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Information technology — Programming languages — Prolog —

Part 2: Modules

*Technologies de l'information — Langages de programmation — Prolog —
Partie 2: Modules*

Adopted by INCITS (InterNational Committee for Information Technology Standards) as an American National Standard.

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Fax + 41 22 734 10 79
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Case postale 56 • CH-1211 Geneva 20
Tel. + 41 22 749 01 11
Fax + 41 22 734 10 79
E-mail copyright@iso.ch
Web www.iso.ch

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Contents	Page
Foreword	v
Introduction	vi
1 Scope	1
1.1 Notes	1
2 Normative reference	1
3 Terms and definitions	1
4 Compliance	3
4.1 Prolog processor	3
4.2 Module text	3
4.3 Prolog goal	3
4.4 Prolog modules	3
4.4.1 Prolog text without modules	3
4.4.2 The module user	4
4.5 Documentation	4
4.5.1 Dynamic Modules	4
4.5.2 Inaccessible Procedures	4
5 Syntax	4
5.1 Module text	4
5.2 Terms	4
5.2.1 Operators	4
6 Language concepts and semantics	4
6.1 Related terms	5
6.1.1 Qualified and unqualified terms	5
6.2 Module text	5
6.2.1 Module user	5
6.2.2 Procedure Visibility	5
6.2.3 Module interface	5
6.2.4 Module directives	6
6.2.5 Module body	7
6.2.6 Clauses	7
6.3 Complete database	8
6.3.1 Visible database	8
6.3.2 Examples	8
6.4 Context sensitive predicates	8
6.4.1 Metapredicate built-ins	8
6.4.2 Context