
Tsinghua University - University of Amsterdam Joint Research Center for Logic

Annual Report 2018

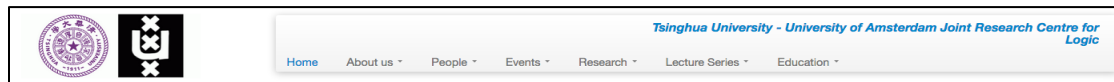


ABOUT THE CENTER

In 2013, Tsinghua University and the University of Amsterdam (UvA) instituted a joint research center for logic (JRC), based on a long-standing history of cooperation. The mission of the center is to create an active interface in research and education between the Institute for Logic, Language and Computation (ILLC) at the UvA and the Logic Group at Tsinghua and collaborators elsewhere in China, in a collegial spirit of public service.

JRC Co-directors: Johan van Benthem, Fenrong Liu. Oversight Committee: Wan Junren (Tsinghua, chair), Sonja Smets (UvA), Martin Stokhof (UvA), Yde Venema (UvA), Wang Lu (Tsinghua), Andrew Yao (Tsinghua). For further participants, see our website

<http://www.tsinghualogic.net/JRC>



STATEMENT FROM THE DIRECTORS

This is our fifth annual report on main research lines, education in pure and applied logic, our graduate program, publications, and academic events including the activities of the new Jin Yuelin Chair Professors. Details can be found at the website of our center.

RESEARCH PROJECTS

The JRC administers three programs involving UvA and Tsinghua participants. The following list contains main participants, key publications, and funding sources in 2018.

Logic and Social Agency

Goal: Investigating reasoning agents in complex informational social settings, with an emphasis on information dynamics, emergent attitudes, and strategic behavior in games.

Core group: Alexandru Baltag (ILLC), Johan van Benthem (ILLC), Fenrong Liu (Tsinghua), Jeremy Seligman (Auckland), Sonja Smets (ILLC), Kaile Su (Griffith).

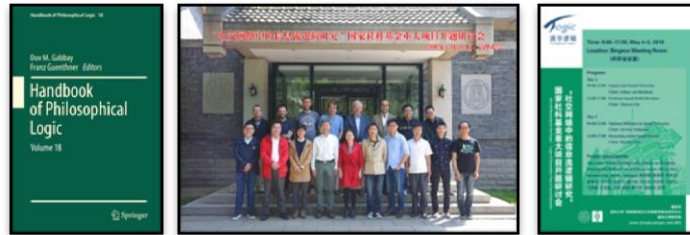
Key publications:

1. Alexandru Baltag, Zoe Christoff, Rasmus Rendsvig, Sonja Smets, Dynamic Epistemic Logics of Diffusion and Prediction in Social Networks, *Studia Logica*, 1–43, 2018
2. Johan van Benthem & Fenrong Liu, Graph Games and Logic Design, *Journal of Tsinghua University*, 2019, to appear
3. Dazhu Li, Losing Connections, Modal Logics of Definable Link Deletion, *Proceedings LOFT conference*, Milano, 2018

4. Yanjing Wang & Jeremy Seligman, When Names Are Not Commonly Known: Epistemic Logic with Assignments, *Advances in Modal Logic*, Vol. 12, 2018

Highlights:

- Kickoff Workshop, national project “Logics of Information Flow in Social Networks”, led by Fenrong Liu, with Johan van Benthem, Jeremy Seligman, Beishui Liao and Xinwen Liu as subproject leaders, and over 20 Chinese and international participants.
- Johan van Benthem and Fenrong Liu, Deontic Logic and Changing Preferences, in D. M. Gabbay & F. Guenther, eds., *Handbook of Philosophical Logic*, 18, 1–49, Springer, 2018.



Funding: Logics of information Flow in Social Networks, (2017–2021), Major Program National Social Science Foundation of China (社科基金重大项目). Grant No.17ZDA026.

History of Logic in China

Goal: Bring together Chinese and international researchers working on the history of logic in China from ancient to modern times, centered around the creation of a *Handbook of the History of Logical Thought in China*, while organizing related academic events.

Core group: Peter van Emde Boas (ILLC), Chad Hansen (Hong Kong), Christoph Harbsmeier (Oslo), Fenrong Liu (Tsinghua), Jeremy Seligman (Auckland), Jincheng Zhai (Nankai).

