

# Silvia De Toffoli

Curriculum Vitae

07/13/21

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**Philosophy Department,**

**Princeton University**

208 Marx Hall, Princeton, NJ 08540

**Areas of Specialization:** Philosophy of Mathematics, Epistemology

**Areas of Competence:** Philosophy of Science, Logic, Nietzsche, Philosophy and Literature

## Employment

2019 – Princeton University, Philosophy Department, Postdoctoral Research Associate and Lecturer

## Education

2019 **PhD in Philosophy, Stanford University**

Dissertation: *Epistemic Roles of Mathematical Diagrams*

Committee: Thomas Ryckman (advisor), Marcus Giaquinto, Michael Friedman, Krista Lawlor

As visiting student: Columbia University (fall 2016), University of Pennsylvania (fall 2017)

Goethe University Frankfurt (spring 2018)

**PhD Minor, Philosophy, Literature, and the Arts**, Stanford University

Advisor: R. Lanier Anderson

2016 MA, Philosophy, Stanford University

2013 **PhD in Mathematics, Technical University of Berlin**

Advisor: John M. Sullivan

2009 MS, Mathematics, University of Bologna

As visiting student: University of Paris7 (2007-2008)

2006 BS, Mathematics, University of Bologna

As visiting student: University of Calgary (2004-2005)

## Publications

### Articles

- “Groundwork for a Fallibilist Account of Mathematics,” *The Philosophical Quarterly*, online first, <https://doi.org/10.1093/pq/pqaa076> (2020).

- “Reconciling Rigor and Intuition,” *Erkenntnis*, online first, <https://doi.org/10.1007/s10670-020-00280-x> (2020).
- “Leopardi: ‘Everything is Evil,’” in: *Evil—A History*, Ed: A. P. Chignell. OUP, 350-357, (2019).
- “‘Chasing’ The Diagram – The Use of Visualizations in Algebraic Reasoning,” *The Review of Symbolic Logic*, Volume 10, Number 1, 158-186, (2017).
- “Envisioning Transformations – The Practice of Topology” (with V. Giardino), in: *Mathematical Cultures*, Ed: B. Larvor. Birkhäuser, 25-50, (2016).
- “An Inquiry into the Practice of Proving in Low-Dimensional Topology” (with V. Giardino) In: *From Logic to Practice*, Eds: G. Lolli, M. Panza, G. Venturi. *Boston Studies in the Philosophy and History of Science*, Volume 308, 315-336, (2015).
- “Forms and Roles of Diagrams in Knot Theory” (with V. Giardino), *Erkenntnis*, Volume 79, 829-842, (2014).

## Editorial Work

- Special issue of *Endeavour* (with P. Findlen and G. Priest) With a co-authored introduction: “Tools of Reason: The Practice of Scientific Diagramming from Antiquity to the Present” *Endeavour*, Volume 42 (2-3), 49–59, (2018).

## Conference Proceedings

- “Fruitful Over-Determination in Knot Diagrams,” Proceeding of *Diagrams 2018, Lecture Notes in Computer Science* (including subseries Lecture Notes in Artificial Intelligence and Lecture Notes in Bioinformatics), 10871 LNAI, 807–809, (2018).
- “Meta-Vermeer: A Topological Reinterpretation of a Masterpiece,” (with Y. Sakamoto), *Bridges 2012: Mathematics, Music, Art, Architecture, Culture*, 499-502, (2012).

## Work in Progress

- “Intersubjective Propositional Justification,” in preparation, to appear in: *Propositional and Doxastic Justification: New Essays on Their Nature and Significance*, Eds. Paul Silva Jr. & Luis Oliveira, Routledge, 2021.
- “The Epistemological Subject of Mathematics,” in preparation, to appear in: *The Handbook of the History and Philosophy of Mathematical Practice*, Ed: Bharath Sriraman, Springer, 2021.
- “What is a Mathematical Diagram?,” *R&R*.
- “Who’s Afraid of Mathematical Diagrams?,” submitted.
- “New Tools for Kant’s Incongruent Counterparts,” in preparation.
- “Nietzsche’s Conception of Logic,” in preparation.

## Others

- “Numeri. Divagazioni, calcoli, giochi” (with D. De Toffoli, D. Zaccariotto) (introduction by Stefano Bartezzaghi), Stampa Alternativa, Viterbo. 2017: 2nd Edition (preface by Furio Honsell), Kangourou editions (2008).

