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## Annotated Bibliography on A Priori Knowledge<sup>1</sup>

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## 1. Introduction

Questions about the existence, nature, and scope of a priori knowledge have been central to both the historical and contemporary literature in the theory of knowledge. This entry focuses on the contemporary literature, in which two questions are prominent: What is a priori knowledge? Is there such knowledge? The discussion of these two questions frequently introduces two others: What is the relationship between a priori knowledge and necessary truth? What is the relationship between a priori knowledge and analytic truth?

## 2. General Overviews

There are a number of general overviews of the contemporary literature that differ in focus and breadth of coverage. Baehr 2006 provides a useful survey of basic concepts, distinctions, and views of the a priori, with a limited bibliography. Bealer 1999 presents a condensed version of the author's case against radical empiricism, defense of the view that intuitions are evidence, and explanation of why they are evidence. BonJour 2005 offers an introduction to the author's arguments against empiricism and his rationalist account of a priori knowledge. Casullo 2006 provides a comprehensive and up-to-date introduction to the main issues that focuses on the concept of a priori knowledge and on the arguments for and against the existence of such knowledge. Devitt 2005 offers a defense of the view that all knowledge is empirical. Moser 1998 provides a short introduction to the basic concepts and some main issues. Peacocke 2005 contains a wide-ranging and up-to-date introduction that addresses the concept, scope, and source of the a priori, with an emphasis on the author's metasemantic theory. Russell 2007 provides a very comprehensive and up-to-date introduction to the contemporary literature that defends a

version of rationalism; it includes an excellent bibliography.

Baehr, J. “A Priori and A Posteriori.” In the *Internet Encyclopedia of Philosophy*. Edited by J. Fieser, 2006. <http://www.iep.utm.edu/apriori>.

A useful survey of basic concepts, distinctions, and views of the a priori, with a limited bibliography.

Bealer, G. “The A Priori.” In *The Blackwell Guide to Epistemology*. Edited by J. Greco and E. Sosa, 243–270. Malden, MA: Blackwell, 1999.

A condensed version of the author’s case against radical empiricism, his defense of the view that intuitions are evidence, and his explanation of why they are evidence.

BonJour, L. “In Defense of the *A Priori*.” In *Contemporary Debates in Epistemology*. Edited by M. Steup and E. Sosa, 98–105. Malden, MA: Blackwell, 2005.

An introduction to the author’s arguments against empiricism and his rationalist account of a priori knowledge. Devitt 2005 responds to this article.

Casullo, A. “Knowledge, A Priori.” In *The Encyclopedia of Philosophy*, 2nd ed., Vol. 5. Edited by D. M. Borchert, 79–86. Detroit: MacMillian Reference, 2006.

A comprehensive and up-to-date introduction to the main issues that focuses on the concept of a priori knowledge and on the arguments for and against the existence of such knowledge.

Devitt, M. “There is No *A Priori*.” In *Contemporary Debates in Epistemology*. Edited by M. Steup and E. Sosa, 105–115. Malden, MA: Blackwell, 2005.

A defense of the view that all knowledge is empirical. This article is a response to

BonJour 2005.

Moser, P. "A Priori." In the *Routledge Encyclopedia of Philosophy*, Vol. 1. Edited by E. Craig, 3–5. London: Routledge, 1998.

A short introduction to the basic concepts and some main issues.

Peacocke, C. "The A Priori." In *The Oxford Handbook of Contemporary Philosophy*. Edited by F. Jackson and M. Smith, 739–763. Oxford: Oxford University Press, 2005.

A wide-ranging and up-to-date introduction which addresses the concept, scope, and source of the a priori, with an emphasis on the author's metasemantic theory.

Russell, B. "A Priori Justification and Knowledge." In the *Stanford Encyclopedia of Philosophy*. Edited by E. Zalta, 2007. <http://plato.stanford.edu/entries/apriori/>.

A very comprehensive and up-to-date introduction to the contemporary literature that defends a version of rationalism. Excellent bibliography.

### 3. Textbooks

There are no available textbooks that are devoted exclusively to the topic of a priori knowledge. There are, however, a number of introductory textbooks on general epistemology that contain chapters on the a priori. Generally speaking, these chapters are more accessible than the articles under General Overviews, but the coverage is less extensive and not as up-to-date. BonJour 2002 provides a condensed version of the author's case against moderate and radical empiricism together with an articulation and defense of his version of rationalism. Crumley 1999 offers a detailed presentation of historical and contemporary views on the a priori. Lemos 2007 provides an accessible introduction that focuses on the debate between proponents of strong and weak

views of a priori justification and on the controversy over whether there is synthetic a priori knowledge. Pritchard 2006 provides a short, accessible introduction to the a priori, with a focus on principles of inference. Steup 1996 presents a sophisticated discussion of the concept of a priori justification, the analytic-synthetic distinction, and scepticism regarding the a priori.

BonJour, L. *Epistemology: Classic Problems and Contemporary Responses*. Lanham, MD: Rowman and Littlefield, 2002.

A condensed version of the author's case against moderate and radical empiricism together with an articulation and defense of his version of rationalism.

Crumley, J. *An Introduction to Epistemology*. Mountain View, CA: Mayfield, 1999.

A detailed presentation of historical and contemporary views on the a priori.

Lemos, N. *An Introduction to the Theory of Knowledge*. Cambridge: Cambridge University Press, 2007.