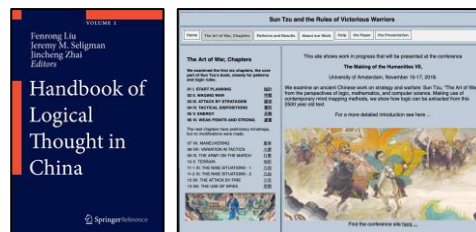
Key publications:

Chapters of the two-volume 1500 page Handbook covering Chinese, Buddhist and Western thought are being translated into Chinese or English, toward publication in 2019.

Highlight:

Website developed by Ghica & Peter van Emde Boas, assisted by Bonan Zhao, extracting logical structure of Sun Tzu’s “Art of War”, using computational mind-map techniques:

<https://suntzu.squaringthecircles.com>



Logic, Language and Philosophy

Goal: Exploring new interfaces between language, logic, philosophy, and culture.

Core group: Martin Stokhof (ILLC), Frank Veltman (ILLC), Lu Wang (Tsinghua), Asher Jiang (Tsinghua), Fengkui Ju (BNU), Xinwen Liu (CASS), Dag Westerståhl (Stockholm).

Key publications:

1. Martin Stokhof, The Structure of Natural Language, Can it Be Captured in Formal Language? in S.O. Hansson and V. F. Hendricks, eds., *Introduction to Formal Philosophy*, Springer, Berlin/New York, 2018, 273–288
2. Wang Lu, Why is it Being, not Truth, *Journal of Tsinghua University*, No.1, 2018
3. Dag Westerståhl, ‘Sameness’, in G. Jäger and W. Sieg, eds., *Feferman on Foundations: Logic, Mathematics, Philosophy*, Springer, 2018, 449–467

Highlight:

Workshop “Logic in Theoretical Philosophy” organized by Asher Jiang and Martin Stokhof, Tsinghua Oct 27-28, 2018, with interacting speakers from philosophy and logic.



Further Research at the JRC

Junhua Yu attended the “International Symposium on Logical Foundations of Computer Science” in Florida, USA, presenting his recent work on “A Tableau System for Instantial Neighborhood Logic”. He also obtained his associate professorship in 2018.

APPOINTMENTS

In addition to various personal positions over the years, the two founding universities have created two special positions supporting the JRC in its first cycle of existence.

- *Amsterdam – China Logic Chair*, 2014 – 2019, held by Fenrong Liu.



- *Jin Yuelin Chair Distinguished Professorship*, 2017–, newly created at Tsinghua.

First holders Johan van Benthem, Martin Stokhof, Dag Westerståhl, Jeremy Seligman. An official ceremony was held on April 23 in 2018, representatives from Amsterdam (Carolyn Wever and Sonja Smets) attended the ceremony. This team started work in 2017, teaching new courses and seminars, supervising students, and carrying out research at Tsinghua. (http://tsinghualogic.net/JRC/?page_id=975)



JIN YUE LIN LECTURES

The JRC hosts a new distinguished lecture series honoring Jin Yuelin, the founder of Tsinghua's philosophy department and a pioneer in introducing modern logic to China. Jin Yuelin lecturers so far: John Perry, Stanford (2015), Joseph Halpern, Cornell (2017). The 2019 Jin Yuelin lecture will be delivered by Rohit Parikh, City University New York.



VISITORS

The center hosts international visitors on a regular basis who engage in joint research, participate in center events, and conduct intensive courses and seminars for graduate students. The following list contains visitors at both sites in 2017.

Tsinghua Johan van Benthem, UvA & Stanford (Sept–Nov 2018); Valentin Goranko Stockholm; Tim Maudlin, NYU; Eric Pacuit, Maryland (Nov 2018); Olivier Roy, Bayreuth (May 2018); Dominik Klein, Bayreuth; Soroush Rafi Rad, Bayreuth; Emiliano Lorini, Toulouse; Jeremy Seligman, Auckland (Apr–Jul; Dec, 2018); Chenwei Shi, UvA; Sonja Smets, UvA; Martin Stokhof, UvA (Nov 2017–Jan 2018); Carolyn Wever, UvA; Dag Westerståhl, Stockholm (Feb–Apr 2018). **ILLC UvA** Xiaoxuan Fu, CSC/Tsinghua; Kaibo Xie, CSC/Tsinghua; Dazhu Li, CSC/Tsinghua; Fenrong Liu, Tsinghua (Jan–Feb; Jun 2018).

