

Curriculum vitae

Andrew Peter Arana

Personal information

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Employment

- 2012- Associate professor of philosophy & mathematics, University of Illinois at Urbana-Champaign
- 2011-2012 Associate professor of philosophy, Kansas State University
- 2009-2010 Postdoctoral fellow, Ideals of Proof project, supported by the Agence Nationale de la Recherche, France, affiliated with Université Nancy 2, the Collège de France, Université Paris 1 Panthéon-Sorbonne, and Université Paris Diderot - Paris 7.
- Summer 2007 Invited professor of history and philosophy of science, Université Paris Diderot - Paris 7
- 2004-2011 Assistant professor of philosophy, Kansas State University
- 2002-2004 Assistant professor of philosophy, Stanford University (three year term)

Education

Ph.D., Philosophy and mathematics, joint program, University of Notre Dame, Notre Dame, IN, 2004. Thesis advisors: Michael Detlefsen (philosophy) and Julia Knight (mathematics)

M.S., Mathematics, University of Notre Dame, Notre Dame, IN, 1999

B.A. Mathematics, Trinity University, San Antonio, TX, 1996

B.S. Computer science, Trinity University, San Antonio, TX, 1996

Areas of specialization

Logic, history and philosophy of mathematics, metaphysics and epistemology

Areas of competence

History of modern philosophy, history of analytic philosophy, history and philosophy of science, philosophy of religion

Articles

“Purity in arithmetic: some formal and informal issues”. Under review for *Formalism and Beyond. On the Nature of Mathematical Discourse*, Michael Detlefsen and Godehard Link (eds.), Ontos Verlag, Frankfurt Main.

“Elementarity and purity”. Forthcoming in *Analytic Philosophy and the Foundations of Mathematics*, Andrew Arana and Carlos Alvarez (eds.), Palgrave / Macmillan.

“On the relationship between plane and solid geometry” (with Paolo Mancosu). Forthcoming in the *Review of Symbolic Logic*.

“L’infinité des nombres premiers : une étude de cas de la pureté des méthodes” *Les études philosophiques* 2:97 (2011), 193–213.

“Purity of methods” (with Mic Detlefsen). *Philosophers’ Imprint* 11:2 (2011).

“Descartes and the cylindrical helix” (with Paolo Mancosu). *Historia Mathematica* 37:3 (2010), 403–427.

“Proof theory in philosophy of mathematics.” *Philosophy Compass* 5:4 (2010), 336–347.

“On formally measuring and eliminating extraneous notions in proofs.” *Philosophia Mathematica* 17 (2009), 208–219

“Logical and semantic purity.” *Protosociology* vol. 25 (2008), pp. 36–48; reprinted in *Philosophy of Mathematics: Set Theory, Measuring Theories, and Nominalism*, Gerhard Preyer and Georg Peter (eds.), Ontos, 2008.

“Possible m-diagrams of models of arithmetic.” In *Reverse Mathematics 2001*, ed. Stephen G. Simpson, *Lecture Notes in Logic* 21, A.K. Peters Publishers / Association for Symbolic Logic, 2005, pp. 1–18.

“Arithmetical independence results using higher recursion theory.” *Journal of Symbolic Logic* 69:1 (2004), pp. 1–9.

“Solovay’s Theorem cannot be simplified.” *Annals of Pure and Applied Logic* vol. 112 (Sept. 2001), pp. 27–41.

Books

Analytic Philosophy and the Foundations of Mathematics, a collection of new solicited essays edited with Carlos Alvarez, under contract with Palgrave / Macmillan, in the History of Analytic Philosophy series edited by Michael Beaney.

Encyclopedia articles

“Non-Euclidean Geometries”, under review for the *New Catholic Encyclopedia: Supplement 2012-13: Ethics and Philosophy*, Robert Fastiggi and Joseph Koterski (eds.), Gale – Cengage Learning

Reviews

Review of Jeremy Gray's *Plato's Ghost*, forthcoming in *Philosophia Mathematica*.

Review of Marcus Giaquinto's *Visual Thinking in Mathematics*. *Analysis* 69 (2009), pp. 401–403.

