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## Research Interests

Mathematical logic, theoretical computer science, logics of programs, Kleene algebra, epistemic logic.

## Education

Amherst College	Mathematics and Computer Science	BA <i>summa cum laude</i> , 1998
Cornell University	Mathematics	MS, 2002
Cornell University	Computer Science	MS, 2005
Cornell University	Mathematics	PhD, 2005

## Employment

Visiting assistant professor, Union College, 2009–present  
Visiting assistant professor, Wabash College, 2008–2009  
Visiting assistant professor, Smith College, 2005–2008  
Teaching assistant/instructor, Cornell University, 1999–2005  
Intern (computer security research), ATC-NY, 2003  
Unix systems administrator, The MathWorks, Inc., 1998–1999

## Publications

The mean value theorem in second order arithmetic. *Journal of Symbolic Logic*, 66:1353–1358, September 2001 (with D. Velleman).

On the elimination of hypotheses in Kleene algebra with tests. Technical Report 2002-1879, Computer Science Department, Cornell University, October 2002 (with D. Kozen).

On the complexity of the Horn theory of REL. Technical Report 2003-1896, Computer Science Department, Cornell University, May 2003 (with D. Kozen).

How the location of  $*$  influences complexity in Kleene algebra with tests. In F. Baader and A. Voronkov, editors, *Proc. of the 11th Int. Conf. on Logic for Programming, Artificial Intelligence, and Reasoning (LPAR 2004)*, volume 3452 of *Lecture Notes in Artificial Intelligence*, pages 224–239, Montevideo, Uruguay, March 2005. Springer-Verlag.

Proof theory for Kleene algebra. In *Proc. of the 20th IEEE Symp. on Logic in Computer Science (LICS 2005)*, pages 290–299, Los Alamitos, CA, June 2005. IEEE.

*The Horn Theory of Relational Kleene Algebra*. PhD thesis, Cornell University, August 2005.

Modularizing the elimination of  $r = 0$  in Kleene algebra. *Logical Methods in Computer Science*, 1(3:4):1–15, December 2005.

A peculiar connection between the axiom of choice and predicting the future. *American Mathematical Monthly*, 115(2):91–96, February 2008 (with A.D. Taylor).

An introduction to infinite hat problems. *Mathematical Intelligencer*, 30(4), 2008 (with A.D. Taylor).

Limit-like predictability for discontinuous functions. *Proceedings of the AMS*, 137:3123–3128, 2009 (with A.D. Taylor).

Agreement in circular societies. *American Mathematical Monthly*, 117(1):40–49, 2010.

Minimal predictors in hat problems. *Fundamenta mathematicae*, 208:273–285, 2010 (with A.D. Taylor).

On transitive subrelations of binary relations. *Journal of Symbolic Logic*, 76:1429–1440, December 2011.

## Teaching

### Smith College

Calculus I (MTH 111)	Fall 2005
Discrete Mathematics (MTH 153)	Fall 2005
Calculus I (MTH 111)	Spring 2006
Calculus III (MTH 212)	Spring 2006
Calculus I (MTH 111)	Fall 2006
Calculus III (MTH 212)	Fall 2006
Math and Sound	Interterm 2007
Data Structures (CSC 212)	Spring 2007
Advanced Programming Techniques (CSC 220)	Spring 2007
Calculus I (MTH 111)	Fall 2007
Linear Algebra (MTH 211)	Fall 2007
Calculus III (MTH 212)	Spring 2008
Measure Theory and the Banach-Tarski Paradox (MTH 343)	Spring 2008

### Wabash College

Calculus I (MAT 111)	Fall 2008
Real Analysis (MAT 333)	Fall 2008
Calculus I (MAT 111)	Spring 2009
Calculus II (MAT 112)	Spring 2009
Computer Graphics (CSC 271)	Spring 2009

### Union College

AP Calculus (MATH 113)	Fall 2009
Numerical Methods (MATH 127)	Winter 2010
Discrete Math for Computer Science (MATH 197)	Winter 2010
Calculus III (MATH 115)	Spring 2010
Foundations of Mathematics (MATH 480)	Spring 2010
Calculus I (MATH 110)	Fall 2010
Intro to Logic and Set Theory (MATH 199)	Winter 2011
Calculus II (MATH 112)	Winter 2011
Abstract Algebra (MATH 332)	Spring 2011
Calculus I (MATH 110)	Fall 2011

## **Talks**

How the Location of  $*$  Influences Complexity in Kleene Algebra with Tests, the 11th Int. Conf. on Logic for Programming, Artificial Intelligence, and Reasoning (LPAR 2004), Montevideo, Uruguay, March 2005.

Proof Theory for Kleene Algebra, the 20th IEEE Symp. on Logic in Computer Science (LICS 2005), Chicago, IL, June 2005.

The Axiom of Choice and Predicting the Future, Union College, Schenectady, NY, October 2005.

A Peculiar Connection Between the Axiom of Choice and Predicting the Future, AMS Joint Meetings, San Antonio, TX, January 2006.

Agreement in Circular Societies, AMS Joint Meetings, New Orleans, LA, January 2007.

My Logic Experience as an Undergraduate, ASL Annual Meeting, Gainesville, FL, March 2007.

Infinite Hat Problems, Connecticut Logic Seminar, Middletown, CT, March 2007.

Infinite Hat Problems, Dartmouth Logic Seminar, Hanover, NH, July 2007.

The Axiom of Choice and Predicting the Future, Amherst College, Amherst, MA, October 2007.

Limit-Like Predictability for Discontinuous Functions, BLAST 2008, Denver, CO, August 2008.

Predicting Values of Arbitrary Functions, Indiana University Logic Seminar, Bloomington, IN, February 2009.

## **Honors and Awards**

Project NExT Fellow, 2006–2007

Eleanor Norton York Award in Mathematics, 2002  
Awarded annually to a Cornell math graduate student.

NSF VIGRE Semester, 2002

Robert H. Breusch Prize in Mathematics, 1998  
Awarded annually to a graduating Amherst student (sometimes shared).

Member, Phi Beta Kappa