An accessible introduction that focuses on the debate between proponents of strong and weak views of a priori justification and on the controversy over whether there is synthetic a priori knowledge.

Pritchard, D. *What Is This Thing Called Knowledge?* London: Routledge, 2006.

A short accessible introduction to the a priori with a focus on principles of inference.

Steup, M. *Contemporary Epistemology*. Upper Saddle River, NJ: Prentice-Hall, 1996.

A sophisticated discussion of the concept of a priori justification, the analytic-synthetic distinction, and scepticism regarding the a priori.

#### 4. Anthologies

There are a limited number of anthologies available. Moser 1987 is a collection of important articles on the a priori from both the early and the late 20th century, along with a brief introduction to the field. Casullo 1999 offers a comprehensive collection, covering the main developments in the field from 1980 to 1998; the introduction provides a broad survey and an extensive bibliography. DePaul and Ramsey 1998 focuses on the epistemic status of intuitions and their role in philosophical theorizing. Boghossian and Peacocke 2000 and Gendler and Hawthorne 2002 provide the most current collections. The former covers a wide range of topics pertaining to the a priori, both historical and contemporary. The latter focuses on issues pertaining to the nature of modality and modal knowledge, with an emphasis on the question of whether conceivability is a guide to possibility; it also contains a comprehensive introduction to those issues.

Boghossian, P. and Peacocke, C., eds. *New Essays on the A Priori*. Oxford: Oxford University Press, 2000.

A collection of new essays that covers a wide range of topics pertaining to the a priori, both historical and contemporary.

Casullo, A., ed. *A Priori Knowledge*. Aldershot: Ashgate, 1999.

A comprehensive collection, covering the main developments in the field from 1980 to 1998; the introduction provides a broad survey of the field and an extensive bibliography.

DePaul, M. and Ramsey, W., eds. *Rethinking Intuition: The Psychology of Intuition and Its Role in Philosophical Inquiry*. Lanham, MD: Rowman and Littlefield, 1998.

The most comprehensive collection of articles on the epistemic status of intuitions and their role in philosophical theorizing. It contains articles by philosophers on all sides of the debate and articles by psychologists pertaining to empirical studies of intuition.

Gendler, T. and Hawthorne, J., eds. *Conceivability and Possibility*. New York: Oxford University Press, 2002.

A collection of new essays, covering a wide range of topics pertaining to the nature of modality and modal knowledge, with an emphasis on the question of whether conceivability is a guide to possibility. It also contains a comprehensive introduction to those issues.

Moser, P., ed. *A Priori Knowledge*. Oxford: Oxford University Press, 1987.

A collection of important articles on the a priori from both the early and the late 20th century, along with a brief introduction to the field.

## 5. Historical Background to the Contemporary Debate

Kant 1781 poses four primary questions regarding a priori knowledge that continue to dominate the contemporary discussion: What is a priori knowledge? Is there a priori knowledge? What is the relationship between a priori knowledge and necessary truth? Is there synthetic a priori knowledge? In response, he maintains that a priori knowledge is knowledge that is independent of experience, that necessity is a criterion of a priori knowledge, and that mathematics provides compelling examples of synthetic a priori knowledge. Mill 1841 argues that all knowledge is a posteriori and articulates an inductive empiricist account of mathematical knowledge. Frege 1884 rejects Mill's contention that mathematical knowledge is a posteriori, agrees with Kant that there

is synthetic a priori knowledge, but denies that the truths of arithmetic are synthetic. Ayer 1952 also rejects Mill's contention that all knowledge is a posteriori but argues that all a priori knowledge is of analytic truths. Quine 1963 rejects the cogency of the distinction between analytic and synthetic truths, rejects Mill's inductive empiricist account of mathematical knowledge, and articulates a holistic empiricist account of such knowledge. Putnam 1983 argues that Quine 1963 offers two distinct arguments with different targets: an unsuccessful argument targeting the analytic-synthetic distinction and a successful argument targeting a priori knowledge. Chisholm 1966 defends a modern version of Kant's position, rejecting the empiricism of Mill and Quine, arguing that necessity is a criterion of the a priori and that there is synthetic a priori knowledge. Gödel 1983 maintains that we know the objects of set theory by mathematical intuition, which is understood as a faculty that stands in relation to the objects of set theory in a manner analogous to that in which perception stands to physical objects.

Ayer, A. J. *Language, Truth and Logic*. New York: Dover, 1952.

Rejects Mill's contention that all knowledge is a posteriori but argues that all a priori knowledge is of analytic truths.

Chisholm, R. *Theory of Knowledge*. Englewood Cliffs, NJ: Prentice-Hall, NJ, 1966.

Defends a modern version of Kant's position, rejecting the empiricism of Mill and Quine, arguing that necessity is a criterion of the a priori, and that there is synthetic a priori knowledge.

Frege, G. *The Foundations of Arithmetic*, 2nd ed. rev. Translated by J. L. Austin. Evanston: Northwestern University Press, 1980.

Rejects Mill's contention that mathematical knowledge is a posteriori, agrees with Kant that there is synthetic a priori knowledge, but denies that the truths of arithmetic are synthetic.

Gödel, K. "What Is Cantor's Continuum Problem?" In *Philosophy of Mathematics*, 2nd ed., 470–485. Edited by P. Benacerraf and H. Putnam. Cambridge: Cambridge University Press, 1983.

