Levin Hornischer

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EMPLOYMENT

- Assistant professor at the *Munich Center for Mathematical Philosophy* (MCMP), *LMU Munich* (Jan 2023–present).

- Postdoc at the Institute for Logic, Language and Computation (ILLC), *University of Amsterdam* (Oct 2021–Dec 2022).

- PhD Candidate at ILLC, *University of Amsterdam* (Sep 2017–Sep 2021). My PhD project was funded by my grant *Foundations of Analogical Thinking* from the *Dutch Research Council* (NWO).

EDUCATION

- PhD, *University of Amsterdam*. Thesis: "Dynamical Systems via Domains: Toward a Unified Foundation of Symbolic and Non-symbolic Computation".

- MSc. Logic, *University of Amsterdam*. Cum laude (GPA 9.09, "excellent").

- B.Sc. Mathematics, *Heidelberg University*. "Very good" (1.3).

- B.A. Philosophy, *Heidelberg University*. "Very good" (1.1).

GRANTS, SCHOLARSHIPS, AWARDS

- Fellowship at the *Institute for Advanced Studies* at the *University of Amsterdam* for a project on "Logic and AI" together with Johan van Benthem, Baldern ten Cate, Frank van Harmelen, Thomas Icard, und Sara Magliacane.

- Awarded grant "PhDs in the Humanities" by the *Dutch Research Council* (NWO) for my project "Foundations of Analogical Thinking".

- Alumnus of the *Amsterdam Science Talent Scholarship*.

- Alumnus of *Studienstiftung des deutschen Volkes*.

- Visiting stipend for the workshop "Ground I: Yablo on Aboutness" (Universität Hamburg).

- Studies abroad in Philosophy and Mathematics, *University of Oslo*, Norway.

PUBLICATIONS

- P. Hawke, L. Hornischer, and F. Berto. "Truth, Topicality, and Transparency: One-Component Versus Two-Component Semantics'. Forthcoming in *Linguistics and Philosophy*.

- F. Berto and L. Hornischer. "Cognitive synonymy: a dead parrot?" (2023). In: *Philosophical Studies* 180, pp. 2727–2752.

- L. Hornischer. "Dynamical Systems via Domains: Toward a Unified Foundation of Symbolic and Non-symbolic Computation" (2021). PhD Thesis, University of Amsterdam, Institute for Logic, Language and Computation.

- L. Hornischer. "The Logic of Information in State Spaces" (2021). In: *The Review of Symbolic Logic* 14(1), pp. 155–186.

- L. Hornischer. "Logics of Synonymy" (2020). In: *Journal of Philosophical Logic* 49, pp. 767–805.

- L. Hornischer. "Toward a Logic for Neural Networks" (2019). In: *The Logica Yearbook 2018*. Ed. by I. Sedlár and M. Blicha. London: College Publications, pp. 133–148.

- V. Capraro, J. Sippel, B. Zhao, L. Hornischer, M. Savary, Z. Terzopoulou, P. Faucher, S.F. Griffioen, "People making deontological judgments in the Trapdoor dilemma are perceived to be more prosocial in economic games than they actually are" (2018). In: *PLoS One*, 13(10), p. e0205066.

SELECTED TALKS

- Machine Learning meets Mathematical Philosophy (LMU Munich). *Semantics for Sub-symbolic Computation*. 16 June 2023.

- Logik Kolloquium (University of Konstanz). *Semantics for Sub-symbolic Computation*. 24 April 2023.

- Workshop on Logic and Philosophy of Mathematics (LMU Munich). *Iterating Both and Neither: With Applications to the Paradoxes*. 22 April 2023.

- Colloquium Logicum 2022 of the DVMLG (University of Konstanz). *Dynamical Systems via Domains: Semantics for Non-symbolic Computation*. 26–28 September 2022.

- Applied Category Theory Conference 2022 (University of Strathclyde, Glasgow, Scotland). *Dynamical Systems via Domains* (distinguished presentation). 18–22 July 2022 (video recording available).

- University of Amsterdam. The ILLC Colloquium. *Logic in Explainable AI*. 10 June 2022.

- University of St Andrews, Arché. Metaphysics & Logic Seminar. *The Structure of Hyperintensionality*. 20 April 2020. (Online.)

- University of Amsterdam, ILLC. Logic of Conceivability Seminar. *Stability: A novel interpretation of Fitch's lemma*. 2 October 2019.

- University of Vienna, Gödel's Legacy Conference. *Stability of foundational concepts: Gödelian arguments from general relativity.* 25–27 July 2019.

- Utrecht University, Department of Philosophy and Religious Studies. TULIPS. *Analyzing the Behavior of Transition Systems.* 2 April 2019.

- University of Amsterdam, ILLC. Algebra | Coalgebra Seminar. *Trajectory domains: analyzing the behavior of transition systems.* 13 March 2019.

- University of Oxford, Department of Computer Science. OASIS: The Oxford Advanced Seminar on Informatic Structures. *Trajectory domains: describing the behavior of computing systems.* 30 November 2018.

