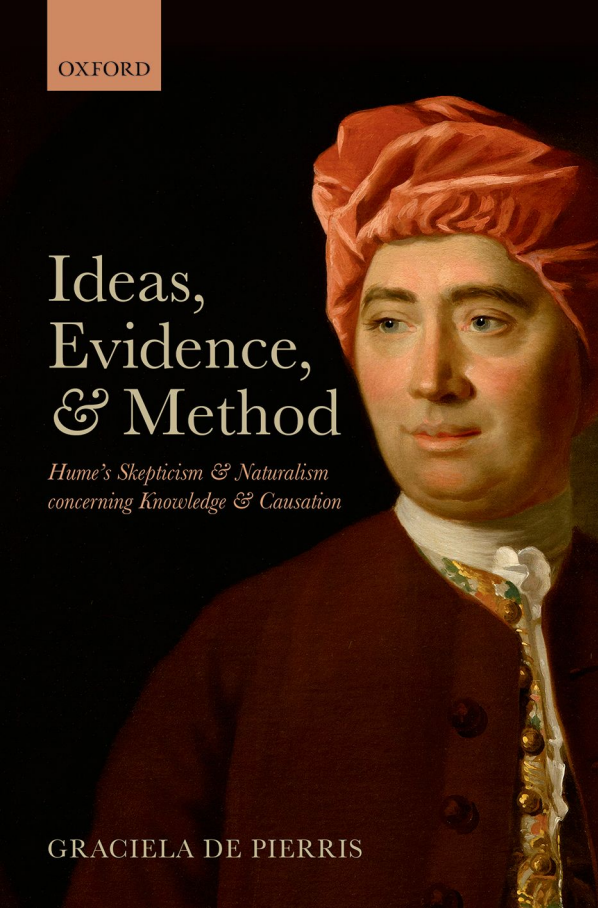


OXFORD

Ideas, Evidence, & Method

*Hume's Skepticism & Naturalism
concerning Knowledge & Causation*

GRACIELA DE PIERRIS



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*In memory of my parents, Teresa F. de De Pierris and
Carlos Alberto De Pierris*

Preface

I aim to reorient our understanding of Hume's central place in the tradition of early modern philosophy and thereby reorient our understanding of this tradition more generally. I focus on Book I of *A Treatise of Human Nature* (and related texts) and thus primarily on Hume's epistemology. In the context of Hume's new science of human nature, however, his epistemological views have broader philosophical implications, some of which I address in the course of my argument.

I pay special attention to Hume's relationship to his predecessors, and the main figures I focus on are Descartes, Locke, Leibniz, and Newton. Descartes, Locke, and Leibniz provide the framework for my reinterpretation of Hume's appropriation of the early modern theory of ideas. Hume develops his version of the theory by radicalizing what I call the presentational-phenomenological model of apprehension and ultimate evidence as it develops from Descartes to Locke. Yet the precise nature of Hume's radicalization can only be properly understood, I argue, if we explicitly contrast this model with what I take to be the opposing logical-conceptual model articulated by Leibniz. For example, some recent scholars have rightly emphasized the fact that the conception of demonstrative (a priori) knowledge developed by Descartes, Locke, and Hume is quite different from the formal conception of logical deduction within an axiomatic system familiar to us. Nonetheless, by ignoring Leibniz's explicit criticisms of both Descartes's and Locke's versions of the theory of ideas, these scholars fail to appreciate the way in which Hume's radicalization of the Cartesian-Lockean model contributes to Hume's skeptical arguments regarding demonstrative knowledge.

More generally, my understanding of Hume's skeptical arguments as framed by his radicalized version of the presentational-phenomenological model concerns not only demonstrative knowledge but also causation. Hume's focus on demonstrative knowledge and causation, I argue, makes it clear that his radical skepticism does not depend, in particular, on the traditional veil of perception prominent in Descartes and Locke, where skepticism concerning our knowledge of a realm of external objects "behind" our ideas is primary. This point is missed, for example, by defenders of the currently popular skeptical realist interpretation, according to which Hume believes that there are mind-independent necessary causal connections in nature, but we forever remain ignorant of such connections because we can never have insight into the hidden internal structures of bodies. To attribute such a view to Hume is to assimilate his skepticism concerning causation far too closely to Locke's skepticism concerning our knowledge of the "real essences" of bodies. Hume does not postulate, in advance of experience, the existence or nature of in principle unobservable structures. Thus, Hume's causal skepticism, I argue, is entirely different from Locke's.