EDUCATION

Graduate program The JRC has a small selective graduate program with Ph.D. students co-supervised at both sites, plus a few further affiliated students.

- Kaibo Xie (causality and logic)
- Xiaoxuan Fu (temporal logic)
- Chong Wang (language and philosophy)
- Dazhu Li (graph games and social networks)
- Yu Chen (social network logics)

In June 2018, the JRC's first generation of Ph.D. students defended their dissertations:

- Chenwei Shi, *Reason to Believe*, Dissertation DS-2018-10, ILLC, UvA.
- Malvin Gattiger, *New Directions in Model Checking Dynamic Epistemic Logic*, Dissertation DS-2018-11, ILLC, UvA.



Seminars The JRC organized several advanced seminars and colloquia at Tsinghua.

- Feb – Apr 2018, *Logic in Artificial Intelligence I*, Normativity of Logic, Generalizations with Exceptions, Dag Westerståhl and Fenrong Liu.
- Apr – Jul 2018, *Logic in Artificial Intelligence II*, Hybrid Logic, Jeremy Seligman and Fenrong Liu.
- Sep 2018 – Jan 2019, *Philosophical Logics*, Reasoning about Causality, Fenrong Liu and Xiaoan Wu.
- Nov 2018, *Neighbourhood Semantics of Modal Logic*, Eric Pacuit (Maryland).

Undergraduate initiative A newly designed series of interdisciplinary courses in logic started at Tsinghua, with the following 4 courses at different levels.

- *Logic, Language and Philosophy*, co-taught by Fenrong Liu and Martin Stokhof
- *Mathematical Foundations of Logic*, meta-theory of FOL, taught by Dag Westerståhl
- *Modal Logics and their Applications*, introduction to modal, temporal, and epistemic logics with an emphasis on philosophical analysis, taught by Jeremy Seligman
- *Logic, Computation and Games*, advanced introduction to dynamic epistemic logic, games and probability, including research topics, taught by Johan van Benthem

SCIENTIFIC EVENTS

Workshop “Tsinghua Meets CUNY”, 19 Oct 2018. CUNY logicians Melvin Fitting and Sergei Artemov presented their current research, as did Chinese colleagues.

Workshop “4th Asian Workshop on Philosophical Logic”, 20-21 Oct 2018, research on logic, computation, and social agency, 30 Chinese and international colleagues.

Tsinghua Meets Stanford On Oct 21, the Tsinghua graduate students met with a group of logic graduate students from Stanford and discussed projects and research.

Workshop “Logic in *Theoretical Philosophy*”, 25-26 Oct 2018, with interacting speakers from philosophy and logic exploring a wide range of issues of common interest.

Guest lectures

- Nov 23 From Programs to Causal Models, Thomas Icard (Stanford)
- Nov 5 Logic and Probability as Models of Reasoning, Eric Pacuit (Maryland)
- Oct 12 Causation, Counterfactuals, and the Third Factor, Tim Maudlin (NYU)
- May 11 Logic and Games, Olivier Roy (Bayreuth)
- May 11 Logic and Games, Adam Brandenburger (NYU)
- Apr 13 Event types, Mandarin Semelfactives, Noun-Verb Parallel, Deng Dun (Tsinghua)
- Apr 13 Interpreting Generics: How to Tolerate Exceptions? Liying Zhang (CUFE)
- Mar 23 Jin Yuelin’s Thesis Backs Up Tarski’s Thesis, Xinwen Liu (CASS)
- Mar 16 Logics for Visual-Epistemic Reasoning, Valentin Goranko (Stockholm)



PUBLICATIONS

The following publications by members and associates demonstrate the JRC's activities.

