Curriculum Vitae and Academic File
Bart Bogaerts

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Artificial Intelligence Lab
Department of Computer Science
Vrije Universiteit Brussel (VUB)

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1. Education

- **2011 – 2015.** PhD in Computer Science, KU Leuven, Belgium. Thesis: "Groundedness in logics with a fixpoint semantics". Advisers: Prof. Dr. Marc Denecker, Prof. Dr. Joost Vennekens, Prof. Dr. Jan Van den Bussche (UHasselt). Joint degree: doctor in engineering: computer science (KU Leuven) and doctor in science: informatics (UHasselt).
  ★ **Summa Cum Laude** with the **congratulations of the examination board** (Only awarded in exceptional circumstances, at most 5% of the doctorates in engineering at KU Leuven).
- **2009 – 2011.** Master of Science in Mathematics, KU Leuven, Belgium (with Honours: **Summa Cum Laude**). Thesis "Unique factorisation in regular local rings", supervised by Dr. Jan Schepers.
- **2006 – 2009.** Bachelor of Science in Mathematics, KU Leuven, Belgium (with Honours: **Summa Cum Laude**).

2. Employment

- **October 2023 – ...** Associate professor, Department of Computer Science, Vrije Universiteit Brussel, Belgium.
- **October 2018 – September 2023** Assistant professor, Department of Computer Science, Vrije Universiteit Brussel, Belgium.
- **October 2018 – September 2019** Visiting professor, Department of Computer Science, KU Leuven, Belgium.
- **October 2016 – September 2019.** Postdoctoral Fellow of the Research Foundation – Flanders (FWO), Department of Computer Science, KU Leuven, Belgium. Supervisor: Prof. Dr. Marc Denecker.
- **September 2015 – August 2016.** Postdoctoral Researcher, Department of Computer Science, Aalto University, Finland. Supervisor: Dr. Tomi Janhunen.
- **June 2015 – August 2015.** Postdoctoral Researcher, Department of Computer Science, KU Leuven, Belgium. Supervisor: Prof. Dr. Marc Denecker.
- **September 2009 – September 2011.** Tutor in mathematics, physics and informatics, Self-employed as secondary activity.

3. Research Interests

- Artificial intelligence, in particular knowledge representation
- Solving technology: SAT solving, pseudo-boolean solving, constraint programming, answer set programming, logic programming, (mixed) integer programming; methodologies to unify them and methods to get correctness guarantees
- Unifying frameworks for knowledge representation languages: approximation fixpoint theory, justification frameworks
- Database theory and its relation to knowledge representation
- Logics: (extensions of) classical logic, causal logics, temporal logics

4. Awards and Prizes

★ 2023 SAT Competition: Honorary Medal (Winner with 2022 rules) *(49 participants)*
★ AAAI 2022 distinguished paper award *(9 papers out of 9251 submissions)*
★ IJCAI 2021 distinguished paper award *(3 papers out of 4204 submissions)*
★ 2019 Holy Grail Challenge: First place *(2 participants)*
★ 2016 QBFEval: Prenex CNF: Second place *(24 participants)*
★ 2016 SAT Competition: No Limits: First place *(20 participants)*
★ PhD obtained Summa Cum Laude with the congratulations of the examination board (At most 5% of the doctorates in engineering at KU Leuven).
★ 2013 SAT Competition: Core Solvers, Sequential, Hard-combinatorial SAT+UNSAT: First place *(34 participants)*
★ 2013 SAT Competition: Core Solvers, Sequential, Hard-combinatorial SAT: Third place *(31 participants)*

5. Skills

Languages

- Dutch: mother tongue
- English: excellent (C1 certified)
- French: intermediate

Programming Languages

- C++: good
- Experience in many other languages including Java, C#, PHP, Python, Prolog and Haskell; always willing to learn new languages.

