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A Tutorial on Constraint Handling Rules

Dr. Rémy Haemmerlé

Grupo CLIP. Departamento de Inteligencia Artificial
Universidad Politécnica de Madrid

Facultad de Informática

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entrada libre hasta completar el aforo

resumen:

Constraint Handling Rules (CHR) is a concurrent, committed-choice, rule-based programming language introduced in the 1990s by Frühwirth. CHR was originally designed for the design and the implementation of constraint solvers. It has since come into use as a general-purpose concurrent programming language. CHR is available as a language extension in many (constraint) logic programming implementations, as well as in imperative languages such as Java. Owing to its origins in the tradition of Constraint Logic Programming (CLP) (CLP), CHR feature declarative semantics through direct interpretation in logic. In combination with rewriting techniques, these logical semantics have been used to study properties of CHR computations, such as soundness, completeness, consistency, termination and confluence. From a more pragmatic point of view, a CHR program can be viewed as a set of production rules. Then the CHR system applies this rules exhaustively to an initial multiset of constrained atoms until it reaches a fixpoint. Despite this apparent simplicity, CHR hides a great express power. For instance it can be used to the rapid prototyping of constraint solvers and type checkers. Also it subsumes Prolog's co-routining mechanism and guard Horn clauses. This tutorial will mainly focus on the pragmatic aspect. Through a series of examples, the different kind of rules and the different operational semantics of the language will be introduced. This tutorial will also covers interaction with the host language, use of impure features, usefully programming tips, and common pitfalls. It will be concluded by a brief overview of the formal aspects of the language that may interest researchers in declarative programming and rewriting formalisms.

Sobre Rémy Haemmerlé:

Rémy Haemmerlé is a post-doctoral researcher at the technical university of Madrid (UPM). Remy obtained his Ph.D. in 2008 from INRIA on modularity of linear concurrent constraint programming, a formal programming framework semantically close to CHR. Many of his recent research publications address semantics aspect of the CHR language. In 2012, Remy received a grant research from UPM (Campus of international excellence, Montegancedo), for studying relationship relationship between CLP, CHR, and Coinduction. Remy is today a recognized member of the CHR research community and hence has been member of the program committee of International Workshop dedicated to this language for the last five years.