
Tsinghua University - University of Amsterdam Joint Research Centre for Logic

Annual Report 2017

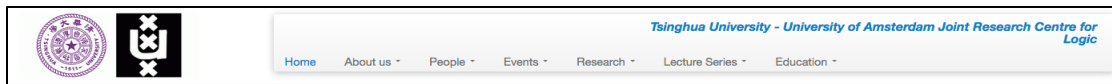


ABOUT THE CENTER

In 2013, Tsinghua University and the University of Amsterdam (UvA) instituted a joint research centre for logic (JRC), based on a long-standing history of cooperation. The mission of the centre 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.

Co-directors of the JRC: 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

After its founding events, and an opening ceremony in 2014, the JRC started its regular activities. This is our fourth annual report on our main research lines, education in pure and applied logic, our graduate program, publications, and academic events including our flagship Jin Yuelin Lecture. Further details can be found at the website of our center.

RESEARCH PROJECTS

JRC administers three programs involving UvA and Tsinghua participants. The following list contains main active participants, key publications, and funding sources in 2017:

Logic and Social Agency

Goal: Investigation of reasoning agents in complex informational social settings.

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

Key publications:

1. Johan van Benthem, Nick Bezhanishvili & Sebastian Enqvist: A New Game Equivalence and its Modal Logic, in J. Lang et al., eds. *Proceedings TARK 2017*, Liverpool.
2. Lijun Wu, Kaile Su, Yabiao Han, Jingyu Chen, Xiangyu Lu: Reasoning about Knowledge, Belief and Certainty in Hierarchical Multi-Agent Systems. *Frontiers of Computer Science* 11:3, 2017, 499–510.
3. Chenwei Shi, Sonja Smets & Fernando Velázquez-Quesada: Argument-Based Belief in Topological Structures, *Proceedings TARK 2017*, 489-503.

Highlights:

- Alexandru Baltag, Jeremy Seligman and Tomoyuki Yamada, eds., *Logic, Rationality, and Interaction – Proceedings 6th International Workshop, LORI 2017*, Sapporo, Japan, September 11-14, Springer Science Publishers.
- Malvin Gattinger (JRC ph.d student) received a "Best Paper Award" at the Student Session of ESSLLI 2017 for his paper "Towards Symbolic Factual Change in DEL".
- New national project Fenrong Liu: "Logics for Social Networks" (2017–2021) with Johan van Benthem, Jeremy Seligman, Beishui Liao and Xinwen Liu as subproject leaders, and 15 Chinese and international colleagues as participants.



Funding:

1. KNAW exchange grant "The Logical Dynamics of Information Exchange in Social Networks" (2014–2018, Alexandru Baltag & Fenrong Liu), with 14 researchers.
2. "Model-Checking Dynamic Epistemic Logic" (2014–2017, Fenrong Liu & Kaile Su, Johan van Benthem, Jan van Eijck), National Natural Science Foundation of China.

History of Logic in China

Goal: Bring together Chinese and international researchers working on the history of logic in China, broadly conceived, centered around the creation of a *Handbook of the History of Logical Thought in China*, while organizing related 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:

Ongoing: The chapters of the Handbook of Logical Thought in China are being translated into Chinese or English, to prepare for the final publication in 2019.

Highlight:

Workshop *The Search for Principles and Patterns from Antiquity to the Present*, 20 November 2017, with keynote speakers Rens Bod (UvA) and Hui Wang (Tsinghua), on writing the history of humanities and sciences in China.



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), Chongli Zou (CASS), Dag Westerståhl (Stockholm).

Key publications:

1. Asher Jiang, *Conceiving Existence: on Hume's Argument against the Distinctness of the Idea of Existence*, *British Journal for the History of Philosophy*, 2017
2. Fengkui Ju, Gianluca Grilletti, *A Dynamic Solution to the Puzzle of the Sea Battle*, ILLC Amsterdam, 2017, CoRR abs/1711.028432017.
3. Lu Wang, *How to Understand Being*, Tsinghua University Press, 2017

Highlight:

The JRC and the groups of Western philosophy (Tsinghua department of philosophy) and linguistics (Tsinghua department foreign and Chinese languages) initiated a series of regular meetings on current research, with presentations by Martin Stokhof, Yusheng Huang and Asher Jiang. A conference is planned on "Logic and Metaphysics".



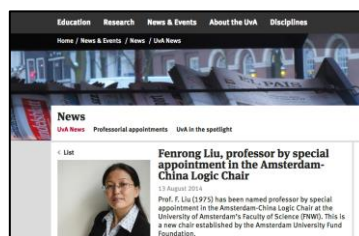
Further Research Activities

Junhua Yu continued his research on logic of proofs (see the publications list below) and on proof-theoretic aspects of instantial neighborhood logic, a follow-up to a joint project initiated with colleagues at the ILLC. He presented a new interpolation theorem for instantial neighborhood logic at the conference *Logic in China*, Hangzhou, October 2017.