6. Professional Activities

Projects

- VUB Interdisciplinary Research Project *Bridging the gap between explainable AI and evidence-based medicine, a patient's and expert's perspective in inherited cardiac arrhythmias*: co-PI (1/7/2021–30/6/2023) (total budget: 220.000 EUR)
- FWO Junior Research Project *FRESCO: A FRamework for Explainable Solving and Constraint Optimization*: supervisor-spokesperson (1/1/2021–31/12/2024) (total budget: 504.000 EUR; VUB budget: 255.000 EUR)
- FWO Senior Research Project *Approximation Fixpoint Theory as a General Algebraic Theory of Constructive Knowledge*: supervisor-spokesperson (1/1/2021–31/12/2024) (total budget: 690.250 EUR; VUB budget: 256.500 EUR)
- ICT-48 *Foundations of Trustworthy AI - Integrating Reasoning, Learning and Optimization* (TAILOR): co-PI. (VUB budget $\sim$ 107.000 EUR)
- Flanders AI Research Impulse Program: co-PI. (1/7/2019–ongoing) ($\sim$ 50.000 EUR per year for my team)

Invited Talks

- *BreakID: Static symmetry breaking for ASP* , Potassco Seminar, University of Potsdam, Germany (virtual), February 8, 2023.
- *Combinatorial Solving with Provably Correct Results*, MIAO Seminar, University of Copenhagen, Denmark (virtual) (invited tutorial, joint with Ciaran McCreesh and Jakob Nordström), November 29, 2022.
- *Solving with Provably Correct Results: Beyond Satisfiability, and Towards Constraint Programming* , The 28th International Conference on Principles and Practice of Constraint Programming (invited tutorial, joint with Ciaran McCreesh and Jakob Nordström), August 2nd, 2022.

- *The IDP System: What and Why?*, Workshop on Constraint Modelling and Reformulation (ModRef), October 25th, 2021 .
- *Step-Wise Explanations for Constraint Programs*, Beyond Satisfiability Workshop, Tuesday, April 20th, 2021, UC Berkeley .
- *Step-Wise Explanations for Constraint Satisfaction (and Optimization?)*, Workshop on Progress Towards the Holy Grail, September 7, 2020, Louvain La Neuve.
- *Introduction to Approximation Fixpoint Theory and its Applications*, University of Calabria (6 hour course; PhD lecturer), Italy, July 2019.
- *Approximation Fixpoint Theory and its Application to Knowledge Representation*, University of Leipzig, January 15, 2019, Leipzig.
- *Symmetry Exploitation for Combinatorial Problems*, KTH Royal Institute of Technology, November 6, 2017, Stockholm.
- *Research highlight on SAT-to-SAT and symmetry exploitation*, COIN SAB meeting, October 16, 2017, Espoo.
- *Propagators and Solvers for the Algebra of Modular Systems*, International Workshop on Logic and Search (Lash 2016), October 17, 2016, New York City.
- *Symmetry in SAT/ASP/CSP: Breaking the Right Symmetries*, Computational Logic Day 2015 (CL 2015), December 8, 2015, Espoo.
- *Lazy Model Expansion: Interleaving Grounding with Search*, International Workshop on Logic and Search (Lash 2014), July 18, 2014, Vienna.

Research Visits

- **July 2019** Prof. Dr. Ester Zumpano, University of Calabria, Rende, Italy. Goal: collaboration on active integrity constraints and view updating.
- **January 2019** Prof. Dr. Gerd Brewka, University of Leipzig, Germany. Goal: exchange ideas on Weighted Abstract Dialectical Frameworks.
- **June 2018** Prof. Dr. Stefan Woltran, TU Vienna, Austria. Goal: exchange ideas on Weighted Abstract Dialectical Frameworks.
- **November 2017** Prof. Dr. Jakob Nordström, KTH Royal Institute of Technology, Stockholm, Sweden. Goal: exchange ideas on symmetry in SAT, and techniques for pseudo-Boolean solving.
- **October 2017** Dr. Tomi Janhunen, Aalto University, Espoo, Finland. Goal: COIN-SAB presentation and collaboration on QBF solving with SAT-to-SAT and on lazy grounding in ASP.
- **January 2016** Prof. Dr. Eugenia Ternovska, Simon Fraser University, Vancouver, Canada. Goal: collaboration on extending the algebra of modular systems to modular solvers and propagators.
- **May 2013** Prof. Dr. Torsten Schaub, University of Potsdam, Potsdam, Germany. Goal: exchange of research ideas with respect to answer set solver development.

