Appendix

In this appendix, we provide the reader with interesting and relevant information about CHR research. It serves as a starting point for potential future researchers. We first provide a carefully selected list of the most influential papers on CHR, before we offer complete lists of books, surveys, and theses related to CHR. Finally, we provide a list of CHR researchers, ordered by country.

A.1 Most Influential Papers, So Far

In 2011 it is 20 years that the Constraint Handling Rules (CHR) language was designed. This anniversary provides a good reason to find out which are the best, i.e. most influential, papers published on CHR so far. The following papers have been selected using a online survey and citation frequencies. The papers include basic theory, analysis, compilation but also a number of highly successful applications of CHR. Most of these papers are available online, the CHR website with its extensive bibliography is a good starting point. Of course, such lists are always incomplete and they are only a snapshot of a vivid research field.

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S. Abdennadher and M. Marte. University course timetabling using constraint handling rules. *Applied Artificial Intelligence*, 14(4):311–325, 2000.

G.J. Duck, P.J. Stuckey, M. García de la Banda, and C. Holzbaur. The refined operational semantics of Constraint Handling Rules. In B. Demoen and V. Lifschitz, editors, *Proceedings of the 20th International Conference on Logic Programming, LNCS 3132*, pages 120–136. Springer, 2004.

T. Frühwirth. Theory and practice of constraint handling rules. *The Journal of Logic Programming*, 37(1-3):95–138, 1998. ISSN 0743-1066.

C. Holzbaur, M.G. De La Banda, P.J. Stuckey, and G.J. Duck. Optimizing compilation of constraint handling rules in HAL. *Theory and Practice of Logic Programming*, 5(4-5): 503–531, 2005. ISSN 1471-0684.

J. Sneyers, T. Schrijvers, and B. Demoen. The computational power and complexity of Constraint Handling Rules. *ACM Transactions on Programming Languages and Systems (TOPLAS)*, 31(2):1–42, 2009. ISSN 0164-0925.

P.J. Stuckey and M. Sulzmann. A theory of overloading. *ACM Transactions on Programming Languages and Systems (TOPLAS)*, 27(6):1216–1269, 2005. ISSN 0164-0925.

M. Thielscher. FLUX: A logic programming method for reasoning agents. *Theory and Practice of Logic Programming*, 5(4-5):533–565, 2005. ISSN 1471-0684.

J. Van Ossenbruggen, J. Geurts, F. Cornelissen, L. Hardman, and L. Rutledge. Towards second and third generation web-based multimedia. In *Proceedings of the 10th international conference on World Wide Web*. ACM, 2001. ISBN 1581133480.

A.2 Literature available on CHR

In this section, we provide pointers to relevant literature on Constraint Handling Rules for the interested reader. The following sections individiually present books, applications, surveys, and theses. A bibliography of about 300 selected papers can be found at the CHR website. New research papers on CHR are regularily published at the following conferences, workshops, and journals:

- Intl. Conf. Logic Programming
- Intl. Conf. Princ. Pract. Declarative Programming
- Intl. Symp. Logic-Based Program Synthesis and Transformation
- Intl. Conf. Princ. Pract. Constraint Programming
- Workshop on Constraint Handling Rules
- Workshop on Logic Programming
- Workshop on Functional and Logic Programming
- Theory and Practice of Logic Programming

Books

Thom Frühwirth and Slim Abdennadher. *Essentials of Constraint Programming*. Springer-Verlag, 2003. ISBN 3-540-67623-6.

The first book that presents constraint logic programming languages and constraint solving systems in a uniform and concise way, using CHR as a specification and implementation language.

Tom Schrijvers and Thom Frühwirth, editors. *Constraint Handling Rules — Current Research Topics*, volume 5388 of *Lecture Notes in Artificial Intelligence*. Springer-Verlag, December 2008. doi: 10.1007/978-3-540-92243-8.

A selection of recent research papers on CHR.

Thom Frühwirth. *Constraint Handling Rules*. Cambridge University Press, 2009. ISBN 9780521877763.

The standard reference authored by the designer of CHR - Provides a CHR tutorial for easy introduction - An essential source for researchers, lecturers, graduate students and professional programmers.

Surveys

Thom Frühwirth. Theory and Practice of Constraint Handling Rules. *Journal of Logic Programming, Special Issue on Constraint Logic Programming*, 37(1–3):95–138, October 1998. doi: 10.1016/S0743-1066(98)10005-5.

