Editorial

Special Issue Dedicated to the Sixth International Symposium on Functional and Logic Programming (FLOPS 2002)

FLOPS is a forum for research on all issues concerning functional programming and logic programming. In particular, it aims to stimulate the cross-fertilization as well as integration of the two paradigms. The symposium takes place about every 1.5 years in Japan. Previous FLOPS meetings were held in Fuji-Susono (1995), Shonan (1996), Kyoto (1998), Tsukuba (1999), and Tokyo (2001).

This special issue contains revised and extended versions of three papers selected from those presented at the symposium held in University of Aizu, September 15–17, 2002. All papers have been resubmitted after the symposium to a new reviewing process so as to meet the standards of JFLP. Each paper has been carefully reviewed by three referees.

The first article by Rafael Caballero and Francisco J. López-Fraguas presents a simple, but non-trivial, extension of the technique known as *dynamic cut* for functional logic programming languages. It addresses a static analysis of determinism as well as the modification of the segment of the generated code where the cut is feasible. With dynamic cuts, the efficiency in both time and space is gained where redundant nondeterministic computations are avoided. An implementation based on a Prolog-translation is proposed, making it easy to incorporate the technique in the systems that generate Prolog codes.

The next paper by Miguel García-Díaz and Susana Nieva aims to extend the logic of Hereditary Harrop formulas to a generic constraint logic programming scheme. It provides a foundation for a particular instance of this scheme, by specifying a constraint domain combing Herbrand terms and real numbers, and by showing how satisfiability of quantified constraints can be checked. A language HH (RH) is investigated to allow Hereditary Harrop formulas over a constraint domain of reals together with data constructors (Herbrand terms), and a transformation technique is proposed to make it possible to combine Herbrand unification with well-known procedures for solving polynomials.

Finally, the article by Eijiro Sumii and Hideo Bannai presents a formalization and implementation of the functional language VML, a non-trivial extension of ML with hypothetical views proposed by discovery scientists for assisting the process of knowledge discovery. A hypothetical view is used to represent a value together with information that describes how the value was created. Prior to this paper, the VML language had only an informal definition which was found problematic both in theory and in practice. The formalization of VML given in this paper relies on a simple but carefully designed extension VMλ of the standard simply typed call-by-value λ-calculus. The paper also presents a real implementation of VMλ based on the OCaml language, making extensive use of some advanced features of OCaml.

We thank all the people who contributed to this special issue. In particular, we wish to thank all the referees for their careful reviews and the authors for preparing and submitting extended versions of their conference papers.

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