- LMU Munich, Munich Center for Mathematical Philosophy. Logic Colloquium. *HYPE, Information, and Dynamical Systems.* 8 November 2018.

- Czech Academy of Sciences, Prague. Machine learning and explanation in cognitive science. *Towards a domain-theoretic framework for describing the behavior of neural networks.* 15 October 2018.

- LOGICA 2018, Hejnice monastery. *A Logic of State Spaces.* 18–22 June 2018.

- Ghent University, Centre for Logic and Philosophy of Science. Hyperintensional Logics and Truthmaker Semantics. *Logics of Synonymy.* 15 December 2017.

RESEARCH VISITS

- University of St Andrews, Arché Research Centre, visiting Prof. F. Berto (planned April 2020, canceled due to the pandemic).

- LMU Munich, Munich Center for Mathematical Philosophy, visiting Prof. DDr. H. Leitgeb and the institute (Nov 2019–Jan 2020).

- University of Oxford, Department of Computer Science, visiting Prof. S. Abramsky and his group (Nov 2018).

SUPERVISION

- *Sheaf-theoretic Contextuality and Paradox.* Master Thesis. 2024.

- *Formal Learning Theory meets Statistical Learning Theory — Ockham's Razor and VC Dimension.* Master Thesis (second reader). 2024.

- *Applications of the generalized Cantor theorem.* Student project. 2023-24.

- *Duality in Domain theory.* Student project. 2023.

- *The Logic of Counterfactual Explanations in AI.* Student project. 2022-23.

- *A Sheaf-theoretic Approach to Dynamical Systems*. Student project. 2022-23.

- *A Program Logic for Dynamical Systems*. MSc Thesis. 2022-23.

- *Ornstein Theory and the Golden Mean Shift*. Student project. Fall 2020.

- *Analogical Reasoning*. Student project. 2019.

- *Topologies on Classes of Spacetimes*. Student project. 2018.

TEACHING

- *Advanced Topics in the Foundations of AI*. LMU Munich. Research seminar for master's students. Summer 2023, summer 2024.

- *Philosophical Logic*. LMU Munich. Research seminar for master's students. Summer 2024, summer 2023.

- *Philosophy and Theory of Artificial Intelligence*. LMU Munich. Research seminar for master's students. Winter 2023/24.

- *Duality Theory: Connecting Logic, Algebra, and Topology*. LMU Munich. Research seminar for master's students. Winter 2023/24.

- *Rationality, Cognition and Reasoning*. University of Amsterdam. Research seminar for master's students. Spring 2022.

- *Philosophy and AI*. University of Amsterdam. Lecture for 3rd-year bachelor students of the AI programme. Spring 2022.

- *Philosophical Logic*. University of Amsterdam. Research seminar for master's students. Fall 2022, fall 2021.

- *Kant, Logic, and AI*. University of Amsterdam. With Michiel van Lambalgen. Spring 2021, spring 2020, spring 2018.

- *Time*. University of Amsterdam. With Michiel van Lambalgen. Lectures on philosophy of time and relativity theory. Spring 2021, spring 2020, spring 2019, spring 2018.

- *Rationality, Cognition and Reasoning*. University of Amsterdam. With Michiel van Lambalgen. Fall 2020, fall 2019, fall 2017.

- *Logic Programming and Learning*. University of Amsterdam. With Ronald de Haan. June 2019.

- *Member of the defense committee* of the Master of Logic student Anna Franchini. Thesis on "Space and the Continuum from Kant to Poincaré" (4 July 2019).

- *Member of the defense committee* of the Master of Logic student David O'Connell. Thesis on "Lorentzian Structures on Branching Spacetimes" (28 Feb. 2019).

- *MasterClass Logic*. University of Amsterdam, ILLC. Teaching (mathematical) logic to secondary school students and supervising their projects. 2017.

SELECTED ACTIVITIES

- Refereeing for journals: American Philosophical Quarterly, Australasian Journal of Logic, Journal of Logic and Computation, Journal of Philosophical Logic, Mathematical Structures in Computer Science, Mind & Language, Philosophical Quarterly, Synthese, and Theoria.

- Refereeing for conferences: CILC 2020 (Italian Conference on Computational Logic) and ICALP 2020 (Int. Coll. on Automata, Languages and Programming).

- Refereeing for grants and prizes: Swiss National Science Foundation and VvL thesis prize 2024.

- Representative in the steering committee of the *AI-HUB@LMU*, coordinating AI-related research across the different departments at LMU Munich.

- Co-organizing the Summer School for Widening Participation in Mathematical Philosophy (formerly the Summer School on Mathematical Philosophy for Female Students).

- Co-organizing, with Dr. Vanessa Carr, an *inclusivity workshop* at the MCMP. We have received an internal grant of EUR 1.063 to fund the event.

- Flash talks for the committee evaluating ILLC research (3–4 Dec 2018) and for the deans of the faculties of humanities and science at the University of Amsterdam (21 Jan 2019).

- Co-organizing the conference "Foundation of Mathematics: Modern Views" (4–7 April, 2018 in Munich, Germany).

- Member of the *PhD council* at ILLC (2018–2020).