

Jason Parker

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(Last update: May 15, 2023)

ACADEMIC EMPLOYMENT

Postdoctoral Fellow and Sessional Instructor

September 2020–2023

Department of Mathematics and Computer Science, Brandon University

Advisor: Rory Lucyshyn-Wright

EDUCATION

PhD in Mathematics and Statistics

October 2020

University of Ottawa, Canada

Thesis: *Isotropy groups of quasi-equational theories*

Advisors: Pieter Hofstra and Philip Scott

MSc in Logic, Computation, and Methodology

May 2015

Carnegie Mellon University, USA

Thesis: *Duality between cubes and bipointed sets*

Advisor: Steve Awodey

BA Honours in Philosophy

June 2013

Queen's University, Canada

PUBLICATIONS

- [1] *Diagrammatic presentations of enriched monads and varieties for a subcategory of arities* (with R.B.B. Lucyshyn-Wright). Preprint, 2022. To appear in *Applied Categorical Structures*.
- [2] *Exponentiability in categories of relational structures*. *Theory and Applications of Categories*, Vol. 39, No. 16, 2023, 493–518.
- [3] *Inner automorphisms of presheaves of groups*. *Applied Categorical Structures* 31:20, 2023.
- [4] *Presentations and algebraic colimits of enriched monads for a subcategory of arities* (with R.B.B. Lucyshyn-Wright). *Theory and Applications of Categories*, Vol. 38, No. 38, 2022, 1434–1484.
- [5] *Extensivity of categories of relational structures*. *Theory and Applications of Categories*, Vol. 38, No. 23, 2022, 898–912.
- [6] *Locally bounded enriched categories* (with R.B.B. Lucyshyn-Wright). *Theory and Applications of Categories*, Vol. 38, No. 18, 2022, 684–736.
- [7] *Covariant isotropy of Grothendieck toposes and extensive categories*. *Applied Categorical Structures* 30, 779–803, 2022.
- [8] *Polymorphic automorphisms and the Picard group* (with P. Hofstra and P.J. Scott). *6th International Conference on Formal Structures for Computation and Deduction (FSCD 2021)*, N. Koyayashi, Ed. Dagstuhl Publications LIPIcs, Vol. 195, 2021.
- [9] *Isotropy groups of free racks and quandles*. *Journal of Algebra and its Applications*, Vol. 21, No. 8, 2250163, 2022.
- [10] *Isotropy of algebraic theories* (with P. Hofstra and P.J. Scott). *Electronic Notes in Theoretical Computer Science* 341: 201–217, 2018.

PREPRINTS

- [1] *Enriched structure–semantics adjunctions and monad–theory equivalences for subcategories of arities* (with R.B.B. Lucyshyn-Wright). Preprint, 2023. arXiv:2305.07076
- [2] *Isotropy and combination problems*. Preprint, 2020. arXiv:2010.09821

CONFERENCE AND SEMINAR PRESENTATIONS

(Please see my website for slides and video of selected presentations.)

- [1] **Invited Talk:** *Isotropy groups of locally finitely presentable and extensive categories*. 2022 Category Theory Octoberfest. Online. October 29, 2022.
- [2] *Enriched structure-semantics adjunctions and monad-theory equivalences for subcategories of arities*.
 - Applied Category Theory International Conference. University of Strathclyde, Glasgow. July 22, 2022.
 - New York City Category Theory Seminar. Online. April 6, 2022.
 - University of Ottawa Logic Seminar. Online. March 18, 2022.
 - Atlantic Category Theory Seminar. Online. March 8, 2022.
- [3] *Locally bounded enriched categories*.
 - Australian Category Theory Seminar. Online. November 10, 2021.
 - The Calgary Peripatetic Seminar on Logic, Mathematics, and Computer Science. Online. October 1, 2021.
 - University of Ottawa Logic Seminar. Online. September 30, 2021.
 - Atlantic Category Theory Seminar. Online. September 14, 2021.
- [4] *Presentations and algebraic colimits of enriched monads for a subcategory of arities*.
 - 2021 Category Theory Novemberfest. Online. November 13, 2021.
 - Atlantic Category Theory Seminar. Online. October 5, 2021.
 - International Category Theory Conference 2021. Genoa, Italy. September 2021.
 - Mathematical Congress of the Americas 2021, Categories and Topology Session. July 16, 2021.
- [5] *Polymorphic automorphisms and the Picard group*.
 - **Invited Talk:** Carnegie Mellon University Logic Seminar. Online. October 26, 2021.
 - Logic Supergroup Early Career Researcher Workshop. Online. October 14, 2021.
 - 6th International Conference on Formal Structures for Computation and Deduction. Buenos Aires, Argentina. July 21, 2021.
 - **Distinguished Presentation:** Applied Category Theory 2021 Conference. University of Cambridge. July 15, 2021.
- [6] *Covariant isotropy of Grothendieck toposes*.
 - Open House on Category Theory 2021. Online. November 19, 2021.
 - Toposes Online Conference. Online. June 30, 2021.
- [7] **Invited Talk:** *Isotropy in category theory*. Brandon University Science Seminar. Online. March 25, 2021.
- [8] *Isotropy groups of quasi-equational theories*.
 - **Invited Talk:** TalTech Category Theory Seminar. Online. March 4, 2021.
 - New York City Category Theory Seminar. Online. February 3, 2021.
 - Panglobal Algebra and Logic Seminar (PALS). Online. January 26, 2021.

