Tommaso Moraschini
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Born 25.8.1988

Current positions

2024–present Associate professor, Department of Philosophy of the University of Barcelona.

Member of the Institute of Mathematics (IMUB) of the University of Barcelona.
Coordinator for the University of Barcelona of the Master in Pure and Applied Logic.

Academic degrees

- *Habilitation for the position of full professor (catedrático)* by the AQU, 2023.
- *Certificado R3* by the Ministry of Science and Innovation of Spain, 2023.
- *PhD in Pure and Applied Logic*, University of Barcelona, 2016.
- *Master in Philosophical Sciences*, University of the Studies of Milan, 2013.
- *Master in Pure and Applied Logic*, University of Barcelona, 2012.

Past employment

2020–2023 Investigador Beatriz Galindo, Department of Philosophy of the University of Barcelona.
2016–2019 Research Assistant, Institute of Computer Sciences of the Czech Academy of Science.
2013–2016 PhD student, University of Barcelona.

Prizes and awards

- *Ada Lettieri award* for best research paper or monograph in logic by the Italian Logic Association, 2021.
- *Josef Hlávka award* for scientific literature, 2019.
- *Award for best young researchers of Czech Academy of Sciences*, 2018.
- *Best PhD thesis in logic award* from the University of Barcelona, 2017.

Research interests

- Mathematical Logic
- (Abstract) Algebraic Logic
- Intuitionistic and Modal Logic
- Universal Algebra
- Duality Theory

Basic scientometric data

- 32 journal papers + 2 conference papers + 2 book chapter.

Grants (principal investigator)

4. PI of the i+D+I research project *La forma del razonamiento: desde el clasico al nonclasico y al reves* PID2022-141529NB-C21, funded by the Spanish Ministry of Science, Innovation and Universities, 2023–2027.
3. Local PI of the Horizon 2020 Marie Skłodowska-Curie RISE project *MOSAIC* 101007627, funded by the European Union, 2021–2026.
2. PI of the i+D+I research project *The geometry of non-classical logics* PID2019-110843GA-I00, funded by the Spanish Ministry of Science, Innovation and Universities, 2020–2023.
1. co-PI of the research project *Enhancing human resources in theoretical computer science* PPLZ 100301751, co-funded by the European Union and the Czech Operational Programme Research, Development and Education, 2018–2020.

Grants (team member)

10. *Research group in mathematical logic*, 2021SGR00348 funded by the Agency for Management of University and Research Grants of the Government of Catalonia, 2021–2025.
9. *Research group in non-classical logics* 2017SGR0095, funded by the Agency for Management of University and Research Grants of the Government of Catalonia, 2017–2021.
8. *Predicate graded logics and their applications in computer science* GA17-04630S, funded by the Czech Science Foundation, 2017–2019.
7. *Totally ordered monoids* 15-07724Y, funded by the Czech Science Foundation, 2015–2017.
6. Horizon 2020 Marie Skłodowska-Curie RISE project *SYSMICS* 689176, funded by the European Union, 2016–2018.
5. *Modelling vague quantifiers in mathematical fuzzy logic* I1897-N25 and GF15-34650L, co-funded by theAustrian Science Fundation and Czech Science Foundation, 2015–2018.
4. *Center of Excellence-Institute for Theoretical Computer Science* (CE-ITI) GBP202/12/G061, funded by the the Czech Science Foundation, 2012–2018.
3. *An Order-Based Approach to Non-Classical Propositional and Predicate Logics* GA13-14654S, funded by the Czech Science Foundation, 2013–2016.
2. *Algebraic Logic and Non-Classical Logics* MTM2011-25747, funded by the Ministry of Science and Innovation of Spain, 2012–2015.
1. *Research group in non-classical logics* 2009SGR-1433, funded by the Agency for Management of University and Research Grants of the Government of Catalonia, 2014–2016.

