short, Mises's epistemological arguments are so incongruous with his intellectual environment and our grasp on his philosophical understanding is so weak that we cannot rely on knowledge of relevant intellectual circumstances either historically or geographically local to its development to help us understand Mises's epistemology. Whether one reads his methodology as extreme or moderate, Mises's apriorism is an anachronism, out of time and place.

Given the inconsistencies in both the primary and secondary literatures, and the impossibility of using knowledge of his historical or personal circumstances to reconstruct Mises's understanding of epistemology, whatever he really thought about the theory of knowledge and philosophy of science is mostly lost to us. This thesis is further strengthened by the possibility, considered in the next section, that Mises's methodological pronouncements may not have truly expressed his actual beliefs about economic methodology.

V. THE PROBLEM OF THE HISTORICAL MISES: A RHETORICAL SHELL GAME?

Unfortunately, the problem of the primary literature cannot be taken to be identical with the problem of what the historical Mises believed about epistemology. It is possible that Mises's writings do not accurately reflect his actual beliefs about pertinent issues.

What are we to make of Israel Kirzner's claim (2001; quoted in Leeson and Boettke 2006, p. 248n2) that Mises "told him [Kirzner] that the action axiom was derived from 'experience'"? Assuming the veracity of Kirzner's testimony, what are we to make of Mises's epistemology? If the historical Mises actually believed that knowledge of human action is due to experience, it is far from obvious how to interpret those several passages in his methodological writings in which he explicitly denies precisely this. Did Mises come later in life to change his mind about Reason without Experience and Greater Certainty in favor of some kind of empiricism about the action axiom? Were his statements of Reason without Experience and Greater Certainty mere obfuscations designed to conceal (for whatever reason) the empiricism he always accepted and eventually revealed to Kirzner? If so, why did he not make clear that he had come to reject his earlier rationalistic pronouncements? Or was he merely shining on Kirzner about his seemingly newfound empiricism? Was Mises just confused about various epistemological notions? Did he fail to recognize the tensions in his epistemological statements? Did he use the word "experience" differently in unique contexts such that what seems a contradiction is in fact not?

I do not know the answers to these questions. Indeed, I do not even know which are the right questions to ask. (And, I submit, neither do you.)

Hayek—who, of course, knew his "mentor" very well—occasionally suggested that Mises exaggerated his own methodological views. In reviewing Mises's ([1933] 2003) *Epistemological Problems of Economics*, Hayek ([1964] 1992, p. 148; emphasis added)

one pertinent example, Dilthey had, early in his career, defended a version of the Greater Certainty thesis for the "human sciences" (*Geisteswissenschaften*). However, he had come to reject that position some time around the turn of the twentieth century, decades before Mises's methodological works.

claimed, without providing an explanation, that Mises's "emphasis on the *a priori* character of theory sometimes gives the impression of *a more extreme position than the author in fact holds*." In his introduction to Mises's (1978) *Notes and Recollections*, Hayek ([1988] 1992, p. 158; emphasis added) asserted, again without much explanation, that "considering the kind of battle that he had to lead, I also understand that *he was driven to certain exaggerations, like that of the a priori character of economic theory*, where I could not follow him."¹⁴

Combined with the problem of the primary literature, the possibility that Mises was in fact an empiricist and the methodology seemingly expressed in his writings merely some kind of rhetorical shell game would seem to force the conclusion that "[u]ltimately, we simply do not know what the historical Ludwig von Mises believed about epistemology" (Scheall 2017a, p. 114).

Again, more carefully, I am not denying that there might be a reading that makes everything that Mises wrote (and/or believed) about epistemology both internally consistent and contextually respectable relative to the historical and geographical circumstances in which it was propagated. I am saying that it is unlikely, if such a reading exists, we will ever both know what it is and discover anything approaching univocal grounds for attributing it to Mises.

If this is right, then any interpreter who moves from his own reading of Mises's apriorism to the claim that this reading represents Mises's intentions has traveled a bridge too far. If the evidence from the primary and secondary literatures is so confused that we do not know what Mises actually believed about epistemology, then attributing some position to him, be it extreme, moderate, or in-between, is only so much wishful thinking on the part of the interpreter.¹⁵ Such interpretations may well, for all we know, say more about the methodological disposition of the given interpreter than they do about Mises. Mises's apriorism seems to be less a coherent position than a cipher upon which generations of Austrian sympathizers and antagonists have written their methodological fever dreams.

