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Foreword

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International Standard ISO/IEC 13211-2 was prepared by Joint Technical Committee ISO/IEC JTC 1, *Information technology*, Subcommittee SC 22, *Programming languages, their environments and system software interfaces*.

ISO/IEC 13211 consists of the following parts, under the general title *Information technology — Programming languages — Prolog*:

— *Part 1: General core*

— *Part 2: Modules*

Introduction

This is the first International Standard for Prolog, Part 2 (Modules). It was produced on May 1, 2000.

Prolog (Programming in Logic) combines the concepts of logical and algorithmic programming, and is recognized not just as an important tool in AI (Artificial Intelligence) and expert systems, but as a general purpose high-level programming language with some unique properties.

The language originates from work in the early 1970s by Robert A. Kowalski while at Edinburgh University (and ever since at Imperial College, London) and Alain Colmerauer at the University of Aix-Marseilles in France. Their efforts led in 1972 to the use of formal logic as the basis for a programming language. Kowalski's research provided the theoretical framework, while Colmerauer's gave rise to the programming language Prolog. Colmerauer and his team then built the first interpreter, and David Warren at the AI Department, University of Edinburgh, produced the first compiler.

The crucial features of Prolog are unification and backtracking. Unification shows how two arbitrary structures can be made equal, and Prolog processors employ a search strategy which tries to find a solution to a problem by backtracking to other paths if any one particular search comes to a dead end.

Prolog is good for windowing and multimedia because of the ease of building complex data structures dynamically, and also because the concept of backing out of an operation is built into the language. Prolog is also good for interactive web applications because the language lends itself to both the production and analysis of text, allowing for production of HTML 'on the fly'.

This International Standard defines syntax and semantics of modules in ISO Prolog. There is no other International Standard for Prolog modules.

Modules in Prolog serve to partition the name space and support encapsulation for the purposes of constructing large systems out of smaller components. The module system is procedure-based rather than atom-based. This means that each procedure is to be defined in a given name space. The requirements for Prolog modules are rendered more complex by the existence of context sensitive procedures.