Committee membership

- Chair of the program committee *TACL*, 2024.
- Member of the program committee of *AiML* (Advances in Modal Logic), 2022 and 2024.
- Member of the program committee of *LATD* (Logic, Algebra and Truth Degrees), 2022 and 2023.
- Member of the program committee of *Modal logics: proof theory and applications*, 2023.
- Member of the program committee of *PhDs in Logic*, 2022.
- Chair of program committee of the *Workshop on Admissible Rules and Unification*, 2019.
- Member of the organizing committee of the *Proof Society* meeting, 2023.
- Member of the organizing committee of *TACL* (Topology, Algebra and Categories in Logic), 2017 and 2024.

Postdoc supervision

- A. Přenosil. Beatriu de Pinos fellow, 2023–2026.
- L. Carai. Juan de la Cierva fellow, 2022–2023.

PhD theses supervision

- M. Kurtzhals. Definability in logic and algebra. University of Barcelona, in progress. Co-supervised with L. Carai.
- V. Giustarini. Substructural logics and residuated structures. Co-supervised with S. Ugolini.
- M. Martins. Bi-intuitionistic logics of trees. University of Barcelona, in progress. Co-supervised with J. Gispert.
- D. Fornasiere. Sahlqvist theory for protoalgebraic logics. University of Barcelona, in progress. Co-supervised with J. Gispert.
- J. J. Wannenburg. Varieties of De Morgan monoids and axiomatic extensions of relevance logic. University of Pretoria, 2020. Co-supervised with J. G. Raftery.

Master theses supervision

12. I. Hortelano, M. Kurtzhals, I. M. Liberal, and M. Muñoz. University of Barcelona, in progress.
11. S. Cristancho. Unification in intuitionistic logic. University of Barcelona, 2023. Co-supervised with A. Vidal. Available online here.
10. S. Lemal. Hereditary structural completeness of weakly transitive modal logics. ILLC (Institute for Logic, Language and Computation), University of Amsterdam, 2023. Co-supervised with N. Bezhanishvili.
9. R. Almeida. Polyatomic Logics and Generalised Blok-Esakia Theory with Applications to Orthologic and KTB. ILLC, University of Amsterdam, 2022. Co-supervised with N. Bezhanishvili. Available online here.
8. A. Chernev. Degrees of FMP in extensions of bi-intuitionistic logic. ILLC, University of Amsterdam, 2022. Co-supervised with N. Bezhanishvili. Available online here.
7. J. Carr. Hereditary Structural Completeness over K4 revisited. ILLC, University of Amsterdam, 2021. Co-supervised with N. Bezhanishvili. Available online here.
6. A. Dmitrieva. Positive modal logic beyond distributivity. ILLC, University of Amsterdam, 2021. Co-supervised with N. Bezhanishvili. Available online here.
5. L. Tasiou. Profinite bi-Heyting algebras. University of Amsterdam, 2021. Co-supervised with N. Bezhanishvili. Available online here.
4. D. Fornasiere. Representable Forests and Diamond Systems. ILLC, University of Amsterdam, 2021. Co-supervised with N. Bezhanishvili. Available online here.
3. M. Martins. Bi-Gödel algebras and co-trees. University of Amsterdam, 2021. Co-supervised with N. Bezhanishvili. Available online here.
2. J. Herrera Hernández. Inconsistency lemmas: an algebraic approach. University of Barcelona, 2020. Co-supervised with R. Jansana. Available online here.
1. T. Benjamins. Locally finite varieties of Heyting algebras of width 2. ILLC, University of Amsterdam, 2020. Co-supervised with N. Bezhanishvili. Available online here.