COMPETING INTERESTS

The author declares no competing interests exist.

REFERENCES

- Barrotta, Pierluigi. 1996. "A Neo-Kantian Critique of von Mises's Epistemology." *Economics and Philosophy* 12 (1): 51–66.
- Blaug, Mark. 1980. *The Methodology of Economics: Or How Economists Explain*. Cambridge: Cambridge University Press.

¹⁴ Hayek's assertions here are rather odd. Why Mises would have exaggerated his views or what possible benefit he might have expected to redound to himself, or to the broader Austrian School, by portraying his methodological position as more extremely rationalistic than it was in fact is far from obvious.

¹⁵ It is of course possible that an interpreter might blindly stumble upon an understanding of Mises's apriorism as he intended it, but I am discounting the possibility of such blind luck here.

- Caldwell, Bruce. 1982. *Beyond Positivism: Economic Methodology in the Twentieth Century*. London: George Allen & Unwin.
- . 1984. "Praxeology and Its Critics: An Appraisal." *History of Political Economy* 169 (3): 363–379.
- . 1992. "Hayek the Falsificationist? A Refutation." *Research in the History of Economic Thought and Methodology* 10: 1–15.
- Champion, Rafe. "The Common Ground of Parsons, Mises and Popper in the 1930s: The Action Frame of Reference, Praxeology and Situational Analysis." Manuscript. <http://www.the-rathouse.com/EvenMoreAustrianProgram/Convergence.html>. Accessed April 25, 2024.
- Coffa, Alberto. 1991. *The Semantic Tradition from Kant to Carnap: To the Vienna Station*. Cambridge: Cambridge University Press.
- Di Iorio, Francesco. 2008. "Apriorism and Fallibilism: Mises and Popper on the Explanation of Action and Social Phenomena." *Nuova Civiltà delle Macchine* 4: 5–32.
- Gödel, Kurt. 1930. "Die Vollständigkeit der Axiome des logischen Funktionenkalküls." *Monatshefte für Mathematik und Physik* 37: 349–360.
- . 1931. "Über formal unentscheidbare Sätze der *Principia Mathematica* und verwandter Systeme I." *Monatshefte für Mathematik und Physik* 38: 173–198.
- . 1932. "Zum intuitionistischen Aussagenkalkül." *Anzeiger Akademie der Wissenschaften Wien* 69: 65–66.
- Gordon, David. 1994. *The Philosophical Origins of Austrian Economics*. Auburn: Ludwig von Mises Institute.
- Hands, D. Wade. 2001. *Reflection without Rules: Economic Methodology and Contemporary Science Theory*. Cambridge: Cambridge University Press.
- Hayek, F. A. [1952] 2017. "The Sensory Order." In Viktor Vanberg, volume ed., Bruce J. Caldwell, series ed., *The Collected Works of F. A. Hayek*. Vol. 14: *The Sensory Order and Other Writings on the Foundations of Theoretical Psychology*. Chicago: University of Chicago Press, pp. 113–316.
- . [1964] 1992. "Review of Mises's *Epistemological Problems of Economics*." In Peter G. Klein, volume ed., and Stephen Kresge, series ed., *The Collected Works of F. A. Hayek*. Vol. 4: *The Fortunes of Liberalism, Essays on Austrian Economics and the Ideal of Freedom*. Chicago: University of Chicago Press, pp. 147–149.
- . 1978. Interview with Leo Rosten. <https://ia801407.us.archive.org/18/items/nobelprizewinnin00hayenobelprizewinnin00haye.pdf>. Accessed May 16, 2024.
- . [1988] 1992. "Introduction to Mises's *Erinnerungen von Ludwig von Mises*." In Peter G. Klein, volume ed., and Stephen Kresge, series ed., *The Collected Works of F. A. Hayek*. Vol. 4: *The Fortunes of Liberalism, Essays on Austrian Economics and the Ideal of Freedom*. Chicago: University of Chicago Press, pp. 153–159.
- Hoppe, Hans-Herman. 1995. *Economic Science and the Austrian Method*. Auburn: Ludwig von Mises Institute.
- Hutchison, Terence W. 1938. *The Significance and Basic Postulates of Economic Theory*. London: Macmillan.
- . 1981. *The Politics and Philosophy of Economics: Marxians, Keynesians, and Austrians*. Oxford: Blackwell.
- Kirzner, Israel. 2001. *Ludwig von Mises*. Wilmington: ISI Books.
- Koppl, Roger G. 2002. *Big Players and the Economic Theory of Expectations*. New York: Palgrave Macmillan.
- Kurrild-Klitgaard, Peter. 2001. "On Rationality, Ideal Types and Economics: Alfred Schütz and the Austrian School." *Review of Austrian Economics* 14 (2/3): 119–143.
- Lagueux, Maurice. 1998. "Apriorism." In John B. Davis, D. Wade Hands, and Uskali Maki, eds., *The Handbook of Economic Methodology*. Cheltenham: Edward Elgar, pp. 17–22.
- Lakatos, Imre. 1968. "Criticism and the Methodology of Scientific Research Programs." *Proceedings of the Aristotelian Society* 69: 149–186.
- Leeson, Peter, and Peter Boettke. 2006. "Was Mises Right?" *Review of Social Economy* 64 (2): 247–265.