Hume's skepticism is first directed at both Descartes's and Locke's embrace of a truly demonstrative (a priori) knowledge of causal relations, even (in Locke's case) as an unattainable ideal. In this respect, Hume is in agreement with Newton, whose picture of scientific knowledge decisively breaks with the methodological assumptions of the mechanical natural philosophy. Yet Hume's causal skepticism is also directed at the Newtonian inductive methodology he himself adopts in his naturalistic study of human nature, outside his radically skeptical point of view.

For Newton, inductive "proof" of causal relations can be obtained—but only obtained—by properly regulated inductive inferences from manifest phenomena, which always take precedence over speculative hypotheses ("conjectures") concerning hidden unobservable structures. It is precisely this methodological commitment that frames my understanding of Hume's naturalism: Hume's normative endorsement of the refined methodological reasoning of the "wise man" or the scientist as opposed to the unreflective inferences of the "vulgar." Hume consistently applies the Newtonian inductive method from this naturalistic point of view. He does so when he conceives causal necessity as simply a projection of the normativity of this method onto nature in the pursuit of (provisionally) exceptionless laws relating observable phenomena and, accordingly, when he rejects the supernatural claims of religion such as the belief in miracles. Hume's naturalism, I argue, is not an anticipation of our current preoccupation with cognitive psychology but rather amounts to an unwavering commitment to one of the two competing scientific methodologies of the time—which is also to be applied to his own new science of the human mind.

I argue, in addition, that Hume's famous argument concerning causation and induction in Part 3 of Book I of the *Treatise* is indeed radically skeptical. For Hume here calls into question the principle of the uniformity of nature underlying both Newton's and his own commitment to the inductive method. Hume does this, moreover, on the basis of his radicalized version of the Cartesian-Lockean presentational-phenomenological model of apprehension and ultimate evidence that results in an equally radical skepticism concerning demonstrative knowledge. I support these claims by a detailed reading of Book I of the *Treatise* that reveals a continuous development of thought from the argument concerning causation and induction in Part 3 through Hume's concluding skeptical melancholy at the end of Part 4. The upshot, I argue, is that, for Hume, only the permanent availability of this kind of radical skepticism can balance out and therefore guard against our permanent temptation to ascend to the supernatural—a temptation against which even the best Newtonian mathematical natural scientists of the time had not been immunized.

I owe thanks to all the Hume interpreters I cite in this book; I have greatly profited from coming to terms with their views. My work benefitted, in addition, from the challenges raised by commentators and audiences at Hume Society and other conferences, where I presented earlier versions of ideas in this book. I am especially grateful to the support and encouragement I received from Edwin McCann, in particular during discussions concerning Locke. Henry Allison read and commented

on an earlier draft; I would like to thank him for generously acknowledging my accounts of what I call the presentational-phenomenological model and of the epistemological normativity in Hume's naturalistic standpoint. I am grateful to Allen Wood for providing philosophical support, encouragement, and guidance—especially during difficult times. Thanks are also due to Paul Tulipana for help with preparing the Index.

Above all, I owe a large philosophical debt to Michael Friedman, with whom I have had the privilege of maintaining daily discussions on many philosophical topics, including my views on Hume and Kant, for many years. My work has enormously improved due to Friedman's penetrating criticisms and insistence on clarity and precision, as well as to his deep and immediate insight into virtually any philosophical topic presented to him—including those, like Hume's epistemology, which are not in his areas of expertise. Friedman has also provided immeasurable emotional support, love, and companionship that have helped me to overcome what at times appeared to be almost insurmountable struggles.