Jon Sneyers, Peter Van Weert, Tom Schrijvers, and Leslie De Koninck. As Time Goes By: Constraint Handling Rules – A Survey of CHR Research between 1998 and 2007. *Theory and Practice of Logic Programming*, 10(1):1–47, 2010. doi: 10.1017/S1471068409990123.

Theses

Thom Frühwirth. *A Declarative Language for Constraint Systems: Theory and Practice of Constraint Handling Rules.* Habilitationsschrift, LMU, Germany, December 1997.

Armin Wolf. *Adaptive Constraintverarbeitung mit Constraint-Handling-Rules.* PhD thesis, Technical University Berlin, Germany, 1999.

Slim Abdennadher. *Rule-based Constraint Programming: Theory and Practice.* Habilitationsschrift, LMU, Germany, July 2001.

Aykut Firat. *Information Integration Using Contextual Knowledge and Ontology Merging.* PhD thesis, USA, September 2003.

Marco Alberti. *A Computational Logic-based System for Specification and Verification of Agent Interaction.* PhD thesis, University of Ferrara, Italy, 2005.

Gregory J. Duck. *Compilation of Constraint Handling Rules.* PhD thesis, University of Melbourne, Australia, December 2005.

Alma Barranco-Mendoza. *Stochastic and heuristic modelling for analysis of the growth of pre-invasive lesions and for a multidisciplinary approach to early cancer diagnosis.* PhD thesis, Simon Fraser University, Canada, 2005.

Tom Schrijvers. *Analyses, optimizations and extensions of Constraint Handling Rules.* PhD thesis, K.U.Leuven, Belgium, June 2005.

Kimberly Voll. *A methodology of error detection: Improving speech recognition in radiology.* PhD thesis, Simon Fraser University, Canada, 2006.

Jeremy Wazny. *Type inference and type error diagnosis for Hindley/Milner with extensions.* PhD thesis, University of Melbourne, Australia, 2006.

Leslie De Koninck. *Execution Control for Constraint Handling Rules.* PhD thesis, K.U.Leuven, Belgium, November 2008.

Mark Meister. *Advances in Constraint Handling Rules.* PhD thesis, Ulm University, Germany, 2008.

Jon Sneyers. *Optimizing Compilation and Computational Complexity of Constraint Handling Rules.* PhD thesis, K.U.Leuven, Belgium, November 2008.

Paolo Tacchella. *Constraint Handling Rules — Compositional Semantics and Program Transformation.* PhD thesis, Dept. Comp. Sc., University of Bologna, Italy, March 2008.

Cinzia Di Giusto. *Expressiveness of Concurrent Languages.* PhD thesis, Dept. Comp. Sc., University of Bologna, Italy, March 2009.

Jairson Vitorino. *Model-Driven Engineering a Versatile, Extensible, Scalable Rule Engine through Component Assembly and Model Transformations.* PhD thesis, Federal University of Pernambuco, Brazil, February 2009.

Frank Raiser. *Graph Transformation Systems in Constraint Handling Rules: Improved Methods for Program Analysis.* PhD thesis, Ulm University, Germany, November 2010.

Peter Van Weert. *Extension and Optimising Compilation of Constraint Handling Rules.* PhD thesis, K.U.Leuven, Belgium, May 2010.

A.3 CHR Researchers by Country

The following is a list of CHR researchers by country:

Germany Hariolf Betz, Thom Frühwirth, Mark Meister, Frank Raiser, Martin Sulzmann, Jairson Vitorino, Armin Wolf

Belgium Bart Demoen, Leslie De Koninck, Paolo Pilozzi, Jon Sneyers, Tom Schrijvers, Peter Van Weert

Australia María García de la Banda, Gregory J. Duck, Peter J. Stuckey

Italy Marco Alberti, Maurizio Gabbrielli, Marco Gavanelli, Evelina Lamma, Jacopo Mauro, Paola Mello, Maria Chiara Meo, Paolo Tacchella, Paolo Torroni

France François Fages, Thierry Martinez, Eric Monfroy

Spain Rémy Haemmerlé

Singapore Edmund S.L. Lam

Brazil Jacques Robin

Egypt Slim Abdennadher

Denmark Henning Christiansen

Canada Verónica Dahl

Austria Christian Holzbaur

USA Beata Sarna-Starosta

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