- Linsbichler, Alexander. 2017. *Was Ludwig von Mises a Conventionalist? A New Analysis of the Epistemology of the Austrian School of Economics*. Basingstoke: Palgrave Macmillan.
- . 2021. "Austrian Economics without Extreme Apriorism: Construing the Fundamental Axiom of Praxeology as Analytic." *Synthese* 198: 3359–3390.
- Lipski, Jonas. 2021. "Austrian Economics without Extreme Apriorism: A Critical Reply." *Synthese* 199: 10331–10341.
- Lobachevsky, Nikolai. 1829–1830. "On the Principles of Geometry." *Kazanski vestnik* 25: 178–187.
- Lorenz, Konrad. [1941] 2010. "Kant's Doctrine of the A Priori in the Light of Contemporary Biology." In Michael Ruse, ed., *Philosophy after Darwin: Classic and Contemporary Readings*. Princeton: Princeton University Press, pp. 231–247.
- Machlup, Fritz. 1955. "The Problem of Verification in Economics." *Southern Economic Journal* 22 (1): 1–21.
- Maclean, Gillis. 1980. "Fritz Machlup's Quasi-Subjectivism: An Uneasy Marriage between Austrian Economics and Logical Empiricism." *History of Economics Review* 14 (1): 83–93.
- Menger, Karl. [1932] 1979. "The New Logic." In Henk L. Mulder, ed., *Selected Papers in Logic and Foundations, Didactics, Economics*. Dordrecht: D. Reidel Publishing Company, pp. 17–45.
- . [1936] 1979. "Remarks on the Law of Diminishing Returns: A Study in Meta-Economics." In Henk L. Mulder, ed., *Selected Papers in Logic and Foundations, Didactics, Economics*. Dordrecht: D. Reidel Publishing Company, pp. 279–302.
- Milford, Karl. 1992. "Poppers Lösungsvorschlag des Abgrenzungsproblems und die Methoden der Sozialwissenschaften: Zum 90'. Geburtstag von Sir Karl Popper." *Wissenschaftspolitische Blätter* 4: 503–513.
- Milonakis, Dimitris, and Ben Fine. 2009. *From Political Economy to Economics: Method, the Social and the Historical in the Evolution of Economic Theory*. London, New York: Routledge.
- Mises, Ludwig von. [1933] 2003. *Epistemological Problems of Economics*. Auburn: The Ludwig von Mises Institute.
- . [1949] 1998. *Human Action: A Treatise on Economics*. Auburn: Ludwig von Mises Institute.
- . [1957] 2005. *Theory and History: An Interpretation of Social and Economic Evolution*. Indianapolis: Liberty Fund.
- . 1962. *The Ultimate Foundation of Economic Science*. Princeton: D. Van Nostrand Company, Inc.
- . 1978. *Notes and Recollections*. Translated by Hans F. Sennholz. South Holland: Libertarian Press.
- Nozick, Robert. 1977. "On Austrian Methodology." *Synthese* 36: 353–392.
- Otter, Nils. 2010. "Von der Praxeologie zur Rhetorik—zur Leistungsfähigkeit von zwei methodologischen Konzeptionen in der Ökonomie." In Ingo Pies and Martin Leschke, eds., *Ludwig von Mises ökonomische Kommunikationswissenschaft*. Tübingen: Mohr Siebeck, pp. 221–229.
- Popper, Karl. 1962. *Conjectures and Refutations: The Growth of Scientific Knowledge*. London: Routledge.
- Prychitko, David. 1998. "Praxeology." In Peter Boettke, ed., *The Elgar Companion to Austrian Economics*. Cheltenham: Edward Elgar, pp. 77–83.
- Quine, W. V. O. 1951. "Two Dogmas of Empiricism." *Philosophical Review* 60 (1): 20–43.
- Radnitzky, Gerard. 1995. "Reply to Hoppe—On Apriorism in Austrian Economics." In Gerard Radnitzky and Hardy Bouillon, eds., *Values and Society: Values and the Social Order*. Volume 1. Aldershot: Avebury, pp. 189–194.
- Reichenbach, Hans. [1920] 1965. *The Theory of Relativity and A Priori Knowledge*. Translated by Maria Reichenbach. Berkeley: University of California Press.
- Riemann, Bernhard. 1854. "On the Hypotheses Which Lie at the Foundations of Geometry." Translated by William Kingdon Clifford. *Nature* 8: 14–17.
- Rizzo, Mario. 1983. "Mises and Lakatos: A Reformulation of Austrian Methodology." In Israel Kirzner, ed., *Method, Process, and Austrian Economics: Essays in Honor of Ludwig von Mises*. Lexington: Lexington Books, pp. 53–74.
- Rothbard, Murray. 1957. "In Defense of 'Extreme Apriorism.'" *Southern Economic Journal* 23 (3): 314–320.