Review of *The Architecture of Modern Mathematics*, edited by José Ferreirós and Jeremy Gray. *Mathematical Intelligencer* 30:4 (2008), pp. 57–61.

Review of David Corfield's *Toward a philosophy of real mathematics*. *Mathematical Intelligencer* 29:2 (2007), pp. 80–83.

Review of Solomon Feferman's *In the Light of Logic*. *Mathematical Intelligencer*, 27:4 (2005) pp. 38–40.

Invited talks

“Purity of methods”, seminar in philosophy of mathematics, University of Michigan, April 2012

“On the relationship between plane and solid geometry”, colloquium, L'Institut de Mathématiques de Toulouse, Toulouse, France, March 2012

“Descartes & the virtues of algebraic reasoning in geometry”, colloquium, Max Planck Institute for the History of Science, Berlin, Germany, March 2012

“The transformation of the geometrical from the classical to the modern era”, conference “What Makes Modern Mathematics Different from Classical Mathematics?”, Paris, France, December 2011

“Geometrical reasoning & geometrical knowledge”, colloquium, Department of Philosophy, University of Illinois at Urbana-Champaign, November 2011

“Complexity and opacity in early modern geometry” (with Sébastien Maronne), Ideals of Proof conference, University of Notre Dame, November 2011

“Toward a measure of the difficulty of following proofs”, PhilMath Intersem, Paris, France, June 2011

“Purity of methods and the varieties of content”, colloquium, Department of Logic and Philosophy of Science, University of California–Irvine, January 2011

“The preference for ‘pure’ proofs”, colloquium, L'Institut de Mathématiques de Toulouse, Toulouse, France, December 2010

“On the relationship between plane and solid geometry”, First Meeting of the Association for the Philosophy of Mathematical Practice, Brussels, Belgium, December 2010

“Geometric model theory and the foundations of mathematics”, Philosophy of Mathematics Workshop, REHSEIS (Recherches Epistémologiques et Historiques sur les Sciences Exactes et les Institutions Scientifiques), Université Paris 7 / CNRS, Paris, France, November 2010

“Purity in arithmetic: formal and informal issues”, conference on the number concept: axiomatization, cognition and genesis, Université Nancy 2, Nancy, France, November 2010

“The preference for ‘pure’ proofs”, Midwest Model Theory Day, University of Illinois–Chicago, October 2010

- “The algebraic / geometric distinction”, Philosophy of Mathematics Workshop, REHSEIS, Université Paris 7 / CNRS, Paris, France, June 2010
- “Contrasting metric and projective proofs of Desargues’ theorem”, workshop on contrasting proofs, REHSEIS, Paris, France, June 2010
- “Descartes and the cylindrical helix”, colloquium for Henk Bos, REHSEIS, Paris, France, May 2010
- “The geometric / algebraic distinction”, philosophy colloquium, Université Blaise Pascal, Clermont-Ferrand, France, April 2010
- “The complexity of pure and impure proof”, philosophy of mathematics colloquium, Institut d’Histoire et de Philosophie des Sciences et des Techniques (IHPST), Université Paris 1 / CNRS, Paris, France, April 2010
- “Purity and the carving of mathematics”, séminaire de philosophie des mathématiques, workshop on “carving mathematics up”, Université Paris 7 - Diderot, Paris, France, April 2010
- “The geometric / algebraic distinction”, workshop On mathematical practices, Universidad Autónoma de Madrid, Madrid, Spain, March 2010
- “Simplicity and elementary methods”, workshop on simplicity as an epistemological value in scientific practice, Institut d’Etudes Avancées Paris and REHSEIS, Université Paris 7 / CNRS, Paris, France, January 2010
- “The identity of problems”, colloquium on problems, REHSEIS, Université Paris 7 / CNRS, Paris, France, December 2009
- “Purity of methods and the identity of problems”, colloquium on the imaginary, the ideal and the infinite in mathematics, Pont-à-Mousson, France, June 2009
- “Purity of methods”, Foundational Adventures: a conference in honor of the 60th birthday of Harvey Friedman, Columbus, OH, May 2009
- “Purity and understanding”, Colloquium on mathematical understanding, REHSEIS, Université Paris 7 / CNRS, Paris, France, June 2008
- “Purity of methods: some thoughts on relevance”, colloquium on the foundations of mathematics from Kant to Hilbert: analytical philosophy in perspective, Universidad Nacional Autónoma de México (UNAM), Mexico City, Mexico, September 2007
- “Coxeter, Frege, and determining problems”, colloquium on philosophy of mathematics as an interpretative enterprise: how much history of mathematics should the philosophy of mathematics be able to account for? REHSEIS, Université Paris 7 / CNRS, Paris, France, June 2007
- “Purity of methods”, Philosophy of Mathematics Colloquium, IHPST, Université Paris 1 / CNRS, Paris, France, May 2007
- “Semantic uncertainty in nineteenth century mathematical analysis”, Colloquium on the Development of Mathematical Analysis in the 18th and 19th Centuries, UNAM, Mexico City, October 2005
- “Purity of methods”, Pennsylvania State University Logic Seminar, State College, PA, June 2005

