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**Book Review**

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Anyone who has followed developments in Formal Methods will have observed the proliferation of logics for reasoning about programs. These include Hoare logics, weakest-precondition logics, process algebras, temporal logics and domain theories. How can all these logics, each evolving seemingly endless variations, receive machine support? Can all these logics, each evolving seemingly endless variations, receive machine support? These include universal calculi that could represent other logics in a uniform manner. A machine implementation of a logical framework would support formal reasoning in many other logics.

Ironically, there is now a proliferation of logical frameworks: the Automath languages, Martin-Löf's framework, the Edinburgh Logical Framework (ELF), intuitionistic higher-order logic, the Calculus of Constructions. Many of these are no longer regarded as universal calculi, but as logics for reasoning about programs. They require machine support; several computer implementations have been built.

This does not mean that we have fruitlessly gone in a circle. Logical frameworks tell us much about the formalisation of abstraction in mathematics, and its connection with abstraction in programming. They are equally at home with general mathematical constructions and computational reasoning.

The ESPRIT Basic Research Action devoted to this area held a major workshop in May 1989. The book *Logical Frameworks*, which appeared sixteen months later, is a refereed selection of the papers presented there. The speed of the editorial process has left quite a few typos, but none of the papers are seriously damaged. The book is divided into six parts, such as Implementations, Type Theory and Logical Issues. There is not enough space to discuss all the articles that I found interesting; here are a few of them.

The book demonstrates the formidable difficulties and how he is overcoming them. The paper by David Pym and Lincoln Wallen is also concerned with the only source for this material. An alternative is *Logic in Computer Science*, edited by P. Odifreddi, which presents expository articles on various aspects of the subject, and is more accessible for non-specialists. *Logical Frameworks* is at the cutting edge of research, and is correspondingly more difficult for the uninitiated. Most of the articles pack a heavy dose of formalism. Despite this, the book demands consideration by any computer scientist whose work is concerned with logic.