## Teaching

### As Primary Instructor

- *Mathematical Rigor in Theory and Practice* (with John Burgess), PHI 536, Fall 2021-22, Princeton University
- *Theory of Knowledge*, PHI 313, Fall 2020-21, Princeton University
- *Philosophy of Mathematics* (with John Burgess), PHI 314, Fall 2019-20, Princeton University
- *Philosophy of Mathematics*, PHIL 162, Winter 2017-18, Stanford University
- *Introduction to Philosophy*, PHIL 102, Fall 2016-17, City College New York
- *Algebraic Topology*, MA 512, Spring Semester 2013-14, Montana State University, Bozeman

### As Teaching Assistant

- *Philosophy and Literature*, PHIL 81, (R. L. Anderson and J. Landy) Winter 2016-17, Stanford
- *Epistemology*, PHIL 184, (Instructor: Eli Alshanetsky) Spring 2015-16, Stanford
- *Introduction to Philosophy of Science*, PHIL 60, (H. Longino) Winter 2015-16, Stanford
- *Topology* (Instructor: John Sullivan), Master course, Winter 2010-11, TU Berlin

## Awards

- 2017-19 Ric Weiland Graduate Fellow in the Humanities & Sciences, Stanford University.
- 2017 France-Stanford Visiting Student Researcher Fellowship (IHPST, Institute for History and Philosophy of Sciences and Technology), spring 2017, sponsor: Marco Panza, CNRS, Paris.
- 2013 Certificate of Distinction from *the Berlin Mathematical School* for the Ph.D. thesis “Degrees of essentiality for secants of knots.”

## Events Organization

- [member of the organizing Committee] *6<sup>th</sup> International Conference of the Association for the Philosophy of Mathematical Practice*, (June 2021)
- *Rigor and Intuition*, group session of the Philosophy of Mathematics Association, Pacific APA, Portland (31 March –4 April 2021)
- [POSTPONED] With John Burgess: *The ‘End’ of Philosophy of Mathematics?*, Conference at Princeton University (3-5 April 2020)

- [member of the organizing Committee] *5<sup>th</sup> International Conference of the Association for the Philosophy of Mathematical Practice*, ETH, Zurich (18-21 January 2020)
- *Association for the Philosophy of Mathematical Practice* symposium, 16th Congress of Logic, Methodology and Philosophy of Science and Technology, Prague (5-10 August 2019), <http://clmpst2019.flu.cas.cz>
- *Association for the Philosophy of Mathematical Practice* symposium, XXIV World Congress of Philosophy, Beijing (13-20 August 2018)
- With Rebecca Morris: *Mathematical Reasoning*, Workshop at Stanford University (9-10 February 2018)
- *Varieties of Visualization in Mathematics*, Workshop as part of the Fourth International Meeting of the Association for the Philosophy of Mathematical Practice, Salvador, Brazil (23-27 October 2017)
- With Paula Findlen and Greg Priest: *Tools of Reason: The Practice of Scientific Diagramming from Antiquity to the Present*, Workshop at Stanford University (10-11 February 2017)

## Service

- 2019 – **PhilPapers Editor** of the categories “**Mathematical Practice**,” “**Visualization in Mathematics**,” “**Philosophy of Literature**,” “**Fiction**,” “**The Basing Relation**,” “**Propositional and Doxastic Justification**,” and “**Epistemic Fallibilism**.”
- 2018 – Member of the Steering Committee of the *Association for the Philosophy of Mathematical Practice* (APMP)

## Refereeing

*Philosophical Quarterly, Synthese, Erkenntnis, Philosophy of Science, The British Journal for the Philosophy of Science, Journal for General Philosophy of Science, Journal of Humanistic Mathematics, Manuscripta, Theoria, Dialectica, Axiomathes, Éditions de la Sorbonne*

## Scientific Committee for Conferences

- 2021 *Diagrams 2021*, 12<sup>th</sup> International Conference on the Theory and Application of Diagrams, Philosophy Track, (28-30 September)
- 2020 *Diagrams 2020*, 11<sup>th</sup> International Conference on the Theory and Application of Diagrams, Philosophy Track, Tallinn (24-28 August)
- 2018 *Diagrams 2018*, 10<sup>th</sup> International Conference on the Theory and Application of Diagrams, Philosophy Track, Edinburgh (18-22 June)

## Presentations

EEN (European Epistemology Network) conference, Glasgow (15-17 June 2022)  
“Mathematical Justification”

Arché's research stream "Epistemology: Current Themes," Department of Philosophy, University of St Andrews (9 June 2022)

TBD

FPMW13 - 13th French PhilMath Workshop - Treizième rencontre française de Philosophie des Mathématiques, Nice (7-9 October 2021)

"Diagrams and the Apriority of Mathematics"

SIFA 2021 - 14th Conference of the Italian Society for Analytic Philosophy, Noto (22-24 September 2021)

"Diagrams and the Apriority of Mathematics"

## 2021

Seminario PLS (Piano Lauree Scientifiche) Online, mathematics department, University of Bologna (July 9)

"Rigore e Intuizione in Matematica"

6th International Conference of the Association for the Philosophy of Mathematical Practice (APMP), Online, Zoom provided by Chapman University (July 3)

"Mathematical Practice and Analytic Epistemology"

Seminario all'Università di Trento, Centro PopMat (June 28)

"Cosa sono I diagrammi matematici?"