Editor

- Guest editor of special issue S687 on answer set programming and other computing paradigms of *Annals of Mathematics and Artificial Intelligence (AMAI)*

Organisation of Conferences/Workshops/Schools

- **ECAI 2023**: Tutorial Chair *(European Conference on Artificial Intelligence)*
- **ICLP 2023**: Chair of the Summer School on Logic Programming
- **XLoKR 2022**: Organizing Committee *(Workshop on Explainable Logic-Based Knowledge Representation)*
- **XLoKR 2021**: Program Chair *(Workshop on Explainable Logic-Based Knowledge Representation)*
- **ICLP 2020** & **2021**: *(International Conference on Logic Programming)*
  - Doctoral Consortium Chair
  - Chair of the Autumn School on Logic Programming
- **BNAIC 2019**: Program Chair *(31th Benelux Conference on Artificial Intelligence)*

- **ICLP 2019**: Sister Conferences and Journal Presentation Track Chair *(International Conference on Logic Programming)*
- **ASPOCP 2016 & 2017**: Program Chair *(Ninth and Tenth Workshop on Answer Set Programming and Other Computing Paradigms)*

Service on Program Committees

- Conferences: IJCAI 2015, LPNMR 2015, AAAI 2016, IJCAI 2016, PADL 2017, AAAI 2017, LPNMR 2017, IJCAI 2017, AAAI 2018, IJCAI-ECAI 2018 (Distinguished PC member), KR 2018, LPNMR 2019, EPIA 2019, IJCAI 2019, ICLP 2019, BNAIC 2019, ECAI 2020 (Senior PC), IJCAI-PRICAI 2020 (Senior PC), EPIA 2020, KR 2020, BNAIC/BeneLearn 2020, JELIA 2021, KR 2021, EPIA 2021, BNAIC/BeneLearn 2021, IJCAI-ECAI 2022, KR 2022, BNAIC/BeneLearn 2022, KR 2023, ICLP 2023, IJCAI 2023, BNAIC/BeneLearn 2023, LPAR 2024, AAMAS 2024
- Workshops: IULP 2015, TAASP 2016, GTTV 2017, PAoASP 2017, POS 2018, ASPOCP 2018, LaSh 2018, ASPOCP 2019, IULP 2019, GTTV 2019, XLoKR 2020, DAO-XAI 2021, XLoKR 2021, XLoKR 2022

Refereeing

- Jury member for the **PhD defenses** of Hakan Metin (12/2019; Sorbonne University), Bram Aerts (06/2020; KU Leuven), Matthias van der Hallen (07/2020; KU Leuven), Francesco Pacenza (03/2021; University of Calabria), Roxana Rădulescu (08/2021; Vrije Universiteit Brussel), Sam Mattheus (05/2022; Vrije Universiteit Brussel), Heba Aamer (02/2023; Universiteit Hasselt), Elena Mastria (04/2023; University of Calabria), Alexandre Renaux (10/2023; Université Libre de Bruxelles), Eugenio Bargiacchi ($\pm$11/2023; Vrije Universiteit Brussel)
- **Journals**: Theory and Practice of Logic Programming, Annals of Mathematics and Artificial Intelligence, Mathematical Structures in Computer Science, Constraints, Autonomous Agents and Multi-Agent Systems, Artificial Intelligence, Transactions on Computational Logic, Journal of Artificial Intelligence Research
- **Conferences**: LPNMR 2013, ICLP 2013, JELIA 2014, ICLP 2014, KR 2014, AAAI 2015, KR 2016, JELIA 2016, STACS 2022
- **Workshops**: INAP/WLP 2011, NMR 2014

7. Teaching

Lecturer

- **2023 – now.** *Kennisrepresentatie en Redeneren (Knowledge Representation and Reasoning)* (Bachelor's course, 6 ECTS)
- **2019 – now.** *Discrete Modeling, Optimization, and Search* (Master's course, 6 ECTS)
- **2021 – now.** *Theory of Computation* (Master's course, 3 ECTS)
- **2021 – now.** *Wetenschappelijk Rekenen (Scientific Computing)* (Bachelor's course, 3 ECTS)
- **2019 – now.** *Algoritmen en Datastructuren 2 (Algorithms and Datastructures 2)* (Bachelor's course, 6 ECTS)
- **2019 – 2021.** *Fundamentals of Computer Science* (Master's course, 3 ECTS)
- **2020 – 2021.** *Open Information Systems* (Master's course, 3 ECTS)
- **2018 – 2021.** *Automaten en Berekenbaarheid (Automata and Computability)* (Bachelor's course, 6 ECTS)
- **2016 – 2018.** *Gegevensbanken (Databases)* (Bachelor's course; 6 ECTS – I was responsible for half of the course)
- **2015 – 2016.** *Discrete Models and Search* (Master's course; 5 ECTS)