Articles

1. A. Baltag, Z. Christoff, R. Rendsvig, S. Smets: Dynamic Epistemic Logics of Diffusion and Prediction in Social Networks, *Studia Logica*, 1-43, online first, 2018
2. A. Baltag, N. Gierasimczuk, A.L. Vargas, A. Özgün and S. Smets: A Dynamic Logic for Learning Theory, *Proceedings of DALI Workshop*, Lecture Notes in Computer Science, vol. 10669, Springer 2018
3. A. Baltag, N. Bezhanishvili, A. Özgün, S. Smets: A Topological Approach to Full Belief. *Journal of Philosophical Logic*, online first, 2018
4. A. Baltag, N. Gierasimczuk and S. Smets: Truth-Tracking by Belief Revision. *Studia Logica*, online first, 2018
5. A. Baltag and J. van Benthem: Some Thoughts on the Logic of Imprecise Measurement. *Tsinghua Philosophy Journal*
6. J. van Benthem, Implicit and Explicit Stances in Logic. *Journal of Philosophical Logic*, <http://link.springer.com/article/10.1007/s10992-018-9485-y>
7. J. van Benthem: Computation as Social Agency, *Information and Computation*, <https://doi.org/10.1016/j.ic.2017.09.009>
8. J. van Benthem: Constructive Agents, *Indagationes Mathematicae*, Brouwer issue. DOI: <https://10.1016/j.indag.2017.10.004>
9. J. van Benthem, J. van Eijck, M. Gattinger, K. Su: Symbolic Model Checking for Dynamic Epistemic Logic - S5 and Beyond. *Journal of Logic and Computation* 28(2): 367-402, 2018
10. J. van Benthem, N. Bezhanishvili and S. Enqvist: Propositional Dynamic Logic for Instantial Neighborhood Semantics, *Studia Logica*, <https://doi.org/10.1007/s11225-018-9825-5>, 1-33
11. J. van Benthem and D. Klein: Logics for Analyzing Games, *Stanford Electronic Encyclopedia of Philosophy*
12. J. van Benthem and F. Liu: Graph Games and Logic Design, *Journal of Tsinghua University*, 2019
13. J. van Benthem and F. Liu: Deontic Logic and Changing Preferences, in D. M. Gabbay and F. Guenther, eds., *Handbook of Philosophical Logic*, V. 18, 1-49, Springer, 2018
14. J. van Benthem, N. Bezhanishvili & S. Enqvist: A New Game Equivalence, Its Logic and Algebra, *Journal of Philosophical Logic*, <https://10.1007/s10992-018-9489-7>
15. I. Crespo, H. Karawani, F. Veltman: Expressing Expectations. In: B. Rabern and D. Ball, eds., *The Science of Meaning*. Oxford University Press, 2018
16. H. van Ditmarsch, M. Gattinger, L. B. Kuijer, Pere Pardo: Strengthening Gossip Protocols using Protocol-Dependent Knowledge. *Journal of Applied Logics – IfCoLog Journal of Logics and their Applications*, 2018
17. M. Gattinger: *New Directions in Model Checking Dynamic Epistemic Logic*, PhD thesis, Amsterdam, 2018
18. M. Gattinger, J. Wagemaker: Towards an Analysis of Dynamic Gossip in NetKAT, In: Jules Desharnais, Walter Guttmann, Stef Joosten, eds., *Proceedings RAMiCS 2018*. https://doi.org/10.1007/978-3-030-02149-8_17