Science & More Talks, Center for Logic, Language and Cognition (LLC), University of Turin (June 16)

"Can we form a justified belief in mathematics based on an incorrect argument?"

Carl Friedrich von Weizsäcker-Colloquium, University of Tübingen (June 9)

"What are Mathematical Diagrams?"

Stirling University, Visiting Speaker Seminar, (11 February)

"A Case for the Fundamentality of Doxastic Justification"

Logic & Phil of Math in the evening, organized by D. Kant and D. Sarikaya (14 January)

"Mathematical Justification"

Comments on "Nietzsche... and Possibility of Metaphysics," Eastern APA (4-7 January)

## 2020

University of Trento, PopMat lab, joint talk department of philosophy and mathematics (online, 9 December)

"Philosophy of Mathematical Practice"

Canadian Society for the History and Philosophy of Mathematics Talk, online (20 November)

"The Epistemological Subject of Mathematics"

Texas A&M University, talk for a research group on mathematical reasoning, online (5 May)

"Who's Afraid of Mathematical Diagrams?"

[POSTPONED] *Understanding Mathematical Explanation*, Rutgers University (6 April)

TBD

[POSTPONED] *The 'End' of Philosophy of Mathematics?*, Princeton University (3 April)

"Mathematical Justification Ain't What it Seems"

[CANCELLED] *Dimensions of Epistemic Justification*, University of Cologne (26-27 March)

Commentator at Large

5th International Conference of the APMP, ETH, Zurich (18-21 January)

"A Fallibilist Account of Mathematical Justification"

## 2019

Carnegie Mellon University, philosophy department, colloquium talk (8 November)  
 “Diagrammatic Notations in Mathematical Proofs”

Rutgers University, Talk at the *Proof Comprehension Research Group* (1 November)  
 “Mathematical Diagrams”

16<sup>th</sup> Congress of Logic, Methodology and Philosophy of Science and Technology, Prague (5-10 August)  
 “The Epistemic Basing Relation in Mathematics”

Masterclass in the *Philosophy of Mathematical Practice*, Vrije Universiteit Brussel (19-21 June)  
 “Mathematical Justification in Practice”

*Explanatory and Heuristic Power of Mathematics* (invited), Roma La Sapienza (13-14 June)  
 “Grasping How a Proof Supports its Conclusion”

*Intersem Talk*, organized by Mic Detlefsen, Paris 7, Sphere, (6 June)  
 “Rigorous Diagrammatic Proofs”

*Big Proofs* Workshop, International Centre for Mathematical Sciences (invited), Edinburgh (26-31 May)  
 “Diagrammatic Notations in Mathematical Proofs”

Macalester College, department colloquium (April 25)  
 “Mathematical Justification in Practice”

*Pacific APA*, Society for Realist-Antirealist Discussion, Vancouver (April 17-20)  
 “Proof, Simil-Proofs, and Mathematical Justification”

## 2018

*Mathematics in Action* (invited paper), Henri Poincaré Archives, Nancy (13-14 December)  
 “Mathematical Justification in Practice”

APMP session, XXIV World Congress of Philosophy, Beijing (13-20 August)  
 “What is a Mathematical Diagram”

XXIV World Congress of Philosophy, Beijing (13-20 August)  
 “Fruitful Over-determination for Mathematical Notations”

*Proofs and Representations* Workshop (invited), Munich Center for Mathematical Philosophy (6-8 July)  
 “Heterogenous Notations for Mathematical Proofs”

*Diagrams 2018*, 10th International Conference on the Theory and Application of Diagrams (18-22 June)  
 “Fruitful Over-Determination in Knot Diagrams”

Stanford University, Psychology Department, Jay McClelland Laboratory (6 March)  
 “Diagrams in Mathematics”

University of British Columbia, Okanagan campus, department colloquium (23 February)  
 “Diagrams in Mathematical Practice”

*Eastern APA*, Society for Realist-Antirealist Discussion, Savannah (3-7 January)  
 “Proofs and Diagrams in Mathematics”