Teaching Assistant

- **2016 – 2018.** *Advanced Programming Languages for Artificial Intelligence* (Master's course). My responsibilities involved creating take-home projects.
- **2016 – 2017.** *Modelling of Complex Systems* (Master's course). My responsibilities involved creating and grading take-home projects, and occasionally lecturing the course.

- **2011 – 2015.** *Modelling of Complex Systems* (Master's course). My responsibilities involved teaching the exercise sessions, creating and grading take-home projects, and occasionally lecturing the course.

Supervision of PhD Students

- *Robbe Van den Eede*, ongoing
- *Dieter Vandesande*, ongoing
- *Berhan Oumer Adame*, ongoing
- *Çağrı Yıldırımoğlu*, ongoing
- *Simon Jaxy*, ongoing
- *Samuele Pollaci*, ongoing
- *Linde Vanbesien*, ongoing
- *Emilio Gamba*, ongoing
- *Maxime Jakubowski*, ongoing
- *Simon Marynissen* (January 2022): Advances in Justification Theory

Supervision of Master Theses

- *Daimy Van Caudenberg*: Using Combinatorial Search for Resolving Mathematical Conjectures: Transitive Groups and Indecomposable Solutions to the Yang-Baxter Equation, ongoing
- *Dieter Vandesande*: Proof Logging for Maximum Satisfiability
- *Deniz Alp Atun*: Multi-objective Repeated Games with Strategy-based Payoffs
- *Jens Claes*: Natural Language processing for Knowledge Representation
- *Neline Van Ginkel*: Oracles in IDP: An implementation for epistemic logic
- *Geert Heyman*: Event Extraction from Text and Translation to Event Calculus
- *Pieter Van Hertum*: Using Presburger Arithmetic to simplify FOBDDs
- *Andries Verreydt*: Dimensions and Units in IDP

Supervision of Bachelor Projects

- *Daimy van Caudenberg*: Static Symmetry and Dominance Handling for pseudo-Boolean Optimization
- *Ben Bosmans*: A comparative study of constraint programming and reinforcement learning for solving the vehicle routing problem
- *Inas Ghailaini*: Een vergelijkende studie van constraint programming en reinforcement learning
- *Wolf De Wulf*: Pseudo-Boolean Solving for Answer Set Programming

Teaching education

- **2018 – 2019**. ZAP Onderwijsprofessionaliseringstraject: Teaching education for (starting) professors.
- **2011 – 2012.** Assistentenvorming: Teaching education for starting teaching assistants.

8. (Co-)authored Software

- *ZebraTutor* An artificially intelligent agent that explains how to solve logic grid puzzles.
- *IDP3* A knowledge-base system for first-order logic that supports various forms of inference to enable declarative problem solving.
- *MinisatID* An extension of the popular SAT-solver Minisat with inductive definitions, aggregates and integer variables.
- *BreakID* A symmetry breaking tool for SAT and ASP.
- *so2grounder* A tool to translate second-order logic theories into specifications for the solver SAT-to-SAT.
- *SmsControl* A Windows phone 8/Windows 10 mobile app to control text-controlled devices.