Maintains that we know the objects of set theory by mathematical intuition, which is understood as a faculty that stands in relation to the objects of set theory in a manner analogous to that in which perception stands to physical objects.

Kant, I. *Critique of Pure Reason*. Translated by Norman Kemp Smith. New York: St. Martin's, 1965.

Introduces the primary questions regarding a priori knowledge that continue to dominate the contemporary discussion.

Mill, J. *A System of Logic*. Edited by J. M. Robson. Toronto: University of Toronto Press, 1974.

Argues that all knowledge is a posteriori and articulates an inductive empiricist account of mathematical knowledge.

Putnam, H. "'Two Dogmas' Revisited." In *Realism and Reason: Philosophical Papers*, Vol. 3, 87–97. Cambridge: Cambridge University Press, 1983.

Argues that Quine 1963 offers two distinct arguments with different targets: an unsuccessful argument targeting the analytic-synthetic distinction and a successful argument targeting a priori knowledge.

Quine, W. V. "Two Dogmas of Empiricism." In *From a Logical Point of View*, 2nd ed. rev.,

20–46. New York: Harper and Row, 1963.

Rejects the cogency of the distinction between analytic and synthetic truths, rejects Mill's inductive empiricist account of mathematical knowledge, and articulates a holistic empiricist account of such knowledge.

## 6. General Accounts

Kripke 1980 sets the stage for the contemporary discussion by carefully distinguishing the concepts of a priori knowledge, necessary truth, and analytic truth, and challenging traditional assumptions about the relationship between a priori knowledge and necessary truth. Bonjour 1998 defends the traditional rationalist view that rational insight into the necessary truth of a proposition is the source of a priori knowledge. Peacocke 2004 defends a more moderate form of rationalism according to which a priori knowledge is to be explained by features of concept possession, but without invoking a distinct psychological faculty as the source of such knowledge. Bealer 1999 offers a defense of the view that rational intuitions are evidence, an explanation of why they are evidence in terms of a modal tie between such intuitions and truth, and an explanation of the tie in terms of the conditions for determinately possessing a concept. Sosa 2007 provides an alternative articulation and defense of the view that rational intuition is a source of a priori knowledge. Audi 1999 introduces a concept of self-evident proposition from which it follows that all self-evident propositions are justifiable a priori. Field 2000 offers an account of the apriority of propositions and rules for forming beliefs within the framework of a general epistemology that holds that epistemological properties, such as reasonableness, are evaluative rather than factual. Casullo 2003 maintains that the traditional arguments for and

against the existence of a priori knowledge are inconclusive and that a resolution of the controversy over the existence of such knowledge requires empirical investigation.

Audi, R. "Self-Evidence." In *Philosophical Perspectives* 13 (1999): 205–228.

Introduces a concept of self-evident proposition from which it follows that all self-evident propositions are justifiable a priori.

Bealer, G. "A Theory of the A Priori." In *Philosophical Perspectives* 13 (1999): 29–55.

Offers a defense of the view that rational intuitions are evidence, an explanation of why they are evidence in terms of a modal tie between such intuitions and truth, and an explanation of the tie in terms of the conditions for determinately possessing a concept.

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

Defends the traditional rationalist view that rational insight into the necessary truth of a proposition is the source of a priori knowledge.

Casullo, A. *A Priori Justification*. New York: Oxford University Press, 2003.

Maintains that the traditional arguments for and against the existence of a priori knowledge are inconclusive and that a resolution of the controversy over the existence of such knowledge requires empirical investigation.

Field, H. "Apriority as an Evaluative Notion." In *New Essays on the A Priori*. Edited by P.

Boghossian and C. Peacocke, 117–149. Oxford: Oxford University Press, 2000.

Offers an account of the apriority of propositions and rules for forming beliefs within the framework of a general epistemology that holds that epistemological properties, such as reasonableness, are evaluative rather than factual.

Kripke, S. *Naming and Necessity*. Cambridge, MA: Harvard University Press, 1980.

Sets the stage for the contemporary discussion by carefully distinguishing the concepts of a priori knowledge, necessary truth, and analytic truth, and challenging traditional assumptions about the relationship between a priori knowledge and necessary truth.

Peacocke, C. *The Realm of Reason*. Oxford: Oxford University Press, 2004.

Defends a moderate form of rationalism according to which a priori knowledge is to be explained by features of concept possession, but without invoking a distinct psychological faculty as the source of such knowledge.

Sosa, E. *A Virtue Epistemology: Apt Belief and Reflective Knowledge*, Vol. 1. Oxford: Oxford University Press, 2007.

Chapter 3 offers an articulation and defense of the view that rational intuition is a source of a priori knowledge.

