

# RDP = RTA + TLCA

International Conference on Rewriting, Deduction, and Programming

TU Eindhoven, June 23 - June 28, 2013



## Program

| Sunday<br>June 23 | Monday<br>June 24 | Tuesday<br>June 25 | Wednesday<br>June 26 | Thursday<br>June 27 | Friday<br>June 28 |     |
|-------------------|-------------------|--------------------|----------------------|---------------------|-------------------|-----|
|                   | RTA               |                    |                      | WG1.6               | HART              | IWC |
| Reception         |                   |                    |                      | UNIF                | WIR               |     |
|                   |                   | COS                |                      | TLCA                |                   |     |
|                   |                   |                    |                      |                     |                   |     |

RDP 2013 consists of

- the 24th International Conference, on Rewriting Techniques and Applications (RTA),
- the 11th International Conference on Typed Lambda Calculi and Applications (TLCA),
- the Workshop Control Operators and their Semantics (COS),
- the meeting of the IFIP Working Group 1.6 on Term Rewriting (WG1.6),
- the Workshop on Haskell And Rewriting Techniques (HART),
- the International Workshop on Unification (UNIF),
- the International Workshop on Confluence (IWC), and
- the Workshop on Infinitary Rewriting (WIR).

All these events are in the Auditorium of Eindhoven University of Technology.

Also lunch is served there.

Rooms 7 and 8 are downstairs, room 12 (on some days split up into 12a and 12b) are upstairs.

More information of all events is on <http://www.win.tue.nl/rdp2013/>.

Proceedings of RTA and workshops are on the memory stick in your conference package.

## Sunday, June 23

17:00–19:00 Opening reception, De Zwarte Doos

## Monday, June 24

### RTA Session 1, Room 7

Monday

09:00–09:05 Opening

09:05–10:05 Pattern Generation by Cellular Automata  
*Jarkko Kari (invited talk)*

### RTA Session 2, Room 7

Monday

10:30–11:00 Formalizing Knuth-Bendix Orders and Knuth-Bendix Completion  
*Christian Sternagel and René Thiemann*

11:00–11:30 Normalized Completion Revisited  
*Sarah Winkler and Aart Middeldorp*

11:30–12:00 Rewriting with linear inferences in propositional logic  
*Anupam Das*

### RTA Session 3, Room 7

Monday

14:00–14:30 A Variant of Higher-Order Anti-Unification  
*Alexander Baumgartner, Temur Kutsia, Jordi Levy and Mateu Villaret*

14:30–15:00 Unifying Nominal Unification  
*Christophe François Olivier Calvès*

15:00–15:30 Unification Modulo Nonnested Recursion Schemes via Anchored Semi-Unification  
*Gert Smolka and Tobias Tebbi*

### COS Session 1, Room 12

Monday

14:30–14:40 Opening

14:40–15:40 Modeling a Practical Combination of Delimited Continuations, Exceptions, Dynamic-Wind Guards, Dynamic Binding, and Stack Inspection  
*M. Flatt*

15:40–16:05 Reconsidering Intuitionistic Duality  
*A. Stump, H. Eades III and R. McCleary*

**RTA Session 4, Room 7**

**Monday**

16:00–16:30 Linear logic and strong normalization  
*Beniamino Accattoli*

16:30–17:00 A Homotopical Completion Procedure with Applications to  
Coherence of Monoids  
*Yves Guiraud, Philippe Malbos and Samuel Mimram*

**COS Session 2, Room 12**

**Monday**

16:35–16:15 Continuation Calculus  
*B. Geron and H. Geuvers*

16:15–17:55 Induction by Coinduction and Control Operators in Call-by-Name  
*Y. Kakutani and D. Kimura*

**Tuesday, June 25**

**RTA Session 5, Room 7**

**Tuesday**

09:00–10:00 Husserl and Hilbert on Completeness and Husserl’s Term  
Rewrite-based Theory of Multiplicity  
*Mitsu Okada (invited talk)*

**COS Session 3, Room 12**

**Tuesday**

09:00–10:00 A Model of Control Operators in Coherence Spaces giving rise to a  
new model of ZF  
*T. Streicher*

10:00–10:25 The modalized Heyting calculus: modality-guarded continuations  
*T. Litak*

**RTA Session 6, Room 7**

**Tuesday**

10:30–11:00 Proof Orders for Decreasing Diagrams  
*Bertram Felgenhauer and Vincent van Oostrom*