9. Publications

Journal Articles

[J23] **Expressiveness of SHACL Features and Extensions for Full Equality and Disjointness Tests** *B. Bogaerts, M. Jakubowski and J. Van den Bussche*, Logical Methods in Computer Science, (Accepted for publication).
★ *Impact factor (latest: 2022): 0.6*

[J22] **Distributed Subweb Specifications for Traversing the Web** *B. Bogaerts, B. Ketsman, Y. Zeboudj, H. Aamer, R. Taelman and R. Verborgh*, Theory and Practice of Logic Programming, (Accepted for publication).
★ *Impact factor (latest: 2022): 1.4*

[J21] **Non-Deterministic Approximation Fixpoint Theory and Its Application in Disjunctive Logic Programming** *J. Heyninck, O. Arieli and B. Bogaerts*, Artificial Intelligence, (Accepted for Publication).
★ *Impact factor (latest: 2022): 14.4*

[J20] **Efficiently Explaining CSPs with Unsatisfiable Subset Optimization** *E. Gamba, B. Bogaerts and T. Guns*, Journal of Artificial Intelligence Research Volume 78, p. 709–746, 2023.
★ *Impact factor (latest: 2022): 5*

[J19] **Inputs, Outputs, and Composition in the Logic of Information Flows** *H. Aamer, B. Bogaerts, D. Surinx, E. Ternovska and J. Van den Bussche*, ACM Transactions on Computational Logic, Volume 24 number 4, 2023, p. 1–44.
★ *Impact factor (latest: 2022): 0.5*

[J18] **Certified Dominance and Symmetry Breaking for Combinatorial Optimisation** *B. Bogaerts, S. Gocht, C. McCreesh and J. Nordström*, Journal of Artificial Intelligence Research; Conference Award Track (77), p. 1539–1589, 2023.
★ *Impact factor (latest: 2022): 5*

[J17] **Non-deterministic approximation operators: ultimate operators, semi-equilibrium semantics and aggregates** *J. Heyninck and B. Bogaerts*, Theory and Practice of Logic Programming Volume 23 (4), p. 632–647, 2023.
★ *Impact factor (latest: 2022): 1.4*

[J16] **Interactive Model Expansion in an Observable Environment** *P. Carbonelle, B. Bogaerts, J. Vennekens and M. Denecker*, Theory and Practice of Logic Programming Volume 23 (4), p. 648–663, 2023.
★ *Impact factor (latest: 2022): 1.4*

[J15] **Computing Abductive Explanations** *L. Caroprese, E. Zumpano and B. Bogaerts*, IEEE Intelligent Systems Volume 37 (6) (Special Issue on Reasoning with Inconsistent, Incomplete, and Uncertain Knowledge), p. 18–26, 2022.
★ *Impact factor (2022): 6.4*

[J14] **On Nested Justification Systems** *S. Marynissen, B. Bogaerts, M. Denecker and J. Heyninck*, Theory and Practice of Logic Programming Volume 22 (5), p. 641–657, 2022.
★ *Impact factor (2022): 1.4*

[J13] **A framework for step-wise explaining how to solve constraint satisfaction problems** *B. Bogaerts, E. Gamba and T. Guns*, Artificial Intelligence Volume 300, p. 103550, 2021, (Special issue on Explainable Artificial Intelligence).
★ *Impact factor (2021): 14.05*

[J12] **Stratification in Approximation Fixpoint Theory and Its Application to Active Integrity Constraints** *B. Bogaerts and L. Cruz-Filipe*, ACM Transactions on Computational Logic Volume 20 (1), 2021, p. 1–19.
★ *Impact factor (2021): 0.898*

[J11] **Exploiting Game Theory for Analysing Justifications** *S. Marynissen, B. Bogaerts and M. Denecker*, Theory and Practice of Logic Programming Volume 20 (6), p. 880–894, 2020.
★ *Impact factor (2020): 0.747*

[J10] **Safe Inductions and Their Applications in Knowledge Representation** *B. Bogaerts, M. Denecker and J. Vennekens*, Artificial Intelligence Volume 259, p. 167–185, 2018.
★ *Impact factor (2018): 4.483*

[J9] **Fixpoint Semantics for Active Integrity Constraints** *B. Bogaerts and L. Cruz-Filipe*, Artificial Intelligence Volume 255, p. 43–70, 2018.
★ *Impact factor (2018): 4.483*

[J8] **On Well-Founded Set-Inductions and Locally Monotone Operators** *B. Bogaerts, J. Vennekens and M. Denecker*, ACM Transactions on Computational Logic Volume 17 Issue 4, p. 27:1–27:32, 2016.
★ *Impact factor (2016): 0.961*

