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Part 2: **Modules**

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Partie 2: Modules

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Foreword

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In the field of information technology, ISO and IEC have established a joint technical committee, ISO/IEC JTC 1. Draft International Standards adopted by the joint technical committee are circulated to national bodies for voting. Publication as an International Standard requires approval by at least 75 % of the national bodies casting a vote.

Attention is drawn to the possibility that some of the elements of this part of ISO/IEC 13211 may be the subject of patent rights. ISO and IEC shall not be held responsible for identifying any or all such patent rights.

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.

Information technology — Programming languages — Prolog — Part 2: Modules

1 Scope

This part of ISO/IEC 13211 is designed to promote the applicability and portability of Prolog modules that contain Prolog text complying with the requirements of the Programming Language Prolog as specified in this part of ISO/IEC 13211.

This part of ISO/IEC 13211 specifies:

a) The representation of Prolog text that constitutes a Prolog module,

b) The constraints that shall be satisfied to prepare Prolog modules for execution, and

c) The requirements, restrictions and limits imposed on a conforming Prolog processor that processes modules.

This part of ISO/IEC 13211 does not specify:

a) The size or number of Prolog modules that will exceed the capacity of any specific data processing system or language processor, or the actions to be taken when the limit is exceeded,

b) The methods of activating the Prolog processor or the set of commands used to control the environment in which Prolog modules are prepared for execution,

c) The mechanisms by which Prolog modules are loaded,

d) The relationship between Prolog modules and the processor-specific file system.

1.1 Notes

Notes in this part of ISO/IEC 13211 have no effect on the language, Prolog text, module text or Prolog processors that are defined as conforming to this part of ISO/IEC 13211. Reasons for including a note include:

a) Cross references to other clauses and subclauses of this part of ISO/IEC 13211 in order to help readers find their way around,

b) Warnings when a built-in predicate as defined in this part of ISO/IEC 13211 has a different meaning in some existing implementations.

2 Normative reference

The following normative document contains provision which, through reference in this text, constitute provisions of this part of ISO/IEC 13211. For dated references, subsequent amendments to, or revisions of, any of these publications do not apply. However, parties to agreements based on this part of ISO/IEC 13211 are encouraged to investigate the possibility of applying the most recent edition of the normative document indicated below. For undated references, the latest edition of the normative document referred to applies. Members of ISO and IEC maintain registers of currently valid International Standards.

ISO/IEC 13211-1 : 1995, *Information technology — Programming languages – Prolog Part 1: General core.*