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Abbreviations

Descartes, René

- AT *Oeuvres de Descartes*, vols. I–XII and Supplement, ed. C. Adam and P. Tannery (Paris: Vrin/CNRS, 1964–76). Cited by volume and page numbers.
- CSM (following the citation of AT) *The Philosophical Writings of Descartes*, vols. I and II, trans. and ed. John Cottingham, Robert Stoothoff, and Dugald Murdoch (Cambridge: Cambridge University Press, 1985). Cited by volume and page numbers.
- CSMK (following the citation of AT) *The Philosophical Writings of Descartes*, vol. III, trans. and ed. John Cottingham, Robert Stoothoff, Dugald Murdoch, and Anthony Kenny (Cambridge: Cambridge University Press, 1991). Cited by volume and page numbers.

Hume, David

- Abs. or Abstract *An Abstract of a Book lately published, entitled, A Treatise of Human Nature, &c.*, in *A Treatise of Human Nature* (see T). Cited by paragraph number.
- DNR or Dialogues *Dialogues concerning Natural Religion*, ed. Norman Kemp Smith (Indianapolis: The Liberal Arts Press, Inc., 1947). Cited by part, paragraph, and page numbers.
- EHU or Enquiry *An Enquiry concerning Human Understanding*, ed. Tom L. Beauchamp (Oxford: Oxford University Press, 1999). Cited by section and paragraph numbers.
- EPM *An Enquiry concerning the Principles of Morals*, ed. Tom L. Beauchamp (Oxford: Oxford University Press, 1998). Cited by section and paragraph numbers.
- HE *The History of England*, vols. I–VI (Indianapolis: Liberty Classics, 1983). Cited by volume and page numbers.
- LG *A Letter from a Gentleman to His Friend in Edinburgh* (1745), ed. Ernest C. Mossner and John V. Price (Edinburgh: Edinburgh University Press, 1967). Cited by page number.
- NHR *The Natural History of Religion*, in David Hume, *Writings on Religion*, ed. Antony Flew (Chicago: Open Court, 1992). Cited by page number.

- SBN (following the citation of *Abs.* or T) *A Treatise of Human Nature*, ed. L. A. Selby-Bigge, second edition, rev. Peter H. Nidditch (Oxford: Oxford University Press, 1978). Cited by page number.
- SBN (following the citation of EHU or EPM) *Enquiries concerning Human Understanding and concerning the Principles of Morals*, ed. L. A. Selby-Bigge, third edition, rev. Peter H. Nidditch (Oxford: Oxford University Press, 1975). Cited by page number.
- T or *Treatise* *A Treatise of Human Nature*, ed. David Fate Norton and Mary J. Norton (Oxford: Oxford University Press, 2000). Cited by book, part, section, and paragraph numbers.

Leibniz, Gottfried Wilhelm

- A *Gottfried Wilhelm Leibniz: Sämtliche Schriften und Briefe*, ed. Akademie der Wissenschaften (Berlin: Akademie Verlag, 1923–). Cited by series, volume, and page numbers.
- F de C *Nouvelles lettres et opuscules inédits de Leibniz*, ed. A. Foucher de Careil (Paris: Auguste Durand, 1857). Cited by page number.
- G *Die Philosophischen Schriften von Gottfried Wilhelm Leibniz*, vols. I–VII, ed. C. J. Gerhardt (Berlin: Wiedmann, 1875–90); reprint (Hildesheim: Georg Olms Verlag, 1978). Cited by volume and page numbers.
- L (following the citation of G or A) *Gottfried Wilhelm Leibniz: Philosophical Papers and Letters*, trans. and ed. Leroy E. Loemker, second edition (Dordrecht: Reidel, 1969). Cited by page number.
- New Essays* *New Essays on Human Understanding*, trans. and ed. Peter Remnant and Jonathan Bennett (Cambridge: Cambridge University Press, 1981). Cited by page number of A, series VI, vol. vi, or by book, chapter, and section numbers.

Locke, John

- Essay* *An Essay concerning Human Understanding*, ed. Peter H. Nidditch (Oxford: Oxford University Press, Clarendon Edition, 1975). Cited by book, chapter, section, and (when applicable) page numbers.
- CU *Locke's Conduct of the Understanding*, ed. Thomas Fowler (Oxford: Clarendon Press, 1892).
- TE *Some Thoughts Concerning Education*, ed. John Yolton and Jean Yolton (1693; reprinted Oxford: Clarendon Press, 1989).
- Works* *The Works of John Locke, in Nine Volumes*, twelfth edition (1698; reprinted London: C. and J. Rivington et al., 1824). Cited by volume and page numbers.

