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Integration of Declarative Paradigms

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Abstract

Since the initial efforts in reconciling the styles of functional programming and logic programming, there has been significant work done regarding efficient implementation. Also, new declarative paradigms, such as constraint-based or object-based, have now emerged, asking naturally to be conjugated and exploited along with other such programming techniques. As a result, interest in the integration of declarative paradigms has been spurred anew. This workshop aims at bringing together researchers from different communities as well as giving the logic programming audience an idea of recent advances. Topics are: language features, semantics, execution principles, implementation issues, constraints, types, functions, and concurrency.

Preface

The integration of declarative paradigms and, in particular, the integration of functional and logic programming, was an active area of research some years ago. Since then, new declarative models and languages have been proposed that were shown to be feasible.

Recently, interest for this kind of languages has been spurred anew, especially for what concerns efficient implementation. Currently, there is active research in:

- Design of new programming languages accounting for a mature and up-to-date understanding of previously studied features meant to improve the expressive power of declarative languages (lazy evaluation, higher-order objects, types, object orientation, etc...).
- Development of efficient implementations. The proposals combine existing techniques from logic programming (e.g., WAM, mode analysis, abstract interpretation) and functional programming (e.g., graph reduction, strictness analysis, optimization of deterministic computations) as well as new techniques (e.g., combination of normalization and narrowing, residuation and coroutining, parallelization).
- Integration with other paradigms, like the inclusion of constraints, real-time programming, visual programming, etc.

The workshop on "Integration of Declarative Paradigms" aims at bringing together researchers from different communities as well as giving the logic programming audience an idea of recent advances in the area. Topics are: language features, semantics, execution principles, implementation issues, constraints, types, functions, and concurrency.

This report contains the submissions that have been accepted for presentation at the workshop. This workshop is held in conjunction with the Eleventh International Conference on Logic Programming (ICLP'94) in Santa Margherita Ligure at June 18, 1994.

In the spirit of a workshop, the contributions presented here have not been submitted to a thorough refereeing and do not mean to report definite and stable results. Rather, they were selected as a fair representation of current research activities with the purpose of cross-fertilizing ideas. It is hoped that this will help the authors and the audience bring emerging ideas to bear fruit.

We thank everyone who cared to send us their work for consideration.

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