## 7. Mathematical Knowledge

Proponents of a priori knowledge typically cite mathematical knowledge as a leading example of such knowledge. Benacerraf 1973 maintains that if the objects of mathematical knowledge are abstract entities, such as numbers and sets, and if mathematical knowledge requires a causal relation between knowers and the objects of such knowledge, then mathematical knowledge is not possible, as abstract entities cannot stand in causal relations. Plantinga 1993 offers an account of a priori knowledge within the framework of a general theory of knowledge and argues that causal requirements on knowledge, of the kind espoused by Benacerraf 1973, lead to more general sceptical conclusions. Hale 1994 maintains that, given an adequate general account of

knowledge of necessary truths, there is no additional problem for an account of knowledge of mathematical truths. Kitcher 1983 surveys and rejects traditional a priori accounts of mathematical knowledge and articulates a version of mathematical empiricism. Maddy 1990 defends an account of mathematical knowledge according to which basic beliefs about sets are intuitive beliefs generated by neurophysiological mechanisms that correspond to the general concept of set. Katz 1998 offers a defense of mathematical realism of which a central component is a defense of a rationalist account of knowledge of abstract entities. Jenkins 2008 offers a novel approach to arithmetical knowledge, focused on the role of concept acquisition, which has the consequence that such knowledge is both a priori and empirical. Parsons 2008 articulates a very nuanced structuralist account of mathematical objects, together with an epistemological theory that highlights the role of intuition in acquiring knowledge of mathematical structures.

Benacerraf, P. "Mathematical Truth." *Journal of Philosophy* 70 (1973): 661–679.

Maintains that if the objects of mathematical knowledge are abstract entities, such as numbers and sets, and if mathematical knowledge requires a causal relation between knowers and the objects of such knowledge, then mathematical knowledge is not possible, as abstract entities cannot stand in causal relations.

Hale, B. "Is Platonism Epistemologically Bankrupt?" *Philosophical Review* 103 (1994): 299–325.

Maintains that, given an adequate general account of knowledge of necessary truths, there is no additional problem for an account of knowledge of mathematical truths.

Jenkins, C. *Grounding Concepts*. Oxford: Oxford University Press, 2008.

Offers a novel approach to arithmetical knowledge, focused on the role of concept acquisition, which has the consequence that such knowledge is both a priori and empirical.

Katz, J. *Realistic Rationalism*. Cambridge: MIT Press, 1998.

Offers a defense of mathematical realism of which a central component is a defense of a rationalist account of knowledge of abstract entities.

Kitcher, P. *The Nature of Mathematical Knowledge*. New York: Oxford University Press, 1983.

Surveys and rejects traditional a priori accounts of mathematical knowledge and articulates a version of mathematical empiricism.

Maddy, P. *Realism in Mathematics*. Oxford: Oxford University Press, 1990.

Defends an account of mathematical knowledge according to which basic beliefs about sets are intuitive beliefs generated by neurophysiological mechanisms that correspond to the general concept of set.

Parsons, C. *Mathematical Thought and Its Objects*. Cambridge: Cambridge University Press, 2008.

Articulates a very nuanced structuralist account of mathematical objects, together with an epistemological theory that highlights the role of intuition in acquiring knowledge of mathematical structures.

Plantinga, A. *Warrant and Proper Function*. New York: Oxford University Press, 1993.

Offers an account of a priori knowledge within the framework of a general theory of knowledge and argues that causal requirements on knowledge, of the kind espoused by Benacerraf 1973, lead to more general sceptical conclusions.

## 8. Logical Knowledge

Proponents of a priori knowledge typically cite logical knowledge as another leading example of such knowledge. The traditional view is that knowledge of basic logical principles derives from rational insight into the necessary truth of such principles. Proponents of logical empiricism reject appeals to rational insight on the grounds that the introduction of a suspect source does not explain how a priori knowledge is possible. They maintain, instead, that a priori knowledge is restricted to analytic truths, which offers the prospect of explaining such knowledge without the need for a suspect source. Radical empiricists, such as Quine, reject the claim that logical knowledge is a priori. Field 1995–1996 defends the view that all the principles of classical logic are strongly a priori, where  $p$  is strongly a priori just in case  $p$  can be known or justifiably believed without reliance on empirical evidence and is empirically indefeasible by empirical evidence against  $p$ . Bonjour 1998 argues that the concept of analytic truth does not provide a full explanation of how basic logical truths are known and defends the traditional rationalist account of such knowledge. Boghossian 1996 distinguishes two senses of *analytic*, metaphysical and epistemological, and defends the view that the semantic thesis of implicit definition explains how a grasp of the meanings of the logical constants can underwrite a priori knowledge of basic principles of logic. Peacocke 1993 offers a metasemantic account of a priori knowledge of basic logical rules in terms of a theory of the possession condition for a concept and a determination theory that specifies how that possession condition determines a semantic value for that concept. Horwich 1997 argues that neither Boghossian's 1996 version of the semantic theory of implicit definition nor Peacocke's 1993 theory of the possession condition for a concept supports the contention that meaning-constituting or concept-constituting rules are knowable a priori. Hale

2002 maintains that acceptance of basic rules of inference involving a logical operator is constitutive of understanding that operator and that, as a consequence, there are rules of inference, including those for the conditional and the universal quantifier, that cannot be rationally doubted and, more tentatively, that can be known to be sound noninferentially.

Williamson 2007 examines a number of different conceptions of analytic sentences, both metaphysical and epistemological, and argues that none explains how we can know or justifiably believe such sentences. Wright 2004 articulates a conception of epistemic entitlement, inspired by remarks of Wittgenstein, according to which we are entitled to rely on the validity of some basic rules of logical inference, such as modus ponens and conditional proof.

Boghossian, P. "Analyticity Reconsidered." *Nous* 30 (1996): 360–391.