[J7] **Bootstrapping Inference in the IDP Knowledge Base System** *B. Bogaerts, J. Jansen, B. De Cat, G. Janssens, M. Bruynooghe and M. Denecker*, New Generation Computing Volume 34, Number 3, p. 193–220, 2016.
★ *Impact factor (2016): 0.657*

[J6] **Stable-Unstable Semantics: Beyond NP with Normal Logic Programs** *B. Bogaerts, T. Janhunen and S. Tasharrofi*, Theory and Practice of Logic Programming Volume 16, Number 5-6, p. 570–586, 2016.
★ *Impact factor (2016): 1.38*

[J5] **On Local Domain Symmetry for Model Expansion** *J. Devriendt, B. Bogaerts, M. Bruynooghe and M. Denecker*, Theory and Practice of Logic Programming Volume 16, Number 5-6, p. 632–652, 2016.
★ *Impact factor (2016): 1.38*

[J4] **Predicate Logic as a Modeling Language: Modeling and Solving some Machine Learning and Data Mining Problems with IDP3** *M. Bruynooghe, H. Blockeel, B. Bogaerts, B. De Cat, S. De Pooter, J. Jansen, A. Labarre, J. Ramon, M. Denecker and S. Verwer*, Theory and Practice of Logic Programming Volume 15, Number 6, p. 783–817, 2015.
★ *Impact factor (2015): 0.952*

[J3] **Knowledge Compilation of Logic Programs Using Approximation Fixpoint Theory** *B. Bogaerts and G. Van den Broeck*, Theory and Practice of Logic Programming Volume 15, Number 4-5, p. 464–480, 2015.
★ *Impact factor (2015): 0.952*

[J2] **Grounded Fixpoints and Their Applications in Knowledge Representation** *B. Bogaerts, J. Vennekens and M. Denecker*, Artificial Intelligence Volume 224, p. 51–71, 2015.
★ *Impact factor (2015): 3.333*

[J1] **Simulating Dynamic Systems Using Linear Time Calculus Theories** *B. Bogaerts, J. Jansen, M. Bruynooghe, B. De Cat, J. Vennekens and M. Denecker*, Theory and Practice of Logic Programming Volume 14, Number 4-5, p. 477–492, 2014.
★ *Impact factor (2014): 1.051*

Articles in Books

[B2] **Formalising Approximation Fixpoint Theory in Coq** *B. Bogaerts and L. Cruz-Filipe*, (Accepted for publication).

[B1] **Predicate Logic as a Modeling Language: The IDP System** *B. De Cat, B. Bogaerts, M. Bruynooghe, G. Janssens and M. Denecker*, Chapter in Declarative Logic Programming: Theory, Systems, and Applications, p. 279–323, 2018.

Conference Articles

[C41] **Using Symmetries to Lift Satisfiability Checking** *P. Carbonelle, G. Schenner, M. Bruynooghe, B. Bogaerts and M. Denecker*, Thirty-Eighth AAAI Conference on Artificial Intelligence, 2024, (Accepted).

[C40] **Towards a Unifying View on Monotone Constructive Definitions** *L. Vanbesien, S. Pollaci, B. Bogaerts and M. Denecker*, International Symposium on Artificial Intelligence and Mathematics, 2024, (Accepted).

[C39] **Simplifying Step-wise Explanation Sequences** *I. Bleukx, J. Devriendt, E. Gamba, B. Bogaerts and T. Guns*, 29th International Conference on Principles and Practice of Constraint Programming (CP), p. 11:1–11:20, 2023.
★ *Acceptance rate: 40%; CORE ranking: A*

[C38] **Mathematical Foundations for Joining Only Knowing and Common Knowledge** *M. Cramer, S. Pollaci and B. Bogaerts*, 20th International Conference on Principles of Knowledge Representation and Reasoning (KR), p. 167–177, 2023.
★ *Acceptance rate: 23%; CORE ranking: A**

[C37] **Certified Core-Guided MaxSAT Solving** *J. Berg, B. Bogaerts, J. Nordström, A. Oertel and D. Vandesande*, Proceedings of the 29th International Conference on Automated Deduction (CADE), p. 1–22, 2023.
★ *Acceptance rate: 43%; CORE ranking: A*

[C36] **Symmetry and Dominance Breaking for Pseudo-Boolean Optimization** *D. Van Caudenberg and B. Bogaerts*, Artificial Intelligence and Machine Learning, p. 149–166, 2023.