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.

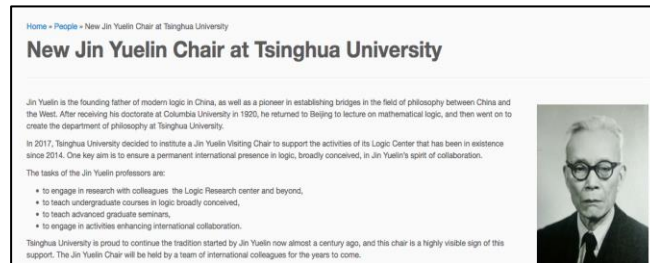
- *Amsterdam – China Logic Chair*, 2014 – 2019, held by Fenrong Liu.



- *Jin Yuelin Chair Distinguished Professorship*, a newly created position at Tsinghua:

http://tsinghualogic.net/JRC/?page_id=975

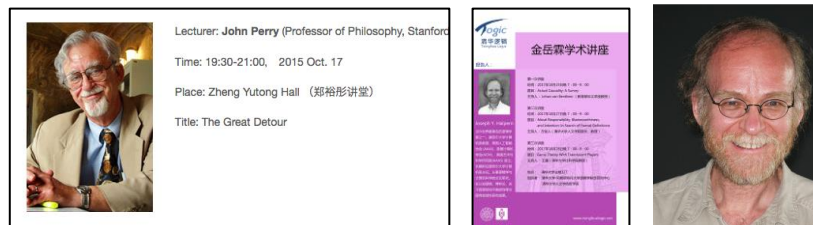
First holders Johan van Benthem, Martin Stokhof, Dag Westerståhl, Jeremy Seligman. This team started work in 2017, teaching new courses and seminars, supervising students, and carrying out research at Tsinghua.



- Asher Jiang was appointed at the Tsinghua department of philosophy after obtaining his doctorate and working in Europe (Heidelberg, Zurich). He joined the JRC as a research fellow, working in the project “Logic, Language and Philosophy”.

JIN YUE LIN LECTURES

The JRC has instituted a distinguished lecture series honoring Jin Yuelin, the founder of Tsinghua’s philosophy department and a pioneer in introducing modern logic to China. The first Jin Yuelin lecture was delivered by John Perry (Stanford University) in 2015. The 2017 Jin Yuelin Lecture was given by Joseph Halpern (Cornell University).



VISITORS

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

Tsinghua Alexandru Baltag, UvA; Johan van Benthem, UvA & Stanford (Sept – Nov 2017); Rens Bod, UvA; Malvin Gattinger, UvA; Piotr Kulicki, Lublin; Mathias Schirn, Munich; Jeremy Seligman, Auckland; Gila Sher, UC San Diego; Chenwei Shi, UvA; Sonja Smets, UvA, Martin Stokhof, UvA (Nov 2017 – Jan 2018). **ILLC UvA** Fengkui Ju (BNU); Xiaoxuan Fu, Tsinghua; Fenrong Liu, Tsinghua (Oct 2017); Kaibo Xie, CSC/Tsinghua.

EDUCATION

Graduate program The JRC has a selective graduate program with currently four Ph.D. students enrolled, co-supervised at both sites, plus a few more affiliated students:

- Chenwei Shi (logic and epistemology, PhD 2018)
- Malvin Gattinger (computational aspects of dynamic-epistemic logic, PhD 2018)
- Xiaoxuan Fu (temporal logic)
- Chong Wang (language and philosophy)

- Dazhu Li (logic and games)
- Yu Chen (intelligent agency)

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

- Sept – Nov 2017, *Seminar on Philosophical Logics I*, Logics for Graph Games and Social Networks, Johan van Benthem and Fenrong Liu
- Nov 2017 – Jan 2018, *Seminar on Philosophical Logics II*, Davidson on Truth and Rationality, Martin Stokhof and Fenrong Liu
- Sept 2017 – Jan 2018, *Logic and Epistemology*, bridging between Ancient Chinese philosophy and western epistemology, Fenrong Liu

Undergraduate initiatives New interdisciplinary course “Logic, Language and Philosophy” for all students at Tsinghua, taught by Johan van Benthem and Martin Stokhof. Follow-up courses will be taught in 2018 by Dag Westerståhl and Jeremy Seligman.



The JRC also continued its activities as an official hub in the international on-line education project *Logic in Action*, see the website <http://www.logicinaction.org/>

SCIENTIFIC EVENTS

Lecture Series “Causality, Responsibility and Games”, Oct 2017, three broad audience lectures on current research at the interface of logic, philosophy, computation, and game theory by Jin Yuelin Lecturer Joseph Halpern, Cornell University.