Distinguishes two senses of *analytic*, metaphysical and epistemological, and defends the view that the semantic thesis of implicit definition explains how a grasp of the meanings of the logical constants can underwrite a priori knowledge of basic principles of logic.

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

Argues that the concept of analytic truth does not provide a full explanation of how basic logical truths are known and defends the traditional rationalist account of such knowledge.

Field, H. "The A Prioricity of Logic." *Proceedings of the Aristotelian Society* 96 (1995–1996): 359–379.

Defends the view that all the principles of classical logic are strongly a priori, where p is strongly a priori just in case p can be known or justifiably believed without reliance on

empirical evidence and is empirically infeasible by empirical evidence against p.

Hale, B. "Basic Logical Knowledge." In *Logic, Thought and Language*. Edited by A. O'Hear, 279–304. Cambridge: Cambridge University Press, 2002.

Maintains that acceptance of basic rules of inference involving a logical operator is constitutive of understanding that operator and that, as a consequence, there are rules of inference, including those for the conditional and the universal quantifier, that cannot be rationally doubted and, more tentatively, that can be known to be sound noninferentially.

Horwich, P. "Implicit Definition, Analytic Truth, and A Priori Knowledge." *Nous* 31 (1997): 423–440.

Argues that neither Boghossian's 1996 version of the semantic theory of implicit definition nor Peacocke's 1993 theory of the possession condition for a concept supports the contention that meaning-constituting or concept-constituting rules are knowable a priori.

Peacocke, C. "How Are A Priori Truths Possible?" *European Journal of Philosophy* 1 (1993): 175–199.

Offers a metasemantic account of a priori knowledge of basic logical rules in terms of a theory of the possession condition for a concept and a determination theory that specifies how that possession condition determines a semantic value for that concept.

Williamson, T. *The Philosophy of Philosophy*. Malden, MA: Blackwell, 2007.

Examines a number of different conceptions of analytic sentences, both metaphysical and epistemological, and argues that none explains how we can know or justifiably believe such sentences.

Wright, C. "Intuition, Entitlement and the Epistemology of Logical Laws." *Dialectica* 58 (2004): 155–175.

Articulates a conception of epistemic entitlement, inspired by remarks of Wittgenstein, according to which we are entitled to rely on the validity of some basic rules of logical inference, such as modus ponens and conditional proof.

## 9. Intuitions and Conceptual Analysis

Many philosophers maintain that the philosophical practice of conceptual analysis provides compelling examples of a priori knowledge and that the intuitions on which such analyses are based provide compelling examples of a priori justification or evidence. This view has been challenged in two ways. Some deny the evidential status of intuitions; others deny their a priori status. Bealer 1992 maintains that empiricist epistemologies that deny the evidential status of intuitions are incoherent and, ultimately, self-defeating. Jackson 1998 argues that conceptual analysis is essential to serious metaphysics and that such analysis is a source of a priori knowledge. Pust 2001 contends that arguments challenging the evidential status of intuitions in philosophical inquiry on the grounds that the best explanation of their occurrence does not involve their truth are epistemologically self-defeating. Kornblith 2002 acknowledges the evidential status of intuitions but denies that intuitions constitute a priori evidence for conceptual truths; intuitions are a posteriori judgments that serve to identify obvious examples of the phenomenon under investigation. Goldman 2007 maintains that one's intuitions constitute evidence for the content of one's personal psychological concepts but denies that such evidence is a priori. Stich 1988 argues that analytic epistemology, which bases the choice between

competing theories of justification on conceptual analysis, is not suited to the project of determining which cognitive processes are good ones. Weinberg, et al. 2001 contends that results in experimental philosophy challenge the evidential value of intuitions. Sosa 2009 offers a defense of the use of intuitions in epistemological theorizing to arrive at conclusions about the nature and extent of human knowledge and justification against the challenges raised by Stich 1988 and Weinberg, Nichols, and Stich 2001. Nagel 2007 provides a more recent survey of the experimental studies on epistemic intuitions and an assessment of their implications for epistemology.

Bealer, G. "The Incoherence of Empiricism." *Proceedings of the Aristotelean Society*, supp. vol 66 (1992): 99–138.

Maintains that empiricist epistemologies that deny the evidential status of intuitions are incoherent and, ultimately, self-defeating.

Goldman, A. "Philosophical Intuitions: Their Target, Their Source, and Their Epistemic Status." *Grazer Philosophische Studien* 74 (2007): 1–26.

Maintains that one's intuitions constitute evidence for the content of one's personal psychological concepts but denies that such evidence is a priori.

Jackson, F. *From Metaphysics to Ethics: A Defence of Conceptual Analysis*. Oxford: Oxford University Press, 1998.

Argues that conceptual analysis is essential to serious metaphysics and that such analysis is a source of a priori knowledge.

Kornblith, H. *Knowledge and Its Place in Nature*. Oxford: Oxford University Press, 2002.

Acknowledges the evidential status of intuitions but denies that intuitions constitute a priori evidence for conceptual truths; intuitions are a posteriori judgments that serve to identify obvious examples of the phenomenon under investigation.

Nagel, J. "Epistemic Intuitions." *Philosophy Compass* 2 (2007): 792–819.

Provides a survey of the experimental studies on epistemic intuitions and an assessment of their implications for epistemology.

Pust, J. "Against Explanationist Skepticism Regarding Philosophical Intuitions." *Philosophical Studies* 106 (2001): 227–258.