Newton, Isaac

- Opticks* *Opticks, or A Treatise of the Reflections, Refractions, Inflections & Colours of Light*, based on the Fourth Edition (1730) (New York: Dover Publications, 1952). Cited by page number.
- Principia* *The Principia: Mathematical Principles of Natural Philosophy*, trans. and ed. I. Bernard Cohen and Anne Whitman, assisted by Julia Budenz, based on the First Edition (1687), Second Edition (1713), and Third Edition (1726) (Berkeley and Los Angeles: University of California Press, 1999). Cited by page number.

Introduction

In this book I provide a novel interpretation of Hume's treatments of intuitive and demonstrative knowledge, on the one hand, and of causation and induction, on the other. In considering these topics I attend both to the skeptical side of Hume's discussions of mathematical demonstrations and causal inductive arguments, and to his positive naturalistic conception of them. Moreover, my reading of Hume's naturalism stresses its normative (as opposed to purely descriptive) dimension. I defend the view, more generally, that skepticism and naturalism—despite the fact that they represent two conflicting standpoints—turn out to be two equally important and mutually complementary aspects of Hume's philosophical position.

Beginning with the pioneering work of Norman Kemp Smith, most commentators have focused primarily on Hume's naturalistic psychology of belief and other sentiments, viewing his skeptical arguments (if present at all) as merely a preliminary stage for clearing away traditional rationalism on behalf of Hume's positive (empirical) science of human nature.¹ This view, which I call the “vehicle view,” has been developed and defended by important followers of Kemp Smith such as Annette Baier.² More recent commentators, inspired by Baier, have gone one step further and maintained that radical skeptical arguments—especially concerning causation and induction—do not figure centrally in Hume's texts. According to these commentators, the famous argument concerning causation and induction in *Treatise* 1.3.6 is not a skeptical argument concerning the lack of epistemic justification of the causal inductive inference, but rather an argument to the effect that in making such

¹ See Kemp Smith (1941). In the first few sentences of the Preface, Norman Kemp Smith explains (p. v): “This volume is the outcome of work done in widely separate years. In two articles, entitled ‘The Naturalism of Hume’, published in *Mind* in 1905, I suggested that what is central in Hume's philosophy is his contention that reason ‘is and ought only to be’ the servant of the ‘passions’. This doctrine, I argued, is the key to the non-sceptical, realist teaching which he has expounded in Part iv, Book I, of the *Treatise*, and which he has carefully re-stated in the concluding section of the *Enquiry concerning Human Understanding*.”

² See Baier (1991). Barry Stroud (1977) suggests a version of the vehicle view, insofar as he views Hume's skeptical arguments as mainly a means for clearing the way for a positive naturalistic theory of the sentiments. Unlike Annette Baier, however, Stroud does not take the skeptical argument concerning causation and induction to be directed only at traditional rationalism, and he therefore takes seriously Hume's circularity objection against an *empirical* justification of induction.

inferences we are not “determined”—that is, *caused*—by the faculty of reason. Hume’s argument is a consideration of the possible cognitive mechanisms that could (or could not) produce our causal beliefs.

This line of thought culminates in important contributions by Don Garrett and Louis Loeb intended to bring Hume closer to contemporary psychological theorizing.³ There are significant differences between the two, insofar as Garrett tends to view Hume’s cognitive psychology as primarily descriptive and non-epistemic, while Loeb views Hume’s psychology as containing important normative or justificatory elements (of an “externalist” variety). They agree, however, in insisting that Hume’s philosophical project is best understood from the perspective of prevalent contemporary views: (descriptive) cognitive science and (psychologistic) naturalized epistemology respectively.⁴

By contrast, my contention that skepticism and naturalism are two equally important and mutually complementary aspects of Hume’s philosophical position is intended to situate his arguments within the philosophical context of his own time. I interpret Hume against the background of two central elements of his eighteenth-century intellectual heritage: the modern theory of ideas as it develops from Descartes, through Locke, to Hume, on the one side, and the eighteenth century’s commitment to Newtonian inductive scientific methodology, on the other. I argue that the modern theory of ideas guides Hume’s skeptical arguments, while Newtonian inductive methodology constitutes the most important source for the normativity within Hume’s naturalistic standpoint.