## 2017

4<sup>th</sup> International Conference of the APMP, Salvador, Brazil (23-27 October)  
 “Varieties of Mathematical Diagrams”

*Visual Reasoning and Intuition in Mathematics*. (invited), Free University of Berlin, (29 June-1 July)  
 “Knots and Embeddings: New Tools for Incongruent Counterparts”

*Logic in Question 7* conference (invited paper), Paris Sorbonne (13-14 June)  
 “Thinking with Diagrams: The Case of Mathematics”

*PhilMath* seminar series (invited paper), IHPST, Paris (12 June)  
 “Varieties of Mathematical Diagrams”

*PROOFS* workshop (invited paper), IHPST, Paris (1-2 June)

“The Notion of Proof in the Practice of Mathematics”  
*Mathématiques en action* seminar series, Archives Henri Poincaré, Nancy (24 April)  
“What is a Mathematical Diagram?”  
*Tools of Reason* workshop, Stanford University (10-11 February)  
“Thinking with Diagrams: The Case of Mathematics”

## 2016

*Midwest PhilMath Workshop 17*, Notre Dame University (12-13 November)  
“Thinking with Diagrams: The Case of Mathematics”  
City College New York, department colloquium (22 September)  
“Aspects of Diagrammatic Reasoning in Mathematics”  
Vrije Universiteit Brussel, colloquium (08 July)  
“Aspects of Diagrammatic Reasoning in Category Theory” (with I. Goyvaerts)  
University of Udine, mathematics and computer science colloquium (29 June)  
“Pensare con i Diagrammi: il caso dei Nodi”  
*Five Years MCMP: Quo Vadis, Mathematical Philosophy?* conference (invited), MCMP (2-4 June)  
“Varieties of Visualizations in Mathematics”  
*43<sup>rd</sup> philosophy of science conference in Dubrovnik* (invited paper), Croatia (11-15 April)  
“Diagrams in Algebra”

## 2009–2015

*3<sup>rd</sup> International Conference of the APMP* (keynote speaker), Paris (2-4 November 2015)  
“‘Chasing’ The Diagram – The Use of Visualizations in Algebraic Reasoning”  
*Proofs and Pictures* conference, University of South Carolina, Columbia (20 March 2015)  
“‘Diagram Chase’ Techniques – The Use of Space in Algebraic Reasoning”  
*What is?* Seminar, Berlin Mathematical School (8 February 2013)  
“What is a Rational Tangle?”  
*Filosofia della matematica*, Scuola Normale Superiore, Pisa, Italy (24-36 September 2012)  
“La dinamica dei diagrammi in teoria dei nodi” (with V. Giardino)  
Società Italiana di Filosofia Analitica (SIFA) conference, Alghero, Italy (13-15 September 2012)  
“Roles and Forms of Diagrams in Knot Theory” (with V. Giardino)  
*Mathematical Cultures* conference, London (10-13 September 2012)  
“Low-dimensional topology as visual mathematics” (with V. Giardino)  
Free University of Berlin, Sybille Krämer’s colloquium (19 June 2012)  
“Die epistemische Rollen von Diagrammen in der Topologie”  
*Société de philosophie analytique* (SOPHA) conference, École Normale Supérieure, Paris (5 May 2012)  
“Diagrammes et Illustrations en Topologie: Le Cas des Nœuds”  
*Work in Progress Seminar*, Munich Center of Mathematical Philosophy, Munich (19 January 2012)  
“The Knot Moves: A Case Study on Diagram Dynamics”  
University of Sevilla, philosophy colloquium (15 November 2011)  
“Use and Epistemic Roles of Diagrams in Knot Theory”  
*What is?* Seminar, Berlin Mathematical School (4 December 2009)  
“What is a Seifert Surface?”

## Languages

Italian (native), English (excellent), French and German (fluent reading and speaking)

## References

**Thomas Ryckman**, Professor of Philosophy, Stanford University

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**Paolo Mancosu**, Willis S. and Marion Slusser Professor of Philosophy, University of California, Berkeley

[mancosu@socrates.berkeley.edu](mailto:mancosu@socrates.berkeley.edu)

**Thomas Kelly**, Professor of Philosophy, Princeton University

[tkelly@princeton.edu](mailto:tkelly@princeton.edu)

**John Burgess**, John N. Woodhull Professor of Philosophy, Princeton University

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**R. Lanier Anderson**, Professor of Philosophy, Stanford University

[lanier@stanford.edu](mailto:lanier@stanford.edu)

**Helen Longino** (including teaching), Clarence Irving Lewis Professor of Philosophy, Stanford University

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