Contends that arguments challenging the evidential status of intuitions in philosophical inquiry on the grounds that the best explanation of their occurrence does not involve their truth are epistemologically self-defeating.

Sosa, E. "A Defense of the Use of Intuitions in Philosophy." In *Stich and His Critics*. Edited by Dominic Murphy and Michael Bishop, 101–112. Malden, MA: Blackwell, 2009.

Offers a defense of the use of intuitions in epistemological theorizing to arrive at conclusions about the nature and extent of human knowledge and justification against the challenges raised by Stich 1988 and Weinberg, et al. 2001.

Stich, S. "Cognitive Diversity, Analytic Epistemology, and the Problem of Cognitive Diversity." *Synthese* 74 (1988): 391–413.

Argues that analytic epistemology, which bases the choice between competing theories of justification on conceptual analysis, is not suited to the project of determining which cognitive processes are good ones.

Weinberg, J., Nichols, S. and Stich, S. "Normativity and Epistemic Intuitions." *Philosophical*

*Topics* 29 (2001): 429–460.

Contends that results in experimental philosophy challenge the evidential value of intuitions.

## 10. Modal Knowledge

Modal knowledge is knowledge of necessity and possibility. Kripke's contention that there are necessary a posteriori propositions, such as that necessarily water is H<sub>2</sub>O, generated interest in two questions pertaining to modal knowledge. According to Kripke, one's knowledge that necessarily water is H<sub>2</sub>O is a posteriori because it is based on one's a posteriori knowledge that water is H<sub>2</sub>O is true in conjunction with one's a priori knowledge that if water is H<sub>2</sub>O then necessarily water is H<sub>2</sub>O. The first question the account raises is whether knowledge of necessity is a priori and, if so, what account can be given of such knowledge. The second pertains to knowledge of possibility. It is a widely held view that conceivability is the source of knowledge of possibility. Kripke's examples of necessary a posteriori propositions appear to challenge that view because, prior to the discovery that water is H<sub>2</sub>O, it appeared to be conceivable that water is not H<sub>2</sub>O, yet it is not possible.

### a. Overviews

Vaidya 2007 provides a survey of modal epistemology from the early modern period through Kripke, together with a survey of three contemporary approaches: conceivability-based, understanding-based, and counterfactual-based. This is the most detailed and comprehensive overview, and contains an extensive bibliography. Evnine 2008 discusses

the relationship between conceivability and possibility, with a focus on the accounts of Chalmers and Yablo and on Sidelle's conventionalist account of modal truth and knowledge. McLeod 2005 highlights the role of modal realism and the analogy between mathematical and modal knowledge in generating questions about modal knowledge.

Evnine, S. "Modal Epistemology: Our Knowledge of Necessity and Possibility."

*Philosophy Compass* 3 (2008): 664–684.

Discusses the relationship between conceivability and possibility, with a focus on the accounts of Chalmers and Yablo and on Sidelle's conventionalist account of modal truth and knowledge.

McLeod, S. "Modal Epistemology." *Philosophical Books* 46 (2005): 235–245.

Highlights the role of modal realism and the analogy between mathematical and modal knowledge in generating questions about modal knowledge.

Vaidya, A. "The Epistemology of Modality." In the *Stanford Encyclopedia of Philosophy*.

Edited by E. Zalta, 2007. <http://plato.stanford.edu/entries/modality-epistemology/>.

Provides a survey of modal epistemology from the early modern period through Kripke, together with a survey of three contemporary approaches: conceivability-based, understanding-based, and counterfactual-based. The most detailed and comprehensive overview, and contains an extensive bibliography.

#### b. Primary Sources

Bealer and Peacocke provide accounts of modal knowledge rooted in conditions for

concept possession. Bealer 2002 maintains that modal knowledge ultimately derives from modal intuitions that result from determinate understanding of concepts. Peacocke 1999 contends that modal knowledge derives from tacit knowledge of principles of metaphysical possibility that is constitutive of possessing the concept of metaphysical modality. Chalmers and Yablo defend the role of conceivability as a source of knowledge of possibility. Chalmers 2002 defends a version of weak modal rationalism according to which primary positive ideal conceivability entails primary possibility. Yablo 1993 provides an articulation of the concept of conceivability which, he maintains, underwrites the claim that conceivability provides basic, but defeasible, justification for believing that something is possible. Hill and Williamson, drawing on the work of Lewis and Stalnaker, who define the metaphysical modalities in terms of the counterfactual conditional, provide accounts of modal knowledge in terms of knowledge of counterfactual conditionals. Hill 2006 maintains that metaphysical necessity and possibility can be reductively explained in terms of the counterfactual conditional and that this reduction gives rise to two tests for determining whether a proposition is metaphysically necessary. Williamson 2007 holds that the epistemology of metaphysical modality is a special case of the epistemology of counterfactual conditionals, which can be explained in terms of simulation or the running offline of our cognitive faculties. Sidelle 1989 contends that the a priori premises involved in Kripke's examples of necessary a posteriori propositions are analytic truths, which are true by linguistic convention and knowable a priori. Hale 2003 distinguishes two different approaches to modal knowledge—the first treats knowledge of necessity as more fundamental than knowledge of possibility, the second treats

knowledge of possibility as epistemologically prior—and argues that the first is more promising than the second.