Workshop “From Computation to Agency”, 28 – 29 Oct 2017, recent research connecting logic, computer science, and social agency, with 30 Chinese and international colleagues.

Book launch, 28 Oct 2017, on the occasion of the appearance of Xinwen Liu, ed., *Johan Talking about Logic*, Science Press, Beijing, a public book with interviews and other pieces as a follow-up to the translation project “Door to Logic”.

Workshop “The Search for Principles and Patterns from Antiquity to the Present”, 20 Nov 2017, with keynote speakers Rens Bod (UvA) and Hui Wang (Tsinghua).

Incidental colloquium talks The Normativity of Logic, Gila Sher (Sept 2017), Second-Order Abstraction before and After Russells Paradox, Matthias Schirn (Oct 2017), Polish Contributions to Syllogistic from Łukasiewicz to Present Times, Piotr Kulicki (Dec 2017).



PUBLICATIONS

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

Books

Alexandru Baltag, Jeremy Seligman, and Tomoyuki Yamada, *Proceedings of the 6th International Workshop on Logic, Rationality, and Interaction (LORI 2017)*, Sapporo, Japan, September 11-14, 2017, Springer Science Publishers

Lu Wang, *How to Understand Being*, Tsinghua University Press, 2017

Articles

1. Hajnal Andr eka, Johan van Benthem, Istv an N emeti: On A New Semantics for First-Order Predicate Logic. *Journal of Philosophical Logic* 46(3): 259-267, 2017
2. Alexandru Baltag, Sonja Smets: Modeling Correlated Information Change: From Conditional Beliefs to Quantum Conditionals. *Soft Comput.* 21(6): 1523-1535, 2017
3. Alexandru Baltag, Andr es Occhipinti Liberman: Evidence Logics with Relational Evidence. *LORI 2017*: 17-32
4. Alexandru Baltag, Nick Bezhanishvili, Julia Ilin, Ayb uke  zɡ un: Quotient Dynamics: The Logic of Abstraction. *LORI 2017*: 181-194
5. Alexandru Baltag, Ayb uke  zɡ un, Ana Lucia Vargas Sandoval: Topo-Logic as a Dynamic-Epistemic Logic. *LORI 2017*: 330-346
6. Alexandru Baltag, Nina Gierasimczuk, Ayb uke  zɡ un, Ana Lucia Vargas Sandoval, Sonja Smets: A Dynamic Logic for Learning Theory. *DALI@TABLEAUX 2017*: 35-54
7. Alexandru Baltag, Andr es Occhipinti Liberman: Evidence Logics with Relational Evidence. CoRR abs/1706.05905, 2017
8. Johan van Benthem, and Jan van Eijck, Malvin Gattinger, and Su, Kaile: Symbolic Model Checking for Dynamic Epistemic Logic -- S5 and Beyond, *Journal of Logic and Computation*, 2017, doi:10.1093/logcom/exx038
9. Johan van Benthem, Nick Bezhanishvili, Sebastian Enqvist, Junhua Yu: Instantial Neighbourhood Logic, *the Review of Symbolic Logic* 10(1) 116-144, 2017
10. Johan van Benthem, Nick Bezhanishvili, Wesley H. Holliday: A Bimodal Perspective on Possibility Semantics. *J. Log. Comput.* 27(5): 1353-1389, 2017
11. Johan van Benthem: Against All Odds: When Logic Meets Probability. *ModelEd, TestEd, TrustEd 2017*: 239-253
12. Johan van Benthem, Nick Bezhanishvili, Sebastian Enqvist: A Propositional Dynamic Logic for Instantial Neighborhood Models. *LORI 2017*: 137-150
13. Johan van Benthem, Nick Bezhanishvili, Sebastian Enqvist: A New Game Equivalence and its Modal Logic. *TARK 2017*: 57-74
14. Chenghao Cai, Dengfeng Ke, Yanyan Xu, Kaile Su: Symbolic Manipulation Based on Deep Neural Networks and its Application to Axiom Discovery. *IJCNN 2017*: 2136-2143
15. Chenghao Cai, Dengfeng Ke, Yanyan Xu, Kaile Su: Learning of Human-like Algebraic Reasoning Using Deep Feedforward Neural Networks. *CoRR abs/1704.07503*
16. Qingliang Chen, Xiaowei Huang, Kaile Su, Abdul Sattar: Quantified Coalition Logic of Knowledge, Belief and Certainty. *Canadian Conference on AI 2017*: 351-360
17. Jan van Eijck, Malvin Gattinger, and Yanjing Wang: Knowing Values and Public