- Algebra|Coalgebra Seminar (Institute for Logic, Language, and Computation). Online. January 6, 2021.
 - University of California, Riverside Applied Category Theory Seminar. Online. December 14, 2020.
 - The Calgary Peripatetic Seminar on Logic, Mathematics, and Computer Science. Online. December 11, 2020.
 - Vanderbilt University Universal Algebra and Logic Seminar. Online. December 7, 2020.
 - Cambridge University Category Theory Seminar. Online. December 1, 2020.
 - Atlantic Category Theory Seminar. Online. November 3, 2020.
 - Australian Category Theory Seminar. Online. October 21, 2020.
 - University of Ottawa Logic Seminar. University of Ottawa. October 2019.
- [9] *Isotropy groups of strict monoidal categories*. University of Ottawa Logic Seminar. University of Ottawa. Spring 2020.
- [10] *Isotropy of algebraic theories*.
- Université catholique de Louvain Category Theory Seminar. Université catholique de Louvain. September 11, 2018.
 - Mathematical Foundations of Programming Semantics Conference. Dalhousie University. June 8, 2018.
 - Canadian Mathematical Society Summer Meeting, Graduate Student Session. University of New Brunswick. June 4, 2018.
 - Foundational Methods in Computer Science Conference. University of Ottawa. June 2017.
- [11] *A syntactic criterion for a geometric theory to be of presheaf type*. University of Ottawa Logic Seminar. University of Ottawa. Spring 2018.
- [12] *Heyting algebra structure on the quotients of a geometric theory*. University of Ottawa Logic Seminar. University of Ottawa. Spring 2018.
- [13] *Duality between subtoposes of Grothendieck toposes and quotients of geometric theories*. University of Ottawa Logic Seminar. University of Ottawa. Spring 2018.
- [14] *Classifying toposes of geometric theories*. University of Ottawa Logic Seminar. University of Ottawa. Spring 2018.
- [15] *The classifying topos of local rings*. University of Ottawa Logic Seminar. University of Ottawa. Fall 2017.
- [16] *Basic categorical logic*. University of Ottawa Logic Seminar. University of Ottawa. Fall 2017.
- [17] *Categorical semantics of system F*. University of Ottawa Logic Seminar. University of Ottawa. Spring 2017.
- [18] *Duality between cubes and bipointed sets*.
- University of Ottawa Logic Seminar. University of Ottawa. November 2015.
 - Category Theory Octoberfest. University of Ottawa. October 2015.
 - Homotopy Type Theory Seminar. Carnegie Mellon University. Spring 2015.

TEACHING EXPERIENCE

BRANDON UNIVERSITY

- Course Instructor for Contemporary Mathematics (62:152), Winter 2023 (in-person course, 75 undergraduate students)¹
- Course Instructor for Introduction to Statistics (62:171), Winter 2023 (in-person course, 105 undergraduate students)²
- Course Instructor for Introduction to Statistics (62:171), Fall 2022 (in-person course, 90 undergraduate students)³
- Course Instructor for Logic (70:240), Fall 2021 (online course, 40 undergraduate students)⁴
- Guest Instructor for Introduction to Set Theory and Logic (62:261), October 2020

¹See this unlisted YouTube playlist for videos of my teaching from this course.

²See this unlisted YouTube playlist for videos of my teaching from this course.

³See this unlisted YouTube playlist for videos of my teaching from this course.

⁴See this unlisted YouTube playlist for videos of my teaching from this course.