Bealer, G. “Modal Epistemology and the Rationalist Renaissance.” In *Conceivability and Possibility*. Edited by T. Gendler and J. Hawthorne, 71–125. Oxford: Oxford University Press, 2002.

Maintains that modal knowledge ultimately derives from modal intuitions that result from determinate understanding of concepts.

Chalmers, D. “Does Conceivability Entail Possibility?” In *Conceivability and Possibility*. Edited by T. Gendler and J. Hawthorne, 145–200. Oxford: Oxford University Press, 2002.

Defends a version of weak modal rationalism according to which primary positive ideal conceivability entails primary possibility.

Hale, B. “Knowledge of Possibility and of Necessity.” *Proceedings of the Aristotelian Society* 103 (2003): 1–20.

Distinguishes two different approaches to modal knowledge—the first treats knowledge of necessity as more fundamental than knowledge of possibility, the second treats knowledge of possibility as epistemologically prior—and argues that the first is more promising than the second.

Hill, C. “Modality, Modal Epistemology, and the Metaphysics of Consciousness.” In *The Architecture of the Imagination*. Edited by S. Nichols, 205–235. Oxford: Oxford University Press, 2006.

Maintains that metaphysical necessity and possibility can be reductively explained in terms of the counterfactual conditional and that this reduction gives rise to two tests for determining whether a proposition is metaphysically necessary.

Peacocke, C. *Being Known*. Oxford: Oxford University Press, 1999.

Contends that modal knowledge derives from tacit knowledge of principles of metaphysical possibility that is constitutive of possessing the concept of metaphysical modality.

Sidelle, A. *Necessity, Essence, and Individuation*. Ithaca: Cornell University Press, 1989.

Contends that the a priori premises involved in Kripke's examples of necessary a posteriori propositions are analytic truths, which are true by linguistic convention and knowable a priori.

Williamson, T. *The Philosophy of Philosophy*. Malden, MA: Blackwell, 2007.

Holds that the epistemology of metaphysical modality is a special case of the epistemology of counterfactual conditionals, which can be explained in terms of simulation or the running offline of our cognitive faculties.

Yablo, S. "Is Conceivability a Guide to Possibility?" *Philosophy and Phenomenological Research* 53 (1993): 1–42.

Provides an articulation of the concept of conceivability which, he maintains, underwrites the claim that conceivability provides basic, but defeasible, justification for believing that something is possible.

## 11. Testimonial Knowledge

Testimonial knowledge traditionally has been viewed as a posteriori, as such knowledge typically involves perceptual experience in some form, such as hearing the words of the testifier. Burge 1993, however, maintains that such perceptual experience does not play a warranting role in testimony; it functions only as a causal enabling condition. Christensen and Kornblith 1997 and Malmgren 2006 dispute Burge's account of the role of experience in testimonial knowledge. Burge 1997 responds to Christensen and Kornblith.

Burge, T. "Content Preservation." *Philosophical Review* 102 (1993): 457–488.

Maintains that although testimony typically involves perceptual experience in some form, such as hearing the words of the testifier, such perceptual experience does not play a warranting role in testimony; it functions only as a causal enabling condition.

Burge, T. "Interlocution, Perception, and Memory." *Philosophical Studies* 86 (1997): 21–47.

Maintains, in response to Christensen and Kornblith 1997, that although perception is necessary for one to understand what the testifier says, it need not be part of one's justification for the belief acquired via testimony.

Christensen, D. and Kornblith, H. "Testimony, Memory and the Limits of the *A Priori*."

*Philosophical Studies* 86 (1997): 1–20.

Argues, contra Burge 1993, that perception plays a justificatory role, and not merely a causal role, in the production of testimonial beliefs.

Malmgren, A. "Is There A Priori Knowledge By Testimony?" *Philosophical Review* 115 (2006): 199–241.

Contends, contra Burge 1993, that in order for one to acquire testimonial knowledge that

p, one must be warranted in believing that the testifier said that p and that such warrant cannot be a priori.

## 12. Naturalism

A recurrent theme in the contemporary discussion of a priori knowledge is whether such knowledge is compatible with naturalism. Articulating precisely the parameters of the debate is difficult because different theorists understand the commitments of naturalism differently. Many proponents of naturalism draw their inspiration from Quine 1969, which rejects the traditional epistemological project of providing an a priori, philosophical justification of scientific knowledge and offers, in its place, a vision of epistemology as a branch of science. The project of naturalized epistemology is to provide a scientific account of how human subjects arrive at their scientific beliefs. Other, less radical forms of naturalism do not espouse the replacement of philosophical projects with scientific projects but advocate placing naturalistic constraints on traditional philosophical projects such as that any acceptable epistemological theory must cohere with our best scientific theories of human cognition. Goldman 1999 offers a version of naturalistic epistemology that is compatible with a priori knowledge and a discussion of the bearing of empirical research on arithmetical and logical cognition on the question of whether arithmetical and logical knowledge are a priori. Rey 1998 endorses Quine's conception of naturalistic epistemology but argues that it can accommodate a priori knowledge. Devitt 1998 contends that Rey's 1998 conception of naturalistic epistemology is not Quine's and that Quine's conception is not compatible with a priori knowledge. Kornblith 2007 maintains that methodological naturalism cannot be reconciled with the philosophical practice of constructing

theories on the basis of appeals to intuition.