[C35] **SHACL: A Description Logic in Disguise** *B. Bogaerts, M. Jakubowski and J. Van den Bussche*, Proceedings of Logic Programming and Non-Monotonic Reasoning (LPNMR), p. 75–88, 2022.

[C34] **QMaxSATpb: A Certified MaxSAT Solver** *D. Vandesande, W. De Wulf and B. Bogaerts*, Proceedings of Logic Programming and Non-Monotonic Reasoning (LPNMR), p. 429–442, 2022.

[C33] **Tree-Like Justification Systems are Consistent** *S. Marynissen and B. Bogaerts*, Proceedings 38th International Conference on Logic Programming (ICLP), p. 1–11, 2022.
★ *CORE ranking: A*

[C32] **Certified Symmetry and Dominance Breaking for Combinatorial Optimisation** *B. Bogaerts, S. Gocht, C. McCreesh and J. Nordström*, Proceedings of the AAAI Conference on Artificial Intelligence, 36(4), p. 3698–3707, 2022.
★ *Acceptance rate: 15%; CORE ranking: A**
★ **AAAI-22 Distinguished paper award** ★

[C31] **Expressiveness of SHACL features** *B. Bogaerts, M. Jakubowski and J. Van den Bussche*, 25th International Conference on Database Theory (ICDT 2022), p. 15:1–15:16, 2022.
★ *CORE ranking: A*

[C30] **SHACL: A Description Logic in Disguise** *B. Bogaerts, M. Jakubowski and J. Van den Bussche*, BNAIC/BeneLearn 2021, p. 271–284, 2021.

[C29] **Fixpoint Semantics for Recursive SHACL** *B. Bogaerts and M. Jakubowski*, Proceedings of The 37th International Conference on Logic Programming (ICLP), p. 41–47, 2021.
★ *Core ranking: A*

[C28] **Link Traversal with Distributed Subweb Specifications** *B. Bogaerts, B. Ketsman, Y. Zeboudj, H. Aamer, R. Taelman and R. Verborgh*, Proceedings of RuleML+RR, p. 62–79, 2021.

[C27] **On the Relation Between Approximation Fixpoint Theory and Justification Theory** *S. Marynissen, B. Bogaerts and M. Denecker*, 30th International Joint Conference on Artificial Intelligence (IJCAI), p. 1973–1980, 2021.
★ *Acceptance rate: 13.9%; CORE ranking: A**
★ **IJCAI-21 Distinguished paper award** ★

[C26] **Efficiently Explaining CSPs with Unsatisfiable Subset Optimization** *E. Gamba, B. Bogaerts and T. Guns*, 30th International Joint Conference on Artificial Intelligence (IJCAI), p. 1381–1388, 2021.
★ *Acceptance rate: 13.9%; CORE ranking: A**

[C25] **lp2pb: Translating Answer Set Programs into Pseudo-Boolean Theories** *W. De Wulf and B. Bogaerts*, Proceedings of The 36th International Conference on Logic Programming (ICLP), p. 206–219, 2020.
★ *CORE ranking: A*

[C24] **Inputs, Outputs, and Composition in the Logic of Information Flows** *H. Aamer, B. Bogaerts, D. Surinx, E. Ternovska and J. Van den Bussche*, 17th International Conference on Principles of Knowledge Representation and Reasoning (KR), p. 2–11, 2020.
★ *Acceptance rate: 34%; CORE ranking: A**

[C23] **Step-wise explanations of constraint satisfaction problems** *B. Bogaerts, E. Gamba, J. Claes and T. Guns*, 24th European Conference on Artificial Intelligence (ECAI), p. 640–647, 2020.
★ *Acceptance rate: 26.8%; CORE ranking: A*

[C22] **Executable first-order queries in the logic of information flows** *H. Aamer, B. Bogaerts, D. Surinx, E. Ternovska and J. Van den Bussche*, 23th International Conference on Database Theory (ICDT), p. 4:1–4:14, 2020.
★ *CORE ranking: A*

[C21] **ZebraTutor: Explaining How to Solve Logic Grid Puzzles** *J. Claes, B. Bogaerts, R. Canoy, E. Gamba and T. Guns*, Proceedings of the 31st Benelux Conference on Artificial Intelligence (BNAIC), 2019.
★ *Runner-up best demo award*

[C20] **Explaining actual causation in terms of possible causal processes** *M. Denecker, B. Bogaerts and J. Vennekens*, Proceedings of the 16th European Conference on Logics in Artificial Intelligence (JELIA), p. 214–230, 2019.
★ *CORE ranking: A*

[C19] **Weighted abstract dialectical frameworks through the lens of approximation fixpoint theory** *B. Bogaerts*, Proceedings of the thirty-third AAAI conference on artificial intelligence (AAAI), p. 2686–2693, 2019.
★ *Acceptance rate: 16.2%; CORE ranking: A**

[C18] **Exploiting Justifications for Lazy Grounding of Answer Set Programs** *B. Bogaerts and A. Weinzierl*, Proceedings of the 27th International Joint Conference on Artificial Intelligence and the 23rd European Conference on Artificial Intelligence (IJCAI-ECAI), p. 1737–1745, 2018.
★ *Acceptance rate: 20.5%; CORE ranking: A**

[C17] **Symmetric explanation learning: Effective dynamic symmetry handling for SAT** *J. Devriendt, B. Bogaerts and M. Bruynooghe*, Theory and Applications of Satisfiability Testing - SAT 2017, Proceedings, p. 83–100, 2017.
★ *Acceptance rate: 46.1%; CORE ranking: A*

[C16] **Propagators and Solvers for the Algebra of Modular Systems** *B. Bogaerts, E. Ternovska and D. Mitchell*, Proceedings of the 21st International Conference on Logic for Programming Artificial Intelligence and Reasoning (LPAR-21), p. 227–248, 2017.
★ *CORE ranking: A*

[C15] **Safe Inductions: An Algebraic Study** *B. Bogaerts, J. Vennekens and M. Denecker*, Proceedings of the Twenty-Sixth International Joint Conference on Artificial Intelligence (IJCAI), p. 859–865, 2017.
★ *Acceptance rate: 25.9%; CORE ranking: A**

[C14] **Semantics for Active Integrity Constraints Using Approximation Fixpoint Theory** *B. Bogaerts and L. Cruz-Filipe*, Proceedings of the Twenty-Sixth International Joint Conference on Artificial Intelligence (IJCAI), p. 866–872, 2017.
★ *Acceptance rate: 25.9%; CORE ranking: A**

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★ *CORE ranking: A*

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[W18] **Efficiently Explaining CSPs with Unsatisfiable Subset Optimization (extended abstract)** *E. Gamba, B. Bogaerts and T. Guns*, The 21st workshop on Constraint Modelling and Reformulation (ModRef), 2022.

[W17] **Formalising Approximation Fixpoint Theory (Extended Abstract)** *B. Bogaerts and L. Cruz-Filipe*, Days in Logic 2022, 2021.

[W16] **Stepwise Explanations of Unsatisfiable Constraint Programs (Extended abstract)** *I. Bleukx, E. Gamba, B. Bogaerts and T. Guns*, The Third Workshop on Explainable Logic-Based Knowledge Representation (XLoKR), 2022.

[W15] **A Formalisation of Approximation Fixpoint Theory** *B. Bogaerts and L. Cruz-Filipe*, TYPES 2021 - Book of Abstracts, p. 41–44, 2021.

[W14] **Towards Lightweight Completion Formulas for Lazy Grounding in Answer Set Programming** *B. Bogaerts, S. Marynissen and A. Weinzierl*, Proceedings of the 18th International Workshop on Non-Monotonic Reasoning (NMR), p. 58–66, 2020.

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[N4] **The Alpha Solver for Lazy-Grounding Answer-Set Programming** *A. Weinzierl, B. Bogaerts, J. Bomanson, T. Eiter, G. Friedrich, T. Janhunen, T. Kaminski, M. Langowski, L. Leutgeb, G. Schenner and R. Taupe*, ALP Newsletter, 2019.

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