Journal papers

32. N. Bezhanishvili, A. Dmitrieva, J. de Groot, and T. Moraschini. Positive Modal Logic Beyond Distributivity. Published online in the *Annals of Pure and Applied Logic*, 2023.
31. T. Moraschini, K. Yamamoto, and J. J. Wannenburg. Elementary equivalence in positive logic via prime products. Published online in the *Journal of Symbolic Logic*, 2023.
30. D. Fornasiere and T. Moraschini. Intuitionistic Sahlqvist theory for deductive systems. Published online in the *Journal of Symbolic Logic*, 2023.
29. N. Bezhanishvili and T. Moraschini. Hereditarily structurally complete intermediate logics: Citkin's theorem via Esakia duality. *Studia Logica*, 111:147–186, 2023.
28. T. Lavička, T. Moraschini and J. G. Raftery. The algebraic significance of weak excluded middle laws. *Mathematical Logic Quarterly*, 63(3):261-299, 2022.
27. J. Gispert, Z. Haniková, T. Moraschini and M. Stronkowski. Structural completeness in many-valued logics with rational constants. *Notre Dame Journal of Formal Logic*, 63(3):261–299, 2022.
26. G. Bezhanishvili, N. Bezhanishvili, T. Moraschini, and M. Stronkowski. Profiniteness and representability of spectra of Heyting algebras. *Advances in Mathematics*, 391, 2021.
25. T. Moraschini. On equational completeness theorems. *Journal of Symbolic Logic*, 87(4):1522–1575, 2022.
24. R. Jansana and T. Moraschini. The poset of all logics I: Interpretations and lattice structure. *Journal of Symbolic Logic*, 86(3):935–964, 2021.
23. R. Jansana and T. Moraschini. The poset of all logics II: Leibniz classes and hierarchy. *Journal of Symbolic Logic*, 88(1):324–362, 2023.
22. R. Jansana and T. Moraschini. The poset of all logics III: finitely presentable logics. *Studia Logica*, 109:539–580, 2021.
21. T. Moraschini and J. J. Wannenburg. Epimorphisms in varieties of Heyting algebras. *Annals of Pure and Applied Logic*, 171(9), 2020.
20. S. Bonzio, T. Moraschini, and M. Pra Baldi. Logics of left variable inclusion and Płonka sums of matrices. *Archive for Mathematical Logic*, 60:49–76 , 2021.
19. T. Moraschini, J. G. Raftery, and J. J. Wannenburg. Epimorphisms in varieties of square-increasing residuated structures. *Algebra Universalis*, 82(6), 2021.
18. T. Moraschini, J. G. Raftery, and J. J. Wannenburg. Singly generated quasivarieties and residuated structures. *Mathematical Logic Quarterly*, 66(2):150–172, 2020.
17. T. Moraschini, J. G. Raftery, and J. J. Wannenburg. Varieties of De Morgan monoids: covers of atoms. *Review of Symbolic Logic*, 13(2):338–374, 2020.
16. T. Moraschini. Varieties of positive modal algebras and structural completeness. *Review of Symbolic Logic*, 12(3):557–599, 2019.
15. T. Moraschini and J. G. Raftery. On prevarieties of logic. *Algebra Universalis*, 80(37), 2019.
14. T. Moraschini, J. G. Raftery, and J. J. Wannenburg. Epimorphisms, definability and cardinalities. *Studia Logica*, 108:255–275, 2020.
13. T. Moraschini. On the complexity of the Leibniz hierarchy. *Annals of Pure and Applied Logic*, 170(7):805–824, 2019.
12. P. Cintula, J. Gil-Férez, T. Moraschini, and F. Paoli. An abstract approach to multiset consequence relations. *Review of Symbolic Logic*, 12(2):331-371, 2019.
11. T. Moraschini, J.G. Raftery, and J.J. Wannenburg. Varieties of De Morgan monoids: minimality and irreducible algebras. *Journal of Pure and Applied Algebra*, 223(7):2780–2803, 2019.
10. T. Moraschini. A logical and algebraic characterization of adjunctions between generalized quasivarieties. *Journal of Symbolic Logic*, 83(3):899-919, 2018.
9. T. Moraschini. A Study of the Truth Predicates of Matrix Semantics. *Review of Symbolic Logic*, 11(4):780–804, 2018.
8. T. Moraschini. A computational glimpse to the Leibniz and Frege hierarchies. *Annals of Pure and Applied Logic*, 169(1):1–20, 2018.
7. G. Bezhanishvili, T. Moraschini, and J. G. Raftery. Epimorphisms in Varieties of Residuated Structures.

Journal of Algebra, 492:185–211, 2017.