11:00–11:30 Confluence by Decreasing Diagrams Formalized  
*Harald Zankl*

11:30–12:00 Over-approximating Descendants by Synchronized Tree Languages  
*Yohan Boichut, Chabin Jacques and Pierre Rety*

**COS Session 4, Room 12****Tuesday**

- 10:40–11:20 Strong Normalization for HA + EM1 by Non-Deterministic Choice  
*F. Aschieri*
- 11:20–12:00 Interpreting a Classical Geometric Proof with Interactive Realizability  
*G. Birolò*

**COS Session 5, Room 12****Tuesday**

- 13:40–14:20 Hereditary Substitution for the lambda-Delta Calculus  
*H. Eades and A. Stump*
- 14:20–15:00 Proving termination of evaluation for System F with control operators  
*M. Biernacka, D. Biernacki, S. Lenglet and M. Materzok*

**RTA Session 7, Room 7****Tuesday**

- 14:00–14:30 Extending Abramsky’s Lazy Lambda Calculus: (Non)-Conservativity of Embeddings  
*Manfred Schmidt-Schau, Elena Machkasova and David Sabel*
- 14:30–15:00 Expressibility in the Lambda Calculus with Mu  
*Clemens Grabmayer and Jan Rochel*
- 15:00–15:30 Decidable structures between Church-style and Curry-style  
*Ken-Etsu Fujita and Aleksy Schubert*

**COS Session 6, Room 12****Tuesday**

- 15:30–16:10 Type Directed Partial Evaluation for Level-1 Shift and Reset  
*D. Ilik*
- 16:10–16:50 Combining and Relating Control Effects and their Semantics  
*J. Laird*

**RTA Session 8, Room 7****Tuesday**

- 16:00–16:30 Abstract Logical Model Checking of Infinite-State Systems Using Narrowing  
*Kyungmin Bae, Santiago Escobar and Jose Meseguer*
- 16:30–17:00 Automatic Decidability: A Schematic Calculus for Theories with Counting Operators  
*Elena Tushkanova, Christophe Ringeissen, Alain Giorgetti and Olga Kouchnarenko*
- 17:00 RTA Business Meeting

## Wednesday, June 26

### RTA Session 9 = TLCA Session 1, Room 7

Wednesday

- 09:00–10:00 Type-Directed Compilation in the Wild: Haskell and Core  
(invited talk)  
*Simon Peyton-Jones*

### TLCA Session 2, Room 8

Wednesday

- 10:25–10:30 TLCA Opening and Welcome
- 10:30–11:00 System Fi: a Higher-Order Polymorphic Lambda Calculus with Erasable Term-Indices  
*Ki Yung Ahn, Tim Sheard, Marcelo Fiore and Andrew Pitts*
- 11:00–11:30 Proof-Relevant Logical Relations for Name Generation  
*Nick Benton, Martin Hofmann and Vivek Nigam*
- 11:30–12:00 Completeness of Conversion between Reactive Programs for Ultrametric Models  
*Paula Severi and Fer-Jan de Vries*

### RTA Session 10, Room 7

Wednesday

- 10:30–11:00 Algorithms for Alpha-Equivalence and Complexity  
*Manfred Schmidt-Schauss, Conrad Rau and David Sabel*
- 11:00–11:30 A Combination Framework for Complexity  
*Martin Avanzini and Georg Moser*
- 11:30–12:00 Compression of Rewriting Systems for Termination Analysis  
*Alexander Bau, Markus Lohrey, Eric Noeth and Johannes Waldmann*

### RTA Session 11, Room 7

Wednesday

- 14:00–14:30 Beyond Peano Arithmetic Automatically Proving Termination of the Goodstein Sequence  
*Sarah Winkler, Harald Zankl and Aart Middeldorp*
- 14:30–15:00 Tyrolean Complexity Tool: Features and Usage  
*Martin Avanzini and Georg Moser*
- 15:00–15:30 Termination Competition  
*René Thiemann*

**TLCA Session 3, Room 8****Wednesday**

- 14:00–14:30 A Type-Checking Algorithm for Martin-Loef Type Theory with Subtyping Based on Normalisation by Evaluation  
*Daniel Fridlender and Miguel Pagano*
- 14:30–15:00 Moritz Martens and Jakob Rehof Intersection Type Matching with Subtyping  
*Boris Duedder*
- 15:00–15:15 About “Lambda Calculus with Types”  
*Henk Barendregt*
- 15:15–15:30 On TLCA List of Open Problems  
*Pawel Urzyczyn*

