

ELLEN LEHET

100 Malloy Hall, Philosophy Department, Notre Dame, IN 46556
elehet@nd.edu ◊ ellenlehet.com

AOS

Philosophy of Mathematics

AOC

Epistemology, Philosophy of Science, Logic

EMPLOYMENT

Postdoctoral Fellow

University of Notre Dame

August 2020 - present

EDUCATION

University of Notre Dame

Philosophy – Ph.D.

Philosophy – M.A.

SUNY College at Potsdam

Mathematics – M.A.

SUNY College at Potsdam

Mathematics, Philosophy – B.A.

Computer Science – Minor

August 2015 - May 2020

August 2015 - May 2018

August 2013 - May 2015

August 2011 - May 2015

DISSERTATION ABSTRACT

The Explanatory Value of Category Theory: Category theory, an area of mathematics that categorizes theories in terms of objects and relations of those objects, is explanatory. This dissertation argues that the power of category theory lies in its unique structure, which produces analogies and generalizations. I first put forward an account of mathematical explanation that is informed by contemporary mathematical practice both in classroom teaching and in current research. I then discuss salient examples from contemporary mathematics to highlight how category theory produces analogies and generalizations. I conclude my project with the case study of an important result from algebraic topology (the van Kampen theorem).

Committee: Curtis Franks(advisor) ◊ Timothy Bays ◊ Patricia Blanchette ◊ Colin McLarty

Defense Date: April 6, 2020

PUBLICATIONS

“**Impurity in Contemporary Mathematics**” (forthcoming) *Notre Dame Journal of Formal Logic*.

“**Induction and Explanatory Definitions in Mathematics**” (forthcoming) *Synthese*.

PAPERS IN PROGRESS

“Category Theory: Structure and Explanation”

“Mathematical Explanation in Practice”

“Understanding as the Aim of Mathematics”

“Exemplification as a Means to Understanding in Mathematics”

“The Abstract Subject Matter of Mathematics: Virtual Knot Theory”

PRESENTATIONS

“Mathematical Explanation as a Means to Understanding” at Explanation and Understanding within Mathematics Workshop, Vrije Universiteit Brussel.	December 2019
“Understanding as the Aim of Mathematics” at Notre Dame Philosophy Colloquium, elected graduate student speaker.	November 2019
“The Explanatory Value of Category Theory” at Midwest Philosophy of Math Workshop, University of Notre Dame.	November 2019
“Understanding as the Aim of Mathematics” at Novembertagung 2019, Institut de Recherche Mathématique Avancée, Université de Strasbourg.	November 2019
“The Explanatory Value of Category Theory” at Category Theory OctoberFest 2019, Johns Hopkins University.	October 2019
“The Explanatory Value of Category Theory” at UConn Logic Colloquium, University of Connecticut.	October 2019
“Impurity in Contemporary Mathematics” at Mathematics in Philosophy: Purity and Idealization, University of Notre Dame.	March 2019
“Rigor and Intuition in Topology: The Development of the Poincaré Conjecture” at Masterclass in the Philosophy of Mathematical Practice, Vrije Universiteit Brussel.	May 2018

TEACHING EXPERIENCE

at University of Notre Dame

PHIL 20640: Philosophy of Mental Illness	<i>Fall 2020</i>
PHIL 20635: Theory of Knowledge	<i>Spring 2019</i>
TA for Jeff Speaks’ PHIL 10100: Introduction to Philosophy	<i>Fall 2017</i>
TA for Curtis Franks’ PHIL 31300: Formal Logic	<i>Spring 2017</i>
TA for Jeff Speaks’ PHIL 10100: Introduction to Philosophy	<i>Fall 2016</i>

Outstanding Graduate Student Teacher Award

from Kaneb Center for Teaching & Learning	<i>Spring 2018</i>
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SERVICE

Referee for <i>Axiomathes</i>	<i>2020</i>
Member of Organizing Committee for 2020 Midwest Philosophy of Math Workshop	<i>Fall 2020</i>
Member of Diversification Working Group (ND Philosophy Department)	<i>Fall 2020 - present</i>
Member of Recruitment Planning Committee	<i>Spring 2016-Spring 2020</i>
Graduate Student Colloquium Co-Founder and Co-Organizer	<i>Fall 2016-Spring 2020</i>
Graduate Student Mentor	<i>Fall 2018-Spring 2020</i>
Session Chair — Eastern APA	<i>January 2019</i>
Referee for ND/NW Epistemology Conference	<i>Spring 2017</i>