Editorial

The publication of this first issue of the *Theory and Practice of Logic Programming* (TPLP) is an important milestone in the history of logic programming. The field of logic programming started in the early 1970s and is based on the seminal work of J. Alan Robinson who developed the well-known Robinson resolution principle that revolutioned the field of automated reasoning and upon which logic programming is based. The field of logic programming was created by Alain Colmerauer and Robert Kowalski in the early 1970s[1]. Alain Colmerauer and his group developed the first logic programming language, **Prolog** (**PRO**grammation en **LOG**ique).

Robert Kowalski modified the resolution principle by limiting it to Horn clauses and by extending it to a formalism amenable for computing. His work with van Emden provided semantic foundations to this approach to programming. The importance of logic programming is that it is a *declarative* rather than a *procedural* programming language.

From these beginnings, the field of logic programming expanded to include theories of nonmonotonic reasoning, general logic programs, where one could have a disjunction of literals in the head of a clause and a conjunction of literals and default negated literals in the body of a clause. Default theories of artificial intelligence, *circumscription, default logic, and autoepistemic reasoning* have been shown to be computable using extensions of logic programming. The theory of logic programming led to *Datalog*, an extension of relational databases. *Datalog* and its extensions which include default negation, permit more expressive knowledge bases than was possible with the theory of relational databases. It is not possible to expand upon all the accomplishments of logic programming that have taken place since the 1970s. I will mention some important topics that have evolved because of logic programming: abductive, inductive, and constraint logic programming, diagnostic reasoning, mechanical verification of hardware, implementation of systems to handle general logic programs and disjunctive general logic programs, and computational complexity, to name but a few topics.

Because of the burgeoning work in logic programming that followed the early developments, J. Alan Robinson recognized the need for a journal devoted to this subject and became the Founding Editor-in-Chief of the *Logic Programming Journal.* In June, 1984, the first issue of the *Journal of Logic Programming*, was published with Professor Robinson the Founding Editor-in-Chief. The journal flourished from its

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[1] In addition to Colmerauer and Kowalski, others had conceived of similar concepts at about the same time: Ted Elcock developed a system *ABSET*, which was basically a logic programming system and Carl Hewitt developed *Planner*, which although advertised as a procedural-oriented system, had a declarative component.

inception and became the premier journal for articles related to logic programming and its extended topics. Please see the Invited Editorial by Prof. Robinson in this issue.

Over the past few years, however, the editors of the JLP and the Association of Logic Programming (ALP) have been concerned that the cost of JLP subscriptions would make it increasingly difficult for libraries to subscribe. During negotiations it became clear that the publisher did not share that view, and in November 1999 the then JLP editorial board took the unanimous decision to publish a new journal, TPLP, with Cambridge University Press, who were able to meet their pricing criteria and were willing for accepted papers to be posted in the Computing Research Repository (CoRR), at http://arXiv.org/archive/cs/intro.html.

Dr. Maurice Bruynooghe was the Editor-in-Chief (E-i-C) of the *JLP* from 1991 up to December 31, 2000. The *JLP* flourished under his leadership. Dr. Bruynooghe felt obligated both to authors whose papers had been accepted, but had not yet appeared in the JLP, and to Elsevier through the year 2000, and chose not to become the E-i-C of the TPLP. The Association for Logic Programming and the resigning board of the JLP asked if I would agree to be the Founding Editor-in-Chief. I did so with the condition that I relinquish the position to Dr. Bruynooghe at the earliest possible time. With the publication of this issue, I have submitted my resignation to Cambridge University Press and Dr. Bruynooghe has been appointed E-i-C as of the date of this issue. It has been my honor and privilege to serve the logic programming community in this new development. The area editors of the *TPLP* are experienced and all but one served as Area Editor for the *JLP*. I wish to thank them and especially Krzysztof Apt, President of the ALP, and Maurice Bruynooghe who were particularly helpful during the formation of the journal this past year. In June 2000, Dr. Bruynooghe became Managing Editor of the TPLP and was especially helpful in this capacity. The journal now returns to his capable hands.

In addition to the usual technical articles, the journal will feature two new sections: *Logic Programming Pearls*, under the direction of Dr. Lee Naish, and *Book Reviews*, under the direction of Dr. Krzysztof Apt. The idea of publishing programming pearls stems from Jon Bentley's column in the *Communications of ACM* and the analogous section in the sister *Journal of Functional Programming* from Cambridge University Press. In this issue of the TPLP there is a review of the book, *Logic in Computer Science: Modelling and Reasoning about Systems*, by Michael R. A. Huth and Mark D. Ryan. There is also a statement in this issue as to what constitutes a logic programming pearl. Pearls written for *Logic Programming Pearls* will be refereed as are all technical papers. We expect to have pearls appear in subsequent issues of the journal.

We greatly appreciate the support of the logic programming community, and look forward to a long and productive association with Cambridge University Press.

Jack Minker
Editor-in-Chief