- “Purity of methods: some logical perspectives”, Southern Wisconsin Logic Colloquium, Madison, WI, May 2005
- “Purity of methods”, University of Wisconsin–Madison Mathematics Colloquium, Madison, WI, May 2005
- “Purity in mathematics”, Trinity University Mathematics Colloquium, San Antonio, TX, February 2005
- “Systematicity in Descartes’ geometry”, Colloquium on the history and philosophy of mathematics, REHSEIS, Université Paris 7 / CNRS, Paris, France, January 2005
- “Purity of proof”, Seminar on the history and philosophy of mathematics, REHSEIS, Université Paris 7 / CNRS, Paris, France, January 2005
- “The epistemic value of purity”, Spring Meeting, Association for Symbolic Logic / American Philosophical Association, Central Division, Chicago, IL, April 2004
- “The epistemic value of purity”, Department of Philosophy, Kansas State University, Manhattan, KS, January 2004
- “The epistemic value of purity”, Department of Philosophy, Virginia Polytechnic Institute and State University, Blacksburg, VA, January 2004
- “Degree complexity of models of arithmetic and connections with independence result”, UCLA Logic Colloquium, Los Angeles, CA, October 2003
- “Purity in early modern geometry”, Working group in history and philosophy of logic, mathematics, and science, University of California, Berkeley, CA, September 2003
- “Degree complexity of models of arithmetic and connections with independence results”, Logic Colloquium, University of California, Berkeley, CA, September 2003
- “Effectiveness questions in arithmetic”, Fall Central Section Meeting, American Mathematical Society, Special Section on Effectiveness Questions in Model Theory, Madison, WI, October 2002
- “Methodological purity as a mathematical ideal”, Carnegie Mellon University Pure and Applied Logic Colloquium, Pittsburgh, PA, March 2002
- “Arithmetical incompleteness as a metamathematical tool”, University of Wisconsin–Madison Logic Seminar, Madison, WI, March 2002
- “Methodological purity as a mathematical ideal”, Department of Philosophy, Stanford University, Stanford, CA, January 2002
- “Methodological purity as a mathematical ideal”, Department of Philosophy, Indiana University, Bloomington, IN, January 2002

Conference talks

- “On the relationship between plane and solid geometry”, Midwest Philosophy of Mathematics Workshop, University of Notre Dame, Notre Dame, IN, October 2010
- “Purity of methods”, Midwest Philosophy of Mathematics Workshop, University of Notre Dame, Notre Dame, IN, November 2006

“Logic instruction and philosophy graduate training”, Spring Meeting, Association for Symbolic Logic / American Philosophical Association, Pacific Division, San Francisco, CA, March 2005

“Systematicity in Descartes’ geometry”, Midwest Philosophy of Mathematics Workshop, University of Notre Dame, Notre Dame, IN, November 2004

“Methodological purity as a mathematical ideal”, Midwest Philosophy of Mathematics Workshop, University of Notre Dame, Notre Dame, IN, November 2001

