

Preface

This is the proceedings of the *4th International Workshop on Bidirectional Transformations* (Bx 2015). Bidirectional transformations (Bx) are a mechanism for maintaining the consistency of at least two related sources of information. Such sources can be relational databases, software models and code, or any other document following standard or ad-hoc formats. Bx are an emerging topic in a wide range of research areas, with prominent presence at top conferences in several different fields (namely databases, programming languages, software engineering, and graph transformation), but with results in one field often getting limited exposure in the others. Bx 2015 was a dedicated venue for Bx in all relevant fields and part of a workshop series that was created in order to promote cross-disciplinary research and awareness in the area. As such, since its beginning in 2012, the workshop rotated between venues in different fields. In 2015, Bx was co-located with STAF for the first time, and was previously held at the following locations:

1. Bx 2012: Tallinn, Estonia, co-located with ETAPS
2. Bx 2013: Rome, Italy, co-located with ETAPS
3. Bx 2014: Athens, Greece, co-located with EDBT/ICDT

The call for papers attracted 11 complete submissions (14 abstracts were initially submitted) from which the program committee, after a careful reviewing and discussion process, selected 7 papers for presentation at the workshop (6 regular papers and 1 tool paper):

- Michael Johnson and Robert Rosebrugh: *Spans of Delta Lenses*
- Faris Abou-Saleh, James McKinna, and Jeremy Gibbons: *Coalgebraic Aspects of Bidirectional Computation*
- Michael Johnson and Robert Rosebrugh: *Distributing Commas, and the Monad of Anchored Spans*
- Zirun Zhu, Hsiang-Shang Ko, Pedro Martins, João Saraiva, and Zhenjiang Hu: *BiYacc: Roll Your Parser and Pretty-Printer into One* (tool paper)
- Soichiro Hidaka, Martin Billes, Quang Minh Tran, and Kazutaka Matsuda: *Trace-based Approach to Editability and Correspondence Analysis for Bidirectional Graph Transformations*
- James Cheney, Jeremy Gibbons, James McKinna, and Perdita Stevens: *Towards a Principle of Least Surprise for Bidirectional Transformations*
- Anthony Anjorin, Erhan Leblebici, Roland Kluge, Andy Schürr, and Perdita Stevens: *A Systematic Approach and Guidelines to Developing a Triple Graph Grammar*

In addition to the presentation of these papers, the program of Bx 2015 consisted of two panel discussions. The first one, focussing on “Benchmarks and reproducibility”, addressed topics such as: the current status and evolution perspectives of the Bx Examples Repository; how to best support the reproduction of paper results; or how to replicate in this community successful benchmarking initiatives from other areas. The second panel, focussing on “Reaching out to end-users”, tried to identify what would be necessary for Bx languages and tools to be more applied in practice, and addressed questions such as: should we just invest more time in making existing tools more stable, usable, and better documented? or do we still need to improve the underlying Bx techniques to provide stronger guarantees to end users, namely some sort of least change or “least surprise”? We hope these panels helped the Bx community take an interest in aspects of Bx that must be improved for its research to have a real impact in different application fields. These might also pave the way for interesting submissions to next year’s Bx workshop, which will be held on April 8th, 2016, in Eindhoven, The Netherlands, again co-located with ETAPS.

We would like to thank the Program Committee and the external reviewers for their detailed reviews and careful discussions, and for the overall efficiency that enabled the tight schedule for reviewing. We would also like to thank all the authors and participants for helping us make Bx 2015 a success.

June 2015,
Alcino Cunha (INESC TEC and Universidade do Minho) and
Ekkart Kindler (Technical University of Denmark, DTU)
PC chairs of Bx 2015

Program Committee

- Anthony Anjorin, Chalmers | University of Technology
- Anthony Cleve, University of Namur
- Alcino Cunha (co-chair), INESC TEC and Universidade do Minho
- Romina Eramo, University of L'Aquila
- Jeremy Gibbons, University of Oxford
- Holger Giese, Hasso Plattner Institute at the University of Potsdam
- Soichiro Hidaka, National Institute of Informatics
- Michael Johnson, Macquarie University
- Ekkart Kindler (co-chair), Technical University of Denmark (DTU)
- Peter McBrien, Imperial College London
- Hugo Pacheco, INESC TEC and Universidade do Minho
- Jorge Perez, Universidad de Chile
- Arend Rensink, University of Twente
- Perdita Stevens, University of Edinburgh
- James Terwilliger, Microsoft Corporation
- Meng Wang, University of Kent
- Jens Weber, University of Victoria
- Yingfei Xiong, Peking University

External Reviewers

- Dominique Blouin
- Johannes Dyck
- Nuno Macedo
- James McKinna
- Uwe Wolter