

CURRICULUM VITAE

JOSHUA SACK

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Education

2002–2007: *Ph.D. in Mathematics*, Indiana University, awarded June 2007

Dissertation Advisor: Lawrence Moss

Dissertation Title: Adding Temporal Logic to Dynamic Epistemic Logic

2001–2002: *Certificate in Logic*, Universiteit van Amsterdam

1996–2001: *B.S. in Mathematics*, University of Wisconsin — Madison

Employment

February 2009 – present: Postdoctoral Researcher at Reykjavík University School of Computer Science

Winter 2008: Part-time Lecturer at University of California Irvine Department of Logic and Philosophy of Science

Fall 2007: Part-time Lecturer at California State University Long Beach Department of Mathematics and Statistics

Research Areas

Applications of Modal Logics: combining epistemic, probabilistic, temporal, and dynamic logics; finding methods for determining characteristic formulae for Hennessy-Milner logics.

Game Theory: focusing on rationality, backward induction, and belief revision

Publications

- Luca Aceto, Anna Ingólfssdóttir, Joshua Sack. Characteristic Formulae for Fixed-point Semantics: a General Framework. In the proceedings of the *16th International Workshop on Expressiveness and Concurrency*, in the *Electronic Proceedings in Theoretical Computer Science*, 2009.
- Bryan Renne, Joshua Sack, Audrey Yap. *Dynamic Epistemic Temporal Logic*. In X. He, J. Horty, and E. Pacuit, editors, *Logic, Rationality, and Interaction: Second International Workshop, LORI 2009, Chongqing, China, October 8–11, 2009*, In

the proceedings of *Lecture Notes in Computer Science* 5834, pp. 263–277. Springer Berlin/Heidelberg, 2009.

- Joshua Sack. Extending Probabilistic Dynamic Epistemic Logic. *Synthese* 169:2, pp. 241–257, 2009.
- Joshua Sack. Temporal Languages for Epistemic Programs. *Journal of Logic, Language and Information* 17:2, pp. 183–216, 2008.

Accepted Paper

- Joshua Sack. *Logic for Update Products and Steps into the Past*. Submitted to the Annals of Pure and Applied Logic.

Submitted Papers

- Characteristic Formulae for Fixed-point Semantics: a General Framework — full length version. (Joint work with Luca Aceto and Anna Ingólfssdóttir and Paul Levy) Submitted to *Mathematical Structures in Computer Science*.
- Dynamic Epistemic Temporal Logic — full length version. (Joint work with Bryan Renne and Audrey Yap) Submitted to *Journal of Philosophical Logic*.
- Resource bisimilarity and g-bisimilarity coincide. (Joint work with Luca Aceto and Anna Ingólfssdóttir) Submitted to *Information Processing Letters*.

Papers in Progress

- Using Formal Languages to Compare Rationality to Game Equilibria in Different Frameworks
- A Single Language for Rationality in Different Games

Workshop Presentations

- *Dynamic Epistemic Temporal Logic*: International Workshop of Logic, Rationality, and Interaction 2009, Chongqing, China.
- *Extending Probabilistic Dynamic Epistemic Logic*: Workshop on Logic and Intelligent Interaction in the 20th European Summer School in Logic, Language, and Information 2008.

Talks Given

2010 April 16: *Characteristic Formulae for Fixed-point Semantics: A General Framework*. Icelandic Postdoc and Graduate Student Seminar. University of Iceland.

2010 April 9: *Characteristic Formulae for Fixed-point Semantics: A General Framework*. ICE-TCS seminar. Reykjavík University.

2010 Feb 17: *Probability and dynamics — an overview*. Logic and Interactive Rationality seminar, University of Amsterdam.

2010 Feb 15: *Probability and dynamics — an overview*. PROSE colloquium, Technical University of Eindhoven.

2009 October 8: *Dynamic Epistemic Temporal Logic*. Presented jointly with Audrey Yap at the International Workshop Logic, Rationality, and Interaction 2009, Chongqing, China.

2009 March 3: *Muddy Children, other Logic Puzzles, and Temporal Dynamic Epistemic Logic*. ICE-TCS seminar. Reykjavík University.

2008 August 12: *Extending Probabilistic Dynamic Epistemic Logic*. Workshop in Logic and Intelligent Interaction in the European Summer School in Logic, Language, and Information, University of Hamburg.

2008 May 29: *Extending Probabilistic Dynamic Epistemic Logic*. Guest talk in Phil 359: Advanced Modal Logic, Stanford University.

2008 April 8: *On Temporal Dynamic Epistemic Logic*. Seminar in Computational Logic. City University of New York Graduate Center.

2008 April 2: *Strengthening Probabilistic Dynamic Epistemic Logic*. Logic Seminar. Indiana University Bloomington.

2008 February 15: *On Temporal Dynamic Epistemic Logic*. University of California Los Angeles Logic Colloquium.

2007 November 9: *Muddy Children, Other Logic Puzzles, and Temporal Dynamic Epistemic Logic*. Department of Mathematics and Statistics Colloquium. California State University Long Beach.