- . [1973] 1997. “Praxeology as the Method of the Social Sciences.” In Murray Rothbard, ed., *The Logic of Action One: Method, Money and the Austrian School*. Cheltenham: Edward Elgar, pp. 28–57.
- . 1976. “Praxeology: The Methodology of Austrian Economics.” In Edwin Dolan, ed., *The Foundations of Modern Austrian Economics*. Kansas City: Sheed and Ward, pp. 19–39.
- Samuelson, Paul A. 1964. “Theory and Realism: A Reply.” *American Economic Review* 54 (5): 736–739.
- Scheall, Scott. 2015. “Hayek the Apriorist?” *Journal of the History of Economic Thought* 37 (1): 87–110.
- . 2017a. “Review of Alexander Linsbichler’s *Was Ludwig von Mises a Conventionalist? A New Analysis of the Epistemology of the Austrian School of Economics*.” *Erasmus Journal for Philosophy and Economics* 10 (2): 110–115.
- . 2017b. “What Is Extreme about Mises’s Extreme Apriorism?” *Journal of Economic Methodology* 24 (3): 226–249.
- . 2020. *F. A. Hayek and the Epistemology of Politics: The Curious Task of Economics*. London, New York: Routledge.
- Schulak, Eugen Maria, and Herbert Unterköfler. 2011. *The Austrian School of Economics: A History of Its Ideas, Ambassadors, and Institutions*. Auburn: Ludwig von Mises Institute.
- Vanberg, Viktor. 2017. “The ‘Knowledge Problem’ as the Integrating Theme of F. A. Hayek’s Oeuvre: An Introduction to *The Sensory Order*.” In Viktor Vanberg, volume ed., and Bruce J. Caldwell, series ed., *The Collected Works of F. A. Hayek*. Vol. 14: *The Sensory Order and Other Writings on the Foundations of Theoretical Psychology*. Chicago: University of Chicago Press, pp. 1–111.
- Zanotti, Gabriel, and Nicolas Cachanosky. 2015. “Implications of Machlup’s Interpretation of Mises’s Epistemology.” *Journal of the History of Economic Thought* 37 (1): 111–138.