“Minimal consistency and independence over PA”, Spring Meeting, Association for Symbolic Logic / American Philosophical Association, Central Division Meeting, Minneapolis, MN, May 2001

“Arithmetic and independence”, Annual Meeting, Association for Symbolic Logic, University of Pennsylvania, Philadelphia, PA, March 2001

“Arithmetic and independence”, Midwest Philosophy of Mathematics Workshop, Carnegie Mellon University, Pittsburgh, PA, December 2000

“Possible m -diagrams of models of arithmetic”, Annual Meeting, Association for Symbolic Logic, University of California at San Diego, San Diego, CA, March 1999

Workshop talks

“Imagination & geometry in Descartes” (with Sébastien Maronne and David Rabouin), workshop on early modern mathematics, REHSEIS, Paris, France, March 2012

“The complexity of pure and impure proof”, IP Fellows seminar, Paris, France, January 2010

“Constructions and equations in early modern geometry” (with Sébastien Maronne), workshop on early modern mathematics, REHSEIS, Paris, France, October 2009

“The geometric / algebraic distinction”, IP Fellows seminar, Paris, France, September 2009

“Purity as an ideal of proof”, meeting of the von Humboldt TransCoop Programme “Imaginary and Ideal Elements and Limit Concepts in Mathematics: Their Theory, History and Philosophical Understanding”, Ludwig-Maximilians-Universität München, Munich, Germany, June 2008

“On formally measuring and eliminating extraneous notions in proofs”, midterm meeting of the von Humboldt TransCoop Programme “Imaginary and Ideal Elements and Limit Concepts in Mathematics: Their Theory, History and Philosophical Understanding”, University of Notre Dame, Notre Dame, IN, October 2007

“Purity”, Working seminar on the history and philosophy of mathematics, REHSEIS, Université Paris 7 / CNRS, Paris, France, June 2007

“Elementary purity”, Workshop on philosophical approaches to mathematics and its history, University of Pittsburgh, Pittsburgh, PA, July 2003

“A defense of systematic purity”, Workshop on philosophical approaches to mathematics and its history, University of Pittsburgh, Pittsburgh, PA, July 2003

Comments

Comments on M. Dickson's "Beauty Doth of Itself Persuade: Quantization, Mathematical Beauty, and Theoretical Understanding", Mathematical Representation of Nature workshop, Stanford University, Stanford, CA, April 2004

Honors and awards

Kaneb Center Outstanding Graduate Teaching Assistant Award (Philosophy), University of Notre Dame, 2002

Graduate Student Union Teaching Award for Instructors, University of Notre Dame, 2001 (university-wide, given to one student instructor per year)

Kaneb Center Outstanding Graduate Teaching Assistant Award (Mathematics), University of Notre Dame, 2000

Languages

Competence in Spanish and French, and some reading of Italian, Latin and German

Professional memberships

Association for Symbolic Logic (ASL), Association for the Philosophy of Mathematical Practice (APMP), Society for the Study of the History of Analytical Philosophy (SSHAP)

Professional service

Referee for Blackwell, Longman, *Synthese*, *Erkenntnis*, *Dialectica*, the *Journal of Symbolic Logic*, the *Review of Symbolic Logic*, the *Notre Dame Journal of Formal Logic*, *Philosophia Scientiae*, *Teaching Philosophy*, and *CultureMATH* (l'École Normale Supérieure, Paris)

Program committee (chair), ASL / APA Central Division meeting, New Orleans, 2013

Steering committee, French Philosophy of Mathematics Workshop, Paris, France, October 2012

Member of the ASL Committee on Logic Education, 2005–2008 term, 2008–2011 term, 2011–2014 term

Steering committee, Paris–Nancy Philosophy of Mathematics Workshop, Nancy, France, September 2011

Scientific committee, Logicism Today conference, Besse-en-Chandesse, France, June 2011

Program committee, Third International Congress on Tools for Teaching Logic (TICTTL), Salamanca, Spain, June 2011

Program committee, Paris–Nancy Philosophy of Mathematics Workshop, Paris, France, November 2010

