William McCarthy, Ph.D.

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Areas of Specialization

Philosophy of Logic ▐ Logical Pluralism.
Higher-Order Logic.
Mathematical Logic.

Metaphysics ▐ Higher-Order Metaphysics.
Modality.
Realism, Objectivity, Pluralism.

Philosophy of Mathematics ▐ Foundations.
Automated-Theorem Proving.
Aesthetics.

Areas of Competence

Epistemology, Philosophy of AI, Aesthetics, Meta-Ethics.

Education

2016 – 2023 ▐ **Ph.D., Columbia University** in Philosophy.
Thesis title: *Higher-Order Logical Pluralism as Metaphysics*.

2013 – 2014 ▐ **MA., University College Cork** in Philosophy.
Thesis title: *Non-Essentialist Counterpart Theory*.

2010 – 2013 ▐ **BA., University College Cork** in Philosophy and Mathematics.
Thesis title: *The Metaphysics of Prepunishment: A Counterfactual Approach*.

Awards and Fellowships

2021 - 2023 ▐ GSAS Teaching Fellowship, Columbia.

2020 ▐ GSAS Dissertation Fellowship, Columbia.

2016 - 2020 ▐ Columbia Dean's Fellowship, Columbia.

2014 ▐ Best Philosophy Master's Thesis, UCC.

2010-2013 ▐ All Ireland Scholarship.

2012 ▐ University College Cork Scholarship, UCC.

2010 ▐ University College Cork Entrance Scholarship, UCC.

Dissertation

Title ▐ *Higher-Order Logical Pluralism as Metaphysics*.

Committee ▐ Justin Clarke-Doane (Advisor), Achille Varzi, Jessica Collins, Graham Priest, Hartry Field.

Dissertation (continued)

Abstract 🔖 What is pluralism about logic? And why endorse it? Minimally, logical pluralism involves the view that every logic that is adequate as a tool for general reasoning is valid. This promises a startling amount of freedom and diversity in both formal and informal reasoning. But is this the kind of promise we want when it comes to logic? Is it a normative pluralism, in the vein of value pluralism, with its looming threat of relativism? Or a descriptive pluralism, in the vein of set-theoretic pluralism, with its metaphysical instability? In this dissertation, I investigate pluralism with respect to higher-order logic. Higher-order logic is a powerful extension of the more familiar first-order logic. It forms the cornerstone of the recent surge of interest in higher-order metaphysics. It was originally studied by the likes of Frege and Russell, and more recently by Cian Dorr, Timothy Williamson, and others. I argue that higher-order logical pluralism is a productive extension of existing work in higher-order metaphysics, that solves some serious epistemological problems, and embodies a spirit of Carnapian tolerance without falling into a crass relativism.

Current and Future Research

Synopsis 🔖 My current research explores the intersection of mathematics, formal reasoning, and human cognition, with a particular focus on how formal systems, technology, and human practice shape understanding and significance. Across my current projects, I investigate the limits of purely formal or mechanized approaches and the ways in which human-oriented practices preserve meaning, insight, and aesthetic value.

In Mathematics in the Age of Mechanical Production (under review), I examine the growing role of computer-assisted proofs in mathematics. While these proofs are epistemically rigorous, I argue that they cannot replicate the narrative, elegance, and heuristic guidance that human proofs provide—qualities essential for comprehension, insight, and appreciation. This work situates the philosophical stakes of technological integration in mathematics, emphasizing the aesthetic and cognitive dimensions of mathematical practice that are often overlooked in debates about formal correctness.

Complementing this, The Failure of Formalism: From the Artworld to the Mathworld (under review) extends my critique of formalism across domains. By drawing a parallel between Danto's concept of the "artworld" and a proposed "mathworld," I show that the significance of proofs, like artworks, emerges not from formal structure alone but from uptake within human practices. I further explore how AI systems, capable of generating formally correct outputs, highlight the limits of formal criteria and the irreplaceable role of human judgment in recognizing meaning, insight, and understanding.

Together, these projects reflect a broader intellectual trajectory: integrating philosophical analysis, mathematical logic, and critical engagement with technology to illuminate what makes human reasoning, creativity, and understanding distinctive. My work is situated at the intersection of philosophy of mathematics, aesthetics, and AI, offering a perspective that is both theoretically rigorous and attuned to contemporary challenges in mathematical and computational practice.

Papers

Published

1 W. McCarthy, "A benacerraf problem for higher-order metaphysics," *Nous*, 2025.

2 J. Clarke-Doane and W. McCarthy, "Modal pluralism and higher-order logic," *Philosophical Perspectives*, vol. 36, pp. 31–58, 2022.

Under Review

1 *Mathematics in the Age of Mechanical Production.*

2 *The Failure of Formalism: From the Artworld to the Mathworld.*

Presentations

1   "**What Mathematical Proof Could Not be: A Pluralist Approach to Proof**".
Graduate Workshop, Columbia, 2023.

2   "**Modal Pluralism and Higher-Order Logic**".
Logic and Metaphysics Workshop, CUNY, 2022.

3   "**The All Purpose Objection to Logical Perspectivalism**".
Graduate Workshop, Columbia, 2022.

4   "**The Set-Theoretic Multiverse and Modal Metaphysics**".
Graduate Workshop, Columbia, 2021.

5   "**The Semantic Challenge for Presentism, Worldly Indeterminacy, and Indefinite Extensibility**".
Graduate Workshop, Columbia, 2020.

6   "**A Problem for Williamson**".
Graduate Workshop, Columbia, 2019.

7   "**Mereological Pluralism**".
Graduate Workshop, Columbia, 2018.

8   "**The Metaphysics of Prepunishment**".
UCC Philosophy Conference, UCC, 2014.

Teaching Experience (as a teaching assistant at Columbia)

2023   Medieval Philosophy, PHIL 2201

2022   Metaphysics, PHIL 3413

     Philosophy of Literature, PHIL 3852

2021   Philosophy of Art, PHIL 2003

2020   Philosophy of Quantum Mechanics, PHIL 3576

2019   Metaphysics, PHIL 3413

     Epistemology, PHIL 3960

2018   Symbolic Logic, PHIL 3411

     Philosophy of Language, PHIL 3685

2017   Metaphysics, PHIL 3413

Service and Outreach

2022   Co-Organizer and Moderator the Columbia Philosophy of Art Film Club

2019   Co-Organizer and Moderator the New Narratives in Philosophy Conference at Columbia

2018 - 2022   Organizer of the Philosophy of Logic Reading Group

2018 - 2021   Organizer in the Columbia Graduate Students Union

Service and Outreach (continued)

2018 - 2019	▮ Co-Organizer of the Columbia Graduate Student Workshop
2017 - 2020, 2022	▮ Co-Organizer of the Columbia Graduate Students' Graduate School Applications Workshop
	▮ Co-Organizer of the Columbia Graduate Students' Undergraduate Writing Workshop
2017	▮ Co-Organizer of the Columbia Chapter of Minorities and Philosophy
	▮ Co-Organizer of the Columbia-NYU Graduate Student Conference

References

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