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- Inspection, in Ghosh, Sujata and Prasad, Sanjiva eds. *7th Indian Conference on Logic and Its Applications: ICLA 2017*, Kanpur, India. pp.77-90
18. Jan van Eijck and Philip Elsas: What is Money? In Can Başkent, Lawrence S. Moss and Ramaswamy Ramanujam eds. *Rohit Parikh on Logic, Language and Society*, Springer, Outstanding Contributions in Logic, Volume 11, 2017
 19. Jan van Eijck and Fengkui Ju: Modelling Legal Relations with Dynamic Logic. Under Submission
 20. Malvin Gattinger, Towards Symbolic Factual Change in DEL, in Karoliina Lohiniva and Johannes Wahle, eds, *Proceedings ESSLLI 2017 Student Session*, pp.14-24, 2017
 21. Asher Jiang: Conceiving Existence: on Hume’s Argument Against the Distinctness of the Idea of Existence, *British Journal for the History of Philosophy*, 2017
 22. Fengkui Ju, Gianluca Grilletti: A Dynamic Approach to Temporal Normative Logic. *LORI 2017*: 512-525
 23. Fengkui Ju, Gianluca Grilletti: A Dynamic Solution to the Puzzle of Sea Battle. CoRR abs/1711.02843, 2017
 24. Jinkun Lin, Shaowei Cai, Chuan Luo, Kaile Su: A Reduction based Method for Coloring Very Large Graphs. *IJCAI 2017*: 517-523
 25. Fenrong Liu, Emiliano Lorini: Reasoning About Belief, Evidence and Trust in a Multi-agent Setting. *PRIMA 2017*: 71-89
 26. Chenwei Shi, Olivier Roy: Reason to Believe. *LORI 2017*: 676-680
 27. Chenwei Shi, Sonja Smets, Fernando R. Velázquez-Quesada: Argument-based Belief in Topological Structures. *TARK 2017*: 489-503
 28. Sonja Smets, Fernando R. Velázquez-Quesada: How to Make Friends: A Logical Approach to Social Group Creation. *LORI 2017*: 377-390
 29. Sonja Smets, Fernando R. Velázquez-Quesada: The Creation and Change of Social Networks: A Logical Study Based on Group Size. *DALI@TABLEAUX 2017*: 171-184
 30. Martin Stokhof: Het Einde van de Filosofie? De Uitdaging van het Naturalisme vanuit een Wittgensteiniaans Perspectief’, focus article with invited commentaries, *Algemeen Nederlands Tijdschrift voor Wijsbegeerte*, 2017, 109(2), 171–198
 31. Lu Wang, The Transformation of Language and the Presentation of Ideas, *Seeking Truth*, No.1, 2017
 32. Lu Wang: Parmenide’ esti, *Journal of Renmin University of China*, No.1, 2017
 33. Lu Wang: Essence of Metaphysics, *Journal of Tsinghua University*, No.3, 2017
 34. Lu Wang: “Being”, a Useful Way of Understanding Western Philosophy, *Social Science Daily*, April 13, 2017
 35. Lijun Wu, Kaile Su, Yabiao Han, Jingyu Chen, Xiangyu Lu: Reasoning about Knowledge, Belief and Certainty in Hierarchical Multi-agent Systems. *Frontiers of Computer Science* 11(3): 499-510, 2017
 36. Zuojun Xiong, Thomas Ågotnes, Jeremy Seligman, Rui Zhu: Towards a Logic of Tweeting. *LORI 2017*: 49-64
 37. Junhua Yu: On Non-self-referential Fragments of Modal Logics, *Annals of Pure and Applied Logic* 168(4) 776–803, 2017
 38. Junhua Yu: A Tableau System for Instantial Neighborhood Logic. In: Sergei Artemov, Anil Nerode (eds.) *International Symposium on Logical Foundations of Computer Science 2018 (LNCS 10703)*, 337-353, Springer, 2017

DISSEMINATION

Logic in Asia The JRC hosts a new Springer book series “Logic in Asia: Studia Logica Library”, a research platform for researchers in Asia and worldwide. Editors-in-chief: Fenrong Liu and Hiroakira Ono. Publications in 2017:

Syraya Chin-Mu Yang, Kok Yong Lee, and Hiroakira Ono, eds., 2017, *Philosophical Logic: Current Trends in Asia, Proceedings of AWPL-TPLC 2016*.

Short textbooks A new Springer series “Short Textbooks in Logic” has started. Editors-in-chief: Fenrong Liu, Hiroakira Ono and Jeremy Seligman. Aim: to present readers worldwide with clear and concise textbooks, 120 pages average. Topics range from mathematical and philosophical logic to logical methods applied to computer science.

Eric Pacuit, *Neighborhood Semantics for Modal Logic*, Spring 2017.



Translations We are also partners 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.