Co-organizer of the philosophy of mathematics seminar, University Paris Diderot – Paris 7, 2009–2010

Program committee, 2005 APA / ASL Pacific Division meeting, for the ASL joint session, and co-chair of the Logic Instruction and Philosophy Graduate Training panel, San Francisco, CA

Organizing committee for the APA Mini-Conference on Rufus of Cornwall, 2005 APA Pacific Division meeting, San Francisco, CA

Local organizing committee, 2005 ASL annual meeting, at Stanford University, Stanford, CA

Co-organizer, First Annual Graduate Conference in Mathematical Logic, Notre Dame, IN, 2000

University service

Departmental representative, KSU NEH Library Committee, 2004–present

Co-chair, committee to develop an undergraduate general educational course (UGE) course, Center for the Understanding of Origins, KSU, 2004–5

Organizer, Stanford Humanities Center workshop “Logical Methods in the Humanities”, 2003–4, 2002–3 (co-organizer), Stanford University

Faculty representative, Guiding Concilio of El Centro Chicano, 2003–4, Stanford University

Departmental service

Speaker series coordinator, KSU philosophy, 2011–2012

Search committee, junior tenure-track position in social and political philosophy, KSU philosophy, 2011–2012

Curriculum committee, KSU philosophy, 2011

Search committee, junior tenure-track position in metaphysics and epistemology, KSU philosophy, 2011

Search committee, one-year open area position, KSU philosophy, 2011

Departmental webmaster, KSU philosophy, 2004–present

Department library liaison, KSU philosophy, 2004–present

Search committee, junior tenure-track position in philosophy of physics, KSU philosophy, 2004–5

Colloquium committee chair, Stanford philosophy, 2003–4 academic year

Teaching

(1: introductory undergraduate, 2: sophomore/junior, 3: advanced undergraduate, 4: graduate. Course material and evaluations available upon request.)

Courses taught at Illinois

Advanced symbolic logic, Fall 2012 (3, 4)

Early modern philosophy, Fall 2012 (2)

Courses taught at Kansas State

Ancient philosophy, Fall 2011 (2)

History of modern philosophy, Spring 2008, Spring 2009, Spring 2011 (2)

Epistemology, Fall 2007 (3)

Symbolic logic 2, Spring 2007 (3)

Philosophy of religion, Spring 2006, Fall 2008 (3)

The development of analytic philosophy, Spring 2005, Spring 2012 (3)

Introduction to philosophy of religion, Fall 2005, Spring 2006, Summer 2006, Fall 2006, Spring 2007, Fall 2007, Spring 2008, Fall 2008, Spring 2009, Summer 2009, Fall 2010, Spring 2011, Fall 2011 (1)

Introduction to moral philosophy, Fall 2010 (1)

Introduction to formal logic, Spring 2005 (1)

Introduction to philosophical problems, Fall 2004, Fall 2005 (1)

Independent study in mathematical logic (model theory, computability theory), Fall 2005, Spring 2006, Summer 2006, Fall 2006, Spring 2007, Fall 2007 (4)

Courses taught at Stanford

Philosophy of mathematics seminar (on creation in mathematics), Spring 2004 (4)

Computability and logic, Spring 2003, 2004 (3, 4)

First-order logic, Winter 2003, 2004 (3, 4)

Basic concepts in mathematical logic, Fall 2002, 2003 (3, 4)

Directed readings in theories of truth and in the philosophy of algebra, Fall 2003 (4)

Directed readings in the history of analytic philosophy, focused on Frege's philosophy of language, Summer 2003 (3)

Theory of knowledge, Winter 2003 (3)

Courses taught at Notre Dame

Introduction to philosophy, Spring 2001, Fall 2001 (1)

Calculus II for mathematics, science, and engineering students, Fall 2000 (1)

Calculus I for arts and letters students, Fall 1999 (1)

Calculus II for business students, Summer 1998, Spring 1999 (1)

Teaching assistant for various sections of Introduction to philosophy (1), Calculus II (1), and Linear algebra (2), 1997–2000