I offer a new perspective on the modern theory of ideas, according to which the best possible cognition we can have—which must provide the ultimate grounding or evidence for all other cognitions—consists in immediate acquaintance with ostensive presentations that are or have been given to the mind. Hume’s radicalization of what

³ The intention to bring Hume closer to our contemporary preoccupation with “cognitive science” is clearly expressed in the final paragraph of Garrett’s first chapter (1997, p. 40): “The resurgence of interest in cognitive psychology produced by the recent confluence of interdisciplinary interests called ‘cognitive science’ provides an apt moment to investigate more thoroughly Hume’s cognitive psychology. Not only can such an investigation shed light on perennial topics in the theory of cognition, it can also shed considerable new light on the real meaning of Hume’s most central philosophical claims and arguments, which have often been misinterpreted as a result of ignorance of the theories of cognition in which they are embedded. Only when we fully understand Hume’s claims and arguments in the light of those theories can we properly evaluate their philosophical value.”

⁴ Garrett (1997) makes the descriptive as opposed to normative character of the exercise in cognitive psychology he ascribes to Hume especially clear and explicit (p. 94): “Hume’s conclusion [in his “famous argument” concerning causation and induction], as stated, directly concerns the *causation* of inductive inferences—a question in cognitive psychology—rather than the *justification* of such inferences, which is a question in epistemology.” Loeb (2002, Chapter 2) endorses Garrett’s general view of Hume’s “famous argument.” Unlike Garrett, however, Loeb interprets Hume as also centrally concerned, throughout *Treatise*, Book I, with “drawing normative distinctions among different psychological mechanisms, . . . [o]nly some associationist mechanisms are ‘just’ and deserve attribution to ‘reason’ or ‘the judgment’; others are ‘rejected under the opprobrious character’ of being ‘the offspring of the imagination’” (pp. 58–9).

I shall call the “presentational-phenomenological” model of apprehension and ultimate evidence sets the epistemic standards for and shapes the basic pattern of Hume’s radical skeptical arguments, which all proceed, in one way or another, by exploiting the evidential gap that opens up when a putative cognition goes beyond what is or has been strictly “perceived” by the relevant kind of phenomenological apprehension.⁵

It is crucially important to distinguish my conception of how Hume depends on the modern theory of ideas from the traditional interpretation originating with Thomas Reid. Reid claims that Hume’s whole system is built on the single hypothesis that “nothing is perceived but what is in the mind which perceives it,”⁶ and, in this way, Reid focuses on what we might call the “veil of perception” aspect of the theory of ideas: the central type of skepticism at issue becomes skepticism about a mind-independent external world. In contrast to Reid’s interpretation, Kemp Smith attempts to diminish the importance for Hume of the modern theory of ideas, and to focus attention instead on the natural sentiments and dispositions of the mind. This is in accordance with Kemp Smith’s view that Hume is not a radical skeptic and does not intend to demolish common sense.

I am not returning to Reid’s interpretation when I claim that Hume radicalizes the Cartesian–Lockean model of ultimate evidence. For my focus on the presentational-phenomenological aspect of the theory of ideas is quite distinct from Reid’s emphasis on the veil of perception aspect. Indeed, Hume, in sharp contrast to both Descartes and Locke, de-emphasizes the veil of perception aspect by, for example, using the term “object” as interchangeable with “impression” and (sometimes) “idea.” Unlike Kemp Smith, who considers the opening sections of Book I of the *Treatise* to be misleading because “the employment of the terms ‘object’ as synonymous with ‘impression’ and ‘idea’ leads the reader to think that Hume is adopting a subjectivist point of view even more extreme than that of Berkeley,”⁷ I take precisely this employment to indicate that Hume is neutral about whether the items to which we

⁵ In De Pierris (2002a) I offered a (much briefer) formulation of this model and called it “perceptual” or “quasi-perceptual.” (This paper was originally submitted in January 2000.) I developed my account further in De Pierris (2002b).