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19. M. Gattinger: SMCDEL — An Implementation of Symbolic Model Checking for Dynamic Epistemic Logic with Binary Decision Diagrams, Version 1.0.0, 2018 <https://github.com/jrclogic/smcDEL>
 20. F. Ju: S5 as a deontic logic. In J. Broersen, C. Condoravdi, S. Nair, and G. Pigozzi, eds., *Proceedings of the 14th International Conference on Deontic Logic and Normative Systems*, 177–192. College Publications, London, 2018
 21. F. Ju, G. Grilletti, and V. Goranko. A Logic for Temporal Conditionals and a Solution to the Sea Battle Puzzle. In G. Bezhanishvili, G. D'Agostino, G. Metcalfe, and T. Studer, eds., *Proceedings 12th International Conference on Advances in Modal Logic*, 407–426. College Publications, London, 2018
 22. F. Ju and J. van Eijck. A Temporal Dynamic Deontic Logic. *Journal of Logic and Computation*, <https://doi.org/10.1093/logcom/exy008>, 2018
 23. C. Liu, F. Liu, K. Su: A Dynamic-Logical Characterization of Solutions to Sight-limited Extensive Games. *Fundamenta Informaticae* 158(1-3): 149-169, 2018
 24. F. Liu: Preference Change, in S. O. Hansson and V. Hendricks, eds., *Introduction to Formal Philosophy*, 549–566, Springer 2018
 25. F. Liu and J. Seligman, Reasoning and Making Predictions about Agent's Behaviors in Social Networks, *Journal of Jinan University*, No.12, 2018
 26. X. Liu, On the Reduction of Logical Constants Again, *World Philosophy*, No.6 2018
 27. X. Liu and Q. Jia, eds, *Formal Logic Needs Modernization – Jialong talking about Logic*, Chinese Science Press, 2018
 28. C. Shi: *Reason to Believe*, Ph.D. Thesis, University of Amsterdam, 2018
 29. C. Shi, S. Smets, and F. R. Velázquez-Quesada: Beliefs Supported by Binary Arguments. *Journal of Applied Non-Classical Logics*, online first, 2018
 30. C. Shi, S. Smets and F.R. Velazquez-Quesada: Belief Based on Evidence and Argumentation. *Proceedings of WOLLIC 2018*, Springer Lecture Notes in Computer Science vol. 10944, 289-306, 2018
 31. S. Smets and A. Solaki: The Effort of Reasoning: Modelling the Inference Steps of Boundedly Rational Agents. *Proceedings of WOLLIC 2018*, Springer Lecture Notes in Computer Science, vol. 10944, 307-324, 2018
 32. S. Smets and F. R. Velázquez-Quesada: The Creation and Change of Social Networks: A Logical Study based on Group Size. *Proceedings of the DALI Workshop*, Springer Lecture Notes in Computer Science, vol. 10669, 171-184. 2018
 33. S. Smets and F. R. Velazquez-Quesada: A Logical Perspective on Social Group Creation. In *The Logica Yearbook 2017*, 271-288, College Publications London, UK, 2018
 34. M. Stokhof: Vyznam, semantika, Wittgenstein, *Filosofia*, Praha, 2018, 136 pp.
 35. M. Stokhof: The Structure of Natural language, Can it be Captured in Formal Language? in S.O. Hansson and V. F. Hendricks, eds., *Introduction to Formal Philosophy*, Springer, Berlin/New York, 273–288, 2018
 36. M. Stokhof: Ethics and Morality, Principles and Practice, *Zeitschrift für Ethik und Moralphilosophie*, 1(2), 1–14, 2018. <https://doi:10.1007/s42048-018-0016-x>
 37. D. Westerståhl: 'Sameness', in G. Jäger and W. Sieg, eds., *Feferman on Foundations: Logic, Mathematics, Philosophy*, Springer, 2018, 449–467
 38. L. Wang: On Translation and Understanding of Philosophical Concepts, with Being as an Example. *Philosophical Trends*, No.3, 2018

39. L. Wang: Why is it Being, not Truth, *Journal of Tsinghua University*, No.1, 2018
 40. J. Yu: A Tableau System for Instantial Neighborhood Logic, *International Symposium on Logical Foundations of Computer Science 2018 (LNCS 10703)*, 337–353

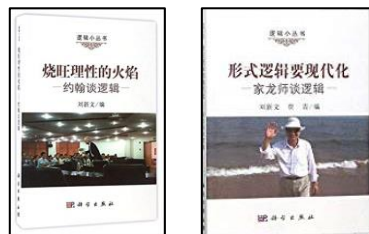
DISSEMINATION

Logic in Asia The JRC hosts a new Springer book series “*Logic in Asia: Studia Logica Library*”, a new research platform for monographs by researchers in Asia and worldwide. Editors-in-chief: Fenrong Liu and Hiroakira Ono.

Short textbooks A new Springer series “*Short Textbooks in Logic*” has started. Editors: Fenrong Liu, Hiroakira Ono and Jeremy Seligman. Aim: present readers worldwide with clear and concise textbooks on mathematical, philosophical and computational logic. First volume: Eric Pacuit, *Neighborhood Semantics for Modal Logic*, Spring 2017.



Small Books about Logic The JRC started a new book series in Chinese about logic and contemporary logicians. An effort is made to make these books accessible to a broad audience. Editors-in-chief: Fenrong Liu, Xinwen Liu and Yanjing Wang. The first two published volumes feature Johan van Benthem (2017) and Jialong Zhang (2018).



Translations The JRC participates in projects making works originally published in English available to Chinese readers. Some past and current translation projects include:

- *Door to Logic* <http://tsinghualogic.net/related-events/workshop-on-door-to-logic-finale/>
- Johan van Benthem, *Modal Logic for Open Minds*, CSLI Publications, 2010.
- Johan van Benthem, *Logic in Games*, The MIT Press, 2014.
- GAMUT, *Logic, Language and Meaning*, Chicago University Press, 1991.



Afterword This report documents the final year of the first five years of the Tsinghua-UvA Joint Research Center for Logic. Further information about the upcoming renewal by the two universities and the future center plans will be made available in the spring of 2019.