DEPARTMENT OF MATHEMATICS AND STATISTICS, UNIVERSITY OF OTTAWA

- Tutorial Instructor and Grader for Discrete Mathematics for Computing, Spring 2020
- Tutorial Instructor and Grader for Mathematical Reasoning and Proofs, Fall 2019
- Tutorial Instructor and Grader for Calculus for the Life Sciences, Summer 2019
- Tutorial Instructor and Grader for Discrete Mathematics for Computing, Spring 2019
- Grader for Foundations of Mathematics, Fall 2018
- Tutorial Instructor and Grader for Mathematical Reasoning and Proofs, Fall 2018
- Tutorial Instructor and Grader for Discrete Mathematics for Computing, Spring 2018
- Tutorial Instructor and Grader for Introduction to Linear Algebra, Spring 2018
- Tutorial Instructor for Mathematical Methods II, Fall 2017
- Tutorial Instructor for Calculus I, Fall 2017
- Tutorial Instructor for Calculus II, Summer 2017
- Tutorial Instructor and Grader for Discrete Mathematics for Computing, Spring 2017
- Tutorial Instructor and Grader for Introduction to Linear Algebra, Fall 2016
- Grader for Calculus for the Life Sciences, Summer 2016
- Tutorial Instructor and Grader for Discrete Mathematics for Computing, Spring 2016
- Tutorial Instructor for Introduction to Linear Algebra, Spring 2016
- Grader for Mathematical Methods, Fall 2015
- Grader for Foundations of Mathematics, Fall 2015

DEPARTMENT OF PHILOSOPHY, CARNEGIE MELLON UNIVERSITY

- Grader for Invented Languages, Spring 2015
- Tutorial Instructor and Grader for Formal Logic, Fall 2014
- Tutorial Instructor and Grader for Nature of Language, Fall 2013 and Spring 2014

DEPARTMENT OF PHILOSOPHY, QUEEN'S UNIVERSITY

- Guest Instructor for Further Studies in Logic, Spring 2013
- Tutorial Instructor and Grader for Further Studies in Logic, Spring 2013
- Tutorial Instructor and Grader for Introduction to Logic, Fall 2012

CONFERENCES AND WORKSHOPS ATTENDED

- Category Theory Octoberfest. Online. October 29–30, 2022.
- Applied Category Theory International Conference. University of Strathclyde, Glasgow. July 2022.
- Open House on Category Theory. Online. November 2021.
- Category Theory Novemberfest. Online. November 2021.
- International Category Theory Conference. Genoa, Italy (Online). September 2021.

- 6th International Conference on Formal Structures for Computation and Deduction. Buenos Aires, Argentina (Online). July 2021.
- Mathematical Congress of the Americas (Category and Topology Session). Online, July 2021.
- Applied Category Theory Conference. University of Cambridge (Online). July 2021.
- Toposes Online Conference. Online. June 2021.
- Tangent Categories and their Applications. Banff International Research Station (Online). June 2021.
- Operads and Higher Structures in Category Theory Workshop. University of Ottawa. August 2019.
- Summer School in Algebra and Topology. Université catholique de Louvain. September 2018.
- Mathematical Foundations of Programming Semantics Conference. Dalhousie University. June 2018.
- Canadian Mathematical Society Summer Meeting. University of New Brunswick. June 2018.
- Foundational Methods in Computer Science Conference. University of Ottawa. June 2017.
- Workshop on New Directions in Inverse Semigroups. University of Ottawa. Summer 2016.
- Category Theory Octoberfest. University of Ottawa. October 2015. ’
- Modal Logic Workshop. Carnegie Mellon University. Spring 2014.

AWARDS

UNIVERSITY OF OTTAWA

- Doctorate Admission Scholarship, 2020
- Doctorate Admission Scholarship, 2019
- Excellence Scholarship, 2019
- Ontario Graduate Scholarship, 2018–2019
- Excellence Scholarship, 2018
- Doctorate Admission Scholarship, 2018
- Swartzen Memorial Mathematics Scholarship, 2018
- Excellence Scholarship, 2017
- Doctorate Admission Scholarship, 2017
- André Dabrowski Mathematics Scholarship, 2017
- Ontario Graduate Scholarship, 2016–2017
- Excellence Scholarship, 2016
- Swartzen Memorial Mathematics Scholarship, 2016

CARNEGIE MELLON UNIVERSITY

- MSc 50% Tuition Fellowship, 2013–2015

SERVICE

- Program committee member for the 2023 Applied Category Theory International Conference
- Reviewer for the international journal *Theory and Applications of Categories*
- Chair of hiring committee for Logic 70:240 teaching assistant at Brandon University, Fall 2021
- Co-creator and co-organizer of the Brandon University Category Theory Seminar
- Reviewer for David Kelley's *Art of Reasoning: An Introduction to Logic and Critical Thinking* for W.W. Norton & Company, ISBN-13: 978-0393930788, 2014