**Excursion, Conference Dinner, DAF Museum****Wednesday**

- 17:00 Excursion
- 19:00 Conference Dinner

**Thursday, June 27****TLCA Session 4, Room 7****Thursday**

- 09:00–10:00 Proving with Side-Effects (invited talk)  
*Hugo Herbelin*

**IFIP WG 1.6 Session 1, Room 12a****Thursday**

- 09:00–09:30 Automata-Based Parsing by Run Rewriting  
*Aaron Stump*
- 09:30–10:00 Vincent van Oostrom (chair):  
Discussion on ISR  
Report on ISR 2014 in Valparaiso, change in ISR Bylaws, proposals for ISR 2015

**UNIF Session 1, Room 12b****Thursday**

- 09:00–10:00 Unification and Anti-unification modulo Equational Theories (invited talk)  
*Santiago Escobar*

**TLCA Session 5, Room 7****Thursday**

- 10:30–11:00 Games with Sequential Backtracking and Complete Game Semantics for Subclassical Logics  
*Stefano Berardi and Makoto Tatsuta*
- 11:00–11:30 Realizability for Peano Arithmetic with Winning Conditions in HO Games  
*Valentin Blot*
- 11:30–12:00 On Interaction, Continuations and Defunctionalization  
*Ulrich Schoepp*

**IFIP WG 1.6 Session 2, Room 12a****Thursday**

- 10:30–11:00 Unranked Tree Rewriting and Effective Closures of Languages  
*Florent Jacquemard*
- 11:00–11:30 Unification, Matching, and Transformation of Unranked Terms  
*Temur Kutsia*
- 11:30–11:45 Georg Moser (chair):  
Discussion on the Future of RTA  
RTA and TLCA, RTA at FLoC 2014, application papers at RTA
- 11:45–12:00 Hans Zantema (chair):  
Discussion on the List of Open Problems in Rewriting  
(every participant of the meeting is encouraged to bring an open problem)

**UNIF Session 2, Room 12b****Thursday**

- 10:30–11:00 Unification Problems Modulo a Theory of Until  
*Shreyaben Brahmakshatriya, Sushma Danturi, Kimberly Gero and Paliath Narendran*
- 11:00–11:30 Hybrid Unification in the Description Logic EL  
*Franz Baader, Oliver Fernandez Gil and Barbara Morawska*
- 11:30–12:00 Detecting ACU Structural Symmetries  
*Maria Alpuente, Santiago Escobar and Javier Espert*

**IFIP WG 1.6 Session 3, Room 12a****Thursday**

- 13:00–14:00 Jürgen Giesl (chair)  
Business Meeting (WG members only)

**HART Session 1, Room 12a****Thursday**

- 14:00–14:30 A Haskell Library for Term Rewriting  
*Bertram Felgenhauer, Martin Avanzini and Christian Sternagel*
- 14:30–15:00 Certified HLints with Isabelle/HOLCF-Prelude  
*Joachim Breitner, Brian Huffman, Neil Mitchell and Christian Sternagel*



15:00–15:30 Type-Changing Program Transformations with Pattern Matching  
*Joeri van Eekelen, Sean Leather and Johan Jeuring*

**UNIF Session 3, Room 12b**

**Thursday**

14:00–15:00 Anti-Unification: Algorithms and Applications (invited talk)  
*Temur Kutsia*

**TLCA Session 6, Room 7**

**Thursday**

14:30–15:00 Non-Determinism and the Strong Normalization of System T  
*Federico Aschieri and Margherita Zorzi*

15:00–15:30 Bounding Skeletons, Locally Scoped Terms and Exact Bounds for Linear Head Reduction  
*Pierre Clairambault*

**UNIF Session 4, Room 12b**

**Thursday**

15:30–16:00 Is it possible to unify sequential programs?  
*Tatyana Novikova and Vladimir Zakharov*

16:00–16:30 Hierarchical Combination of Unification Algorithms  
*Serdar Erbatur, Deepak Kapur, Andrew M Marshall, Paliath Narendran and Christophe Ringeissen*

16:30–17:00 Unranked Anti-Unification with Hedge and Context Variables  
*Alexander Baumgartner and Temur Kutsia*

**TLCA Session 7, Room 7**

**Thursday**

16:00–16:30 Using Models to Model-check Recursive Schemes  
*Sylvain Salvati and Igor Walukiewicz*

16:30–17:00 The Resource Lambda Calculus is Short-Sighted in Its Relational Model  
*Flavien Breuwart*

17:30 TLCA Business Meeting

**HART Session 2, Room 12a**

**Thursday**

16:00–16:30 Propositional Encoding of Constraints over Tree-Shaped Data  
*Alexander Bau and Johannes Waldmann*

16:30–17:00 Towards a Verification Framework for Haskell by Combining Graph Transformation Units and SAT Solving  
*Marcus Ermler*

17:00–17:30 *(Panel Discussion)*  
How can Haskell support rewriting better? What can rewriting learn from Haskell?