6. T. Moraschini. The Semantic Isomorphism Theorem in Abstract Algebraic Logic. *Annals of Pure and Applied Logic*, 167(2):1298–1331, 2016.
5. T. Moraschini. On Everywhere Strongly Logifiable Algebras. *Reports on Mathematical Logic*, 50:83–107, 2015.
4. J. M. Font and T. Moraschini. M-Sets and the Representation Problem. *Studia Logica*, 103(3):21–51, 2015.
3. J. M. Font and T. Moraschini. A Note on Congruences of Semilattices with Sectionally Finite Height. *Algebra Universalis*, 72(3):287–293, 2014.
2. J. M. Font and T. Moraschini. Logics of Varieties, Logics of Semilattices, and Conjunction. *Logic Journal of the IGPL*, 22:818–843, 2014.
1. T. Moraschini. An Algebraic Study of Exactness in Partial Contexts. *International Journal of Approximate Reasoning*, 55:457–468, 2014.

Conference papers

2. R. Horčík, T. Moraschini, and A. Vidal. An algebraic approach to the valued constraint satisfaction problem. Proceedings of *CSL* (Computer Science in Logic), 2017.
1. J. M. Font and T. Moraschini. On the logics associated with a given variety of algebras. Proceedings of *Trends in Logic XIII*, 67–80, 2014.

Book chapters

2. T. Moraschini. A gentle introduction to the Leibniz hierarchy. To appear in J. Malinowski and R. Palczewski, editors, *Janusz Czelakowski on Logical Consequence*. Outstanding Contributions to Logic. Springer-Verlag, 2023.
1. H. Albuquerque, J. M. Font, R. Jansana, and T. Moraschini. Assertional logics, truth-Equational logics, and the hierarchies of abstract algebraic logic. In J. Czelakowski, editor, *Don Pigozzi on Abstract Algebraic Logic and Universal Algebra*, Outstanding Contributions to Logic, Springer-Verlag, 16:53-79, 2018.

Invited conference talks

11. The repesentations problem for spectra of Heyting algebras. *North Americal Meeting of the Association for Symbolic Logic*, Ames, Iowa, 2024.
10. Universal classes and decidability. Spring meeting of the *Swiss Graduate Society for Logic and Philosophy of Science*, Bern, Switzerland, 2024.
9. Profiniteness and spectra of Heyting algebras. *XXVII Meeting of the Italian Association for Logic and its Applications*, Caserta, Italy, 2022.
8. Sahlqvist correspondence for deductive systems. Algebraic Logic special session of the *Western Sectional Meeting of the American Mathematical Society*, Denver, Colorado, 2022.
7. Płonka sums and logics of variable inclusion. *Trends in Logic*, Cagliari, Italy, 2022.
6. Profiniteness and spectra of Heyting algebras. Algebraic Logic special session of the *North American Meeting of the Association for Symbolic Logic*, South Bend, Indiana, USA, 2021.
5. On equational completeness theorems. *virtUMA* (virtual meeting of the Argentinian Mathematical Society), Argentina, 2020.
4. The poset of all logics. *TACL* (Topology, Algebra and Categories in Logic), Nice, France, 2019.
3. On interpretations between propositional logics. *BLAST* (Boolean Algebras, Lattices, Algebraic Logic and Quantum Logic, Universal Algebra, and Set Theory), Boulder, Colorado, USA, 2019.
2. Relational semantics, ordered algebras, and quantifiers for deductive systems. *LATD* (Logic, Algebra and Truth Degrees), Bern, Switzerland, 2018.
1. Classifying Strongly Finite Logics in the Leibniz Hierarchy. *SLALM* (Latin Americal Symposium of Mathematical Logic), Buenos Aires, Argentina, 2014.

Invited workshop talks

3. The relevance principle meets structural completeness. New Directions in Relevance Logic, online, 2022.
2. On equational completeness theorems. Duality, Order, (Co)algebras, Topology, and Related topics, Cagliari, Italy, 2021.
1. Varieties of De Morgan monoids and axiomatic extensions of Relevance Logic. First Algebra Week, Siena, Italy, 2018.