Devitt, M. "Naturalism and the A Priori." *Philosophical Studies* 92 (1998): 45–65.

Contends that Rey's 1998 conception of naturalistic epistemology is not Quine's and that Quine's conception is not compatible with a priori knowledge.

Goldman, A. "A Priori Warrant and Naturalistic Epistemology." *Philosophical Perspectives* 13 (1999): 1–28.

Offers a version of naturalistic epistemology that is compatible with a priori knowledge and a discussion of the bearing of empirical research on arithmetical and logical cognition on the question of whether arithmetical and logical knowledge are a priori.

Kornblith, H. "Naturalism and Intuitions." *Grazer Philosophische Studien* 74 (2007): 27–49.

Maintains that methodological naturalism cannot be reconciled with the philosophical practice of constructing theories on the basis of appeals to intuition.

Quine, W. V. "Epistemology Naturalized." In *Ontological Relativity and Other Essays*, 69–90. New York: Columbia University Press, 1969.

Rejects the traditional epistemological project of providing an a priori, philosophical justification of scientific knowledge and offers, in its place, a vision of epistemology as a branch of science.

Rey, G. "A Naturalistic A Priori." *Philosophical Studies* 92 (1998): 25–43.

Endorses Quine's conception of naturalistic epistemology but argues that it can accommodate a priori knowledge.

### 13. Scepticism

BonJour 1998 offers two arguments in support of the claim that denying the existence of a priori knowledge leads to scepticism. Casullo 2000 argues that BonJour's 1998 initial argument, which Casullo calls the "Generality Argument," proves too much, for it can be employed to show that BonJour's version of moderate rationalism also leads to scepticism. Thurow 2009 defends BonJour's 1998 Generality Argument against Casullo's 2000 criticism and offers a new version of the argument. Beebe 2008 criticizes both of BonJour's 1998 arguments, maintaining that neither establishes that there is no rational alternative to accepting the a priori. Harman 2001 argues, in response to BonJour 1998, that a general foundations theory can avoid scepticism without admitting any beliefs that are justified a priori.

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

Offers two arguments in support of the claim that denying the existence of a priori knowledge leads to scepticism.

Beebe, J. "BonJour's Arguments against Skepticism about the *A Priori*." *Philosophical Studies* 137 (2008): 243–267.

Criticizes both of BonJour's 1998 arguments, maintaining that neither establishes that there is no rational alternative to accepting the a priori.

Casullo, A. "The Coherence of Empiricism." *Pacific Philosophical Quarterly* 81 (2000): 31–48.

Argues that BonJour's 1998 Generality Argument proves too much, for it can be employed to show that BonJour's version of moderate rationalism also leads to scepticism.

Harman, G. "General Foundations versus Rational Insight." *Philosophy and Phenomenological Research* 63 (2001): 657–663.

Argues, in response to BonJour 1998, that a general foundations theory can avoid scepticism without admitting any beliefs that are justified a priori.

Thurrow, J. "The A Priori Defended: A Defense of the Generality Argument." *Philosophical Studies* 146 (2009): 273–289.

Defends BonJour's 1998 Generality Argument against Casullo's 2000 criticism and offers a new version of the argument.

#### 14. New Developments

A focus of emerging interest is the significance of the distinction between a priori and a posteriori knowledge. Kitcher 2000 argues that the classical conception of the a priori is too complex to be coherently explicated and, moreover, that the question of whether mathematical knowledge is a priori is not significant. Hawthorne 2007 argues that, from the perspective of an externalist epistemology, the a priori-a posteriori distinction is not a natural one. Williamson 2007 maintains that the a priori-a posteriori distinction yields little epistemological insight because it obscures more significant epistemological distinctions. Casullo 2009 maintains that the evidence Kitcher 2000 cites regarding the classical conception of the a priori fails to support its pessimistic conclusion regarding the possibility of coherently explicating that concept. Jenkins 2008 offers a defense of the a priori-a posteriori distinction in light of the concerns expressed by Hawthorne 2007 and Williamson 2007.

Casullo, A. "Analyzing A Priori Knowledge." *Philosophical Studies* 142 (2009): 77–90.

Maintains that the evidence Kitcher 2000 cites regarding the classical conception of the a priori fails to support its pessimistic conclusion regarding the possibility of coherently explicating that concept.

Hawthorne, J. "A Priority and Externalism." In *Internalism and Externalism in Semantics and Epistemology*. Edited by Sanford Goldberg, 201–218. Oxford: Oxford University Press, 2007.

Argues that, from the perspective of an externalist epistemology, the a priori-a posteriori distinction is not a natural one.

Jenkins, C. "A Priori Knowledge: Debates and Developments." *Philosophy Compass* (2008): 436–450.

Offers a defense of the a priori-a posteriori distinction in light of the concerns expressed by Hawthorne 2007 and Williamson 2007.

Kitcher, P. "A Priori Knowledge Revisited." In *New Essays on the A Priori*. Edited by P. Boghossian and C. Peacocke, 65–91. Oxford: Oxford University Press, 2000.

Argues that the classical conception of the a priori is too complex to be coherently explicated and, moreover, that the question of whether mathematical knowledge is a priori is not significant.

Williamson, T. *The Philosophy of Philosophy*. Malden, MA: Blackwell, 2007.

Maintains that the a priori-a posteriori distinction yields little epistemological insight because it obscures more significant epistemological distinctions.