⁶ See Reid (1974[1764], Dedication). This hypothesis occurs in the following context: “I acknowledge, my Lord, that I never thought of calling in question the principles commonly received with regard to the human understanding, until the ‘*Treatise of Human Nature*’ was published in the year 1739. The ingenious author of that treatise upon the principles of Locke—who was no sceptic—hath built a system of scepticism, which leaves no ground to believe any one thing rather than its contrary. . . . I entered into a serious examination of the principles upon which this sceptical system is built; and was not a little surprised to find, that it leans with its whole weight upon a hypothesis. . . . The hypothesis I mean, is, that nothing is perceived but what is in the mind which perceives it. . . . I thought it unreasonable, my Lord, upon the authority of philosophers, to admit a hypothesis which, in my opinion, overturns all philosophy, all religion and virtue, and all common sense.”

⁷ See Kemp Smith (1941, p. 116). For more on Kemp Smith’s view that these sections are misleading, see his Chapters 5 and 10. I return to this issue in Chapter 2.

have immediate epistemological access are mental as opposed to physical, inner as opposed to outer.⁸

In my view, Hume's radicalization of the theory of ideas amounts to a consistent and unambiguous commitment to a purely sensible (as opposed to intellectual) version of the presentational-phenomenological model. Hume's conception of ultimate evidence does not rely on the ontological character (mental as opposed to physical) of impressions and ideas. Nor does he need to be committed one way or the other to impressions or ideas having a causal relation with, or origin in, entities other than themselves. Hume can be neutral about whether presentations originate in the material world, or in God (or some other agent), or perhaps in mental items not belonging to the individual mind of the perceiver.⁹ None of these questions plays any significant role in shaping the character of Hume's radical skeptical arguments concerning intuitive and demonstrative knowledge or causation. Contrary to Kemp Smith, then, Hume's employment of the term "object" as interchangeable with "impression" or "idea" should not be dismissed. The use of this terminology is a symptom, not of Berkeleyan subjective idealism, but of Hume's focus on the immediate phenomenological apprehension of ostensibly given sensible particulars—whether or not they are mental or caused by anything outside themselves.¹⁰

In their versions of the presentational-phenomenological model, neither Descartes nor Locke is neutral about the issue of the ontological character (mental as opposed to physical) of what is given before the mind or the issue of the origin of ideas in an independent reality. Concerning sensory ideas, in particular, both philosophers maintain a central distinction between ideas of primary and secondary qualities, where the latter can never properly resemble their independently existing referents in physical nature. From the point of view of untutored common sense, a sensory idea of redness purports to refer, through its presentational features, to a physical surface

⁸ In this respect, the view I am attributing to Hume can be fruitfully compared with the "neutral monism" later developed by William James, Ernst Mach, and Bertrand Russell. According to this conception, there is one basic "stuff" common to both mind and matter: namely, immediate perceptions, which are elements of matter when considered as obeying physical laws and elements of mind when considered as obeying psychological laws. See e.g. Russell's discussion of this view, with references to James and Mach, in Russell (1921, Chapter 1). For a helpful survey of the different uses of the term "object" in Hume, see Grene (1994).

⁹ I here have in mind the well-known passage at T 1.3.5.2 (SBN 84), to which I return in more detail in Chapter 2, Section 1.

¹⁰ These questions do arise, of course, in Hume's discussion of skepticism with regard to the senses (at T 1.4.2, and at EHU 12.7–14 together with the first half of 16), because there the issue is precisely the belief in the continued and independent existence of external physical objects. They also appear in Hume's related criticisms of the distinction of the "modern philosophy" between primary and secondary qualities (at T 1.4.4, and at EHU 12.15 together with the second half of 16). My present point, however, is that these questions do not arise, in general, in his version of the presentational-phenomenological model of ultimate evidence nor, in particular, in his treatment of causation and induction. Although I shall not be able to enter into Hume's skepticism concerning external objects in this book, I believe that his discussion of this topic relies primarily on an evidential gap between our presentations and both vulgar and philosophical views going well beyond these presentations: questions about their mental or physical character (and the issue of external causation) are mainly relegated to the secondary role of describing the views he opposes.

having this same color. Yet both Descartes and Locke take the independently existing referent of the idea to be a configuration of primary qualities related to this surface that produces (in the mind) the presentational features in question. This point, for Descartes, indicates a crucial respect in which purely intellectual ideas of metaphysics and geometry have superior clarity and distinctness compared to sensory ideas: the former always transparently correspond to their independently existing referents, and they also guide and correct our sensory ideas (of both primary and secondary qualities) in order to arrive at a science of physical nature.