2007 April 28: *Adding Time and Change to Epistemic Logic*. Graduate Student Conference in Logic: Eighth Annual Meeting. University of Illinois at Chicago.

2006 October 18 : *Completeness and Decidability Temporal Dynamic Epistemic Logics, part II* Logic Seminar. Indiana University at Bloomington.

2006 October 11: *Completeness and Decidability for Temporal Dynamic Epistemic Logics, part I* Logic Seminar. Indiana University at Bloomington.

2006 April 29: *Temporal Logic for Epistemic Programs*. Graduate Student Conference in Logic: Seventh Annual Meeting. University of Wisconsin at Madison.

2006 April 19: *Epistemic Programs and Steps into the Past*. Logic Seminar. Indiana University at Bloomington.

2004 October 6: *A Language for Games, Strategic Interaction, and Rationality*. Logic Seminar. Indiana University at Bloomington.

1998 fall: *The Binomial Theorem and Some Extensions*. Undergraduate Math Club. University of Wisconsin at Madison

Conferences, Workshops, and Summer Schools Attended Since 2003

2010 February 21–23: *Formal Theories of Communication*. Loretz Center, Leiden, Netherlands.

2009 October 8–11: International Workshop Logic, Rationality, and Interaction 2009, Chongqing, China.

2009 21st European Summer School in Logic Language and Information: Taught *Reasoning with Probabilities*. Taught jointly with Eric Pacuit.

2008 August 4–15: European Summer School in Logic, Language, and Information in the University of Hamburg.

2008 May 31 – June 1: “Epistemology Meets Logic, Informally” philosophy workshop in Stanford University.

2008 February 1–3: Logic Meeting at the University of California Los Angeles Logic Center.

2008 January 6–8: Joint AMS and MAA meetings. San Diego

2007 July 28–30: Mathematics of Language. University of California at Los Angeles.

2007 April 28–29: Graduate Student Conference in Logic: Eighth Annual Meeting. University of Illinois at Chicago.

2007 January 5–8: Joint AMS and MAA meetings. New Orleans

2006 July 18–21: WoLLIC (Workshop on Logic, Language, Information and Computation). Stanford University

2006 April 29–30: Graduate Student Conference in Logic: Seventh Annual Meeting. University of Wisconsin at Madison.

2003 June 20–22: TARK IX (Theoretical Aspects of Rationality and Knowledge). Indiana University at Bloomington

2003 June 17–21: NASSLLI (North American Summer School in Logic Language and Information). Indiana University at Bloomington

Honors

2001 Dean's list

1997 Professor Linnaeus Wayland Dawling Scholarship

Program Committee

2010: On the program committee for the student session of the *Forth North American Summer School in Logic Language, and Information*,

Refereeing

2010: Refereed for *Advances in Modal Logic 2010*, the *21st International Conference on Concurrency Theory*, the *19th EACSL Annual Conference on Computer Science Logic*, the *37th International Colloquium on Automata, Languages and Programming*, the *9th Conference on Logic and the Foundations of Game and Decision Theory*, the *35th International Symposium on Mathematical Foundations of Computer Science*, the student session of the *Forth North American Summer School in Logic Language, and Information*,

2009: Refereed for the journal *Studia Logica*, the *Synthese* section *Knowledge Rationality and Action*, the *6th Workshop on Fixed Points in Computer Science*, and the student session of the *21st European Summer School in Logic, Language, and Information*

2008: Refereed for the *8th Conference on Logic and the Foundations of Games and Decision Theory* and the *Synthese* section *Knowledge Rationality and Action*

2007: Refereed for the *Notre Dame Journal of Formal Logic*

Teaching Experience

2009 21st European Summer School in Logic Language and Information: Teach *Reasoning with Probabilities*. Taught jointly with Eric Pacuit.

2008 Winter: Teach *Introduction to Symbolic Logic*, University of California Irvine

2007 Fall: Teach Honors Section of *Finite Mathematics*, California State University Long Beach

2007 Fall: Teach *Calculus II*, California State University Long Beach

2007 Spring: Grade *Introduction to Finite Mathematics I*, Indiana University

2007 Spring: Grade Honors Course in *Linear Algebra*, Indiana University

2007 Spring: Grade *Transition to Calculus II*, Indiana University

2006 Fall: Assist *Brief Survey of Calculus I*, Indiana University

2006 Fall: Assist *Breif Survey of Calculus II*, Indiana University

2006 Spring: Assist *Brief Survey of Calculus I*, Indiana University

2005 Fall: Teach *Basic Algebra for Finite Mathematics*, Indiana University

2005 Spring: Teach *Introduction to Finite Mathematics I*, Indiana University

2004 Fall: Teach *Precalculus Mathematics*, Indiana University

2004 Summer: Grade *Introduction to Differential Equations with Applications*, Indiana University

2004 Spring: Teach *Basic Algebra*, Indiana University

2003 Fall: Teach *Basic Algebra*, Indiana University

2003 Spring: Hold Recitations for *Calculus I*, Indiana University

2002 Fall: Teach *Basic Algebra*, Indiana University