Contributed conference talks

23. Elementary equivalence in positive logic via prime products. *LATD* (Logic, Algebra and Truth Degrees), Tbilisi, Georgia, 2023.
22. Bi-Intermediate Logics of Trees: Local Finiteness and Decidability. *LATD* (Logic, Algebra and Truth Degrees), Tbilisi, Georgia, 2023.
21. Intuitionistic Sahlqvist correspondence for deductive systems. *LATD* (Logic, Algebra and Truth Degrees), Peastum, Italy, 2022.
20. Degrees of the finite model property: The antidichotomy theorem. *LATD* (Logic, Algebra and Truth Degrees), Peastum, Italy, 2022.
19. On equational completeness theorems. *LATD* (Logic, Algebra and Truth Degrees), Peastum, Italy, 2022.
18. Profiniteness and spectra of Heyting algebras. *BLAST* (Boolean Algebras, Lattices, Algebraic Logic and Quantum Logic, Universal Algebra, and Set Theory), Las Cruces, Nex Mexico, USA, 2021.
17. Singly generated quasivarieties and passive structural completeness. *Workshop on Admissible Rules and Unification*, Prague, Czech Republic, 2019.
16. Epimorphisms in varieties of Heyting algebras. *Syntax Meets Semantics 2019*, Amsterdam, The Netherlands, 2019.
15. Relational semantics, ordered algebras, and quantifiers for deductive systems. *Logic Colloquium*, Udine, Italy, 2018.
14. Logics of variable inclusion and Płonka sums of matrices. *Logic Colloquium*, Udine, Italy, 2018.
13. Frames, ordered algebras, and quantifiers for deductive systems. *Algebra and Substructural Logics 6*, Cagliari, Italy, 2018.
12. Varieties of positive interior algebras: structural completeness. *ManyVal*, Toulouse, France, 2017.
11. An Algebraic Approach to Valued Constraint Satisfaction. *CSL* (Computer Science in Logic), Stockholm, Sweden, 2017.
10. The computational complexity of the Leibniz hierarchy. *TACL* (Topology, Algebra, and Categories in Logic), Prague, Czech Republic, 2017.
9. Unifying the Leibniz and Maltsev hierarchies. *TACL* (Topology, Algebra, and Categories in Logic), Prague, Czech Republic, 2017.
8. Advances in the theory of the Leibniz hierarchy. *22nd Conference Applications of Logic in Philosophy and the Foundations of Mathematics*, Szklarska Poreba, Poland, 2017.
7. Adjunctions as translations between relative equational consequences. *Syntax meets semantics*, Barcelona, Spain, 2016.
6. Epimorphism surjectivity and the Beth definability. *LATD* (Logic, Algebra and Truth Degrees), Phalaborwa, South Africa, 2016.
5. Undecidability in abstract algebraic logic. *TACL* (Topology, Algebra, and Categories in Logic), Ischia, Italy, 2015.
4. On everywhere strongly logifiable algebras. *TACL* (Topology, Algebra, and Categories in Logic), Ischia, Italy, 2015.
3. Truth-predicates in matrix semantics. *LATD* (Logic, Algebra and Truth Degrees), Vienna, Austria, 2014.
2. Logics associated with a quasi-primal algebra. Plenary talk at *AAA88 Workshop on General Algebra*, Warsaw, Poland, 2014.
1. An algebraic study of partial predicates. *ManyVal*, Prague, Czech Republic, 2013.

Research visits

12. Institute for Logic, Language and Computation of the University of Amsterdam (June 2023)
11. Institute of Logic and Computation of Vienna University of Technology (December 2019)
10. Institute for Logic, Language and Computation of the University of Amsterdam (October 2019)
9. Faculty of Philosophy of the University of Barcelona (January–March 2019)
8. Department of Mathematics of University of Pretoria (November 2018)
7. Faculty of Philosophy of the University of Barcelona (January–February 2018)
6. Department of Mathematics of the University of Pretoria (September–October 2017)
5. Faculty of Philosophy of the University of Barcelona (January–February 2017)
4. Institute of Theory of Information and Automation of the Czech Academy of Sciences (May 2016)
3. Department of Mathematics of the University of Pretoria (November–December 2015)
2. Institute of Theory of Information and Automation of the Czech Academy of Sciences (July 2015)
1. Department of Mathematics of the University of Pretoria (January–February 2015)