For Locke, by contrast, although he agrees with Descartes that the independently existing referents of our sensory ideas can never resemble (the immediately given presentational features of) the ideas themselves, he does not believe that an ideal (demonstrative) Cartesian science of the true configurations of primary qualities that produce our sensory ideas is attainable. Lockean simple ideas of sensation, independently of any correction by the intellect, are completely sufficient for “real Knowledge,” insofar as we know with certainty that these ideas do correspond to independently existing physical causes.¹¹ Yet, since the presentational features of our sensory ideas do not resemble the configuration of primary qualities that produce them in our minds (and there is no intellectual correction), we cannot know the true nature of such causes.

Hume, following Berkeley, rejects the distinction between ideas of primary and secondary qualities, and this is importantly connected with the fact that Hume focuses much more consistently than Locke on the purely presentational features of ideas, independently of their purported referents. An uncompromising use of the presentational-phenomenological model—a focus on these immediately given features considered entirely in themselves—allows Hume to be non-committal about both ontology and ultimate origin. He thus relegates to a secondary role the question whether some of our presentations (“impressions of sensation or objects”) either correspond or belong to a reality independent of the perceiver. In this way, the veil of perception aspect of the theory of ideas—which is central in Descartes and Locke—drops out in Hume.

The distinctive character of the presentational-phenomenological model can best be made plain by contrasting it with an opposing purely intellectual model of apprehension and ultimate evidence developed during the same period. In particular, Descartes’s notion of “clear and distinct” ideas introduces a conception of intellectual apprehension that is fundamentally different from the logical-conceptual view of the operations of the intellect offered by Leibniz, and later developed further by Frege. Whereas the latter view takes patterns of (logical) reasoning and inference as paradigmatic intellectual operations, Descartes puts at the center of his considerations the immediate apprehension of ostensibly given contents (his immediate

¹¹ See e.g. Locke’s *Essay* IV.iv.4.

apprehension of his own existence, for example, or of the idea of God). These instances of clear and distinct apprehension—even when they have “immutable and eternal” natures, essences, or forms as referents, as in the case of the ideas of geometry—are themselves individual acts of the mind, existing, relative to one another, at separated moments of time.¹² On the logical-conceptual view, by contrast, all particular intellectual contents are necessarily or essentially related to one another in virtue of their roles or “places” within an all-embracing system of logical rules. One cannot understand any particular such content without also understanding its various logical relations with others—where such understanding consists in the (logical) *competence* to make the inferences in question rather than in any kind of immediate *apprehension* of items ostensibly present before the mind.

Don Garrett and David Owen have recently emphasized the fact that the conception of demonstrative reasoning shared by Descartes, Locke, and Hume is quite different from the “formalistic” conception with which we are most familiar today. None of these philosophers appeal to a prior formal system of logical rules to explain the inferential transitions made in typical cases of human demonstrative reasoning (e.g. in mathematics). Such reasoning for them consists rather in a sequence of intuitively apprehended steps, and the links between these steps are material or contentful rather than formal. We immediately perceive relations between ideas (e.g. of identity or difference) in each of the intuitively apprehended steps, and a demonstration (as opposed to an immediate intuition) consists simply in a sequence or chain of such immediate intuitive steps. The role of demonstration, on this view, is not the necessary transmission of truth from premises to conclusion in virtue of their logical forms, but the transmission of certainty along such a sequence or chain in virtue of the immediate intuitive certainty of each of the individual steps.¹³

I am sympathetic with the way in which Garrett and Owen situate the account of demonstrative reasoning common to Descartes, Locke, and Hume within the history of logic. Garrett and Owen use this account as a backdrop for their treatment of non-demonstrative or probable (causal or inductive) inference as well. I shall return to a critical discussion of their influential account of the latter at a number of points throughout this book. But I now wish to emphasize that the opposition between the presentational-phenomenological and logical-conceptual models extends far beyond

¹² As I shall argue in Chapter 1, this is how Descartes conceives demonstrations in the *Rules for the Direction of the Mind*, the *Fifth Meditation*, and the “Replies to Objections” to the latter.

¹³ See Garrett (1997, p. 75): “Like Descartes, Spinoza, and Locke—but unlike Leibniz—Hume thinks of the logical force of demonstrative argument as primarily a function of its specific *content* rather than of its general *form*. And one chief result of Hume’s imagistic and atomistic conception of mental representation is that it inevitably becomes much harder to discover and defend necessary connections *between* mental representations based on their *content*. Hence the scope of what Hume and his predecessors call ‘demonstrative reason’ or ‘reasoning a priori’—which depends for its operation on the discovery of such connections—naturally shrinks.” Owen (1999) sets this point within an account of the development of the anti-formalistic conception from Descartes through Locke to Hume.

the opposition (as understood by Garrett and Owen) between formal and non-formal conceptions of reasoning and inference.

It is true that Leibniz, in contrast with Descartes, Locke, and Hume, articulates a formal conception of logical inference closer to our own.¹⁴ According to the logical-conceptual tradition initiated by Leibniz, however, the universal formal rules of logical reasoning do not merely serve to delineate the inferential links between the steps in a demonstrative argument. The crucial point, rather, is that these rules are also *epistemically* or *evidentially* prior to any particular contents (concepts and judgments): the latter only have meaning and evidential force in virtue of the way in which they are structured by the prior universal operations of logic (such as, for Leibniz, the operations of conjunction and negation that are basic to all definitions). All particular contents (both concepts and judgments) are necessarily structured, as the contents they are, by the prior logical system of universal formal rules—and this also holds for the individual intuitively apprehended steps in a formal demonstration. Thus, whereas the conception of ultimate evidence characteristic of the presentational-phenomenological model is both atomistic and ostensive (attaching to individual acts of apprehension of particular contents at particular times), that characteristic of the logical-conceptual model is holistic and operational: a general competence for making inferences on the basis of a prior understanding of the absolutely universal formal rules of logic.¹⁵

Whereas on the presentational-phenomenological model it becomes difficult to explain, for example, how an individual act of clear and distinct apprehension can attain the necessity and strict universality characteristic of mathematical representations (even if, as in Descartes, they have “immutable and eternal” natures, essences, or forms as referents), this problem does not arise on the logical-conceptual model. For, according to the latter, the necessary and absolutely universal rules of formal logic are epistemically prior to the understanding of all particular contents, which

¹⁴ See Hacking (1973). Hacking argues that there are decisive differences between Descartes’s notion of deduction or demonstration and Leibniz’s notion of formal proof. Hacking takes Leibniz, but not Descartes, to have essentially “our” notion of deductive proof. Although I basically agree with Hacking, I wish here to go beyond his argument by showing that the Cartesian presentational-phenomenological model, as opposed to Leibniz’s logical-conceptual model, does not reduce simply to anti-formalism.

¹⁵ Henry E. Allison (2008) attributes to Hume what he calls a “perceptual model of cognition,” and generously acknowledges my discussions in De Pierris (2002b) and earlier versions of this book: see Allison (2008, pp. 6–7, including notes 15 and 18). Allison elucidates his model by means of a contrast with what he calls Kant’s “discursive model of cognition”—characterized by the application of *concepts* (as opposed to images) to *intuitions*, and by the priority of *judgment* (over conception). By developing a contrast with Leibniz’s logical-conceptual model, I instead emphasize the priority of a universal system of formal-logical rules over both particular concepts and particular judgments, and I do not invoke the Kantian distinction between concepts and intuitions. Kant develops his distinctive approach to cognition under the influence of both Leibniz and Hume (among others), and, in my view, the resulting synthesis of concepts (mediate representations) and intuitions (immediate representations) combines aspects of both the logical-conceptual and presentational-phenomenological models. Kant’s conception of pure (as opposed to empirical) intuition, however, is entirely unique; for Kant thereby introduces a general formal (but non-conceptual) structure into the *sensible* faculty.

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