## Friday, June 28

### TLCA Session 8, Room 7

Friday

09:00–10:00 Non-Linearity as the Metric Completion of Linearity (invited talk)  
*Damiano Mazza*

### IWC Session 1, Room 12a

Friday

09:00–09:05 Opening

09:05–10:00 Three Termination Problems (invited talk)  
*Patrick Dehornoy*

10:30–10:50 Disproving Confluence of Term Rewriting Systems by  
Interpretation and Ordering  
*Takahito Aoto*

10:50–11:10 Automatically Finding Non-confluent Examples in Term Rewriting  
*Hans Zantema*

11:10–11:30 Confluent Unfolding in the Lambda-Calculus with letrec  
*Jan Rochel and Clemens Grabmayer*

11:30–11:50 Rule Labeling for Confluence of Left-Linear Term Rewrite Systems  
*Bertram Felgenhauer*

11:50–12:10 Commutation via Relative Termination  
*Nao Hirokawa and Aart Middeldorp*

### WIR Session 1, Room 12b

Friday

09:00–09:30 Infinitary Lambda Calculi from a Linear Viewpoint  
*Ugo Dal Lago*

09:30–10:00 Closure Operators, Equivalences and Models — a Reader's Digest  
*Stefan Kahrs*

### TLCA Session 9, Room 7

Friday

10:30–11:00 Small Induction Recursion  
*Peter Hancock, Conor McBride, Neil Ghani, Lorenzo Malatesta  
and Thorsten Altenkirch*

11:00–11:30 Generalizations of Hedberg's Theorem  
*Nicolai Kraus, Martin Escardo, Thierry Coquand and Thorsten  
Altenkirch*

- 11:30–12:00 A Constructive Model of Uniform Continuity  
*Chuangjie Xu and Martin Escardo*
- 12:00–12:10 Closing

**WIR Session 2, Room 12b**

**Friday**

- 10:30–11:00 Orthogonality and Weak Convergence in Infinitary Rewriting  
*Stefan Kahrs*
- 11:00–11:30 A Coinductive Treatment of Infinitary Term Rewriting  
*Joerg Endrullis, Helle Hvid Hansen, Dimitri Hendriks, Andrew Polonsky and Alexandra Silva*
- 11:30–12:00 Infinitary Standardisation — Computed  
*Jeroen Ketema*

**IWC Session 2 = WIR Session 3, Room 7**

**Friday**

- 14:00–14:45 Confluence and Infinity — a kaleidoscopic view  
*Jan Willem Klop (invited talk)*

**IWC Session 3, Room 7**

**Friday**

- 15:00–15:30 2nd Confluence Competition (CoCo 2013)

**WIR Session 4, Room 12b**

**Friday**

- 15:30–16:00 Proof Terms for Infinitary Rewriting  
*Carlos Lombardi, Alejandro Rios and Roel de Vrijer*
- 16:00–16:30 Challenges, discussion

**IWC Session 4, Room 7**

**Friday**

- 16:00–16:20 Proving Confluence of Conditional Term Rewriting Systems via Unravelings  
*Karl Gmeiner, Naoki Nishida and Bernhard Gramlich*
- 16:20–16:40 A Confluent Pattern Calculus with Hedge Variables  
*Sandra Alves, Besik Dundua, Mario Florido and Temur Kutsia*
- 16:40–17:00 Synchronizing Applications of the Parallel Moves Lemma to Formalize Confluence of Orthogonal TRSs in PVS  
*Ana Cristina Rocha Oliveira, André Luiz Galdino and Mauricio Ayala-Rincón*
- 17:00–17:20 KBCV 2.0 - Automatic Completion Experiments  
*Thomas Sternagel*
- 17:20–17:40 Confluent Let-Floating  
*Clemens Grabmayer and Jan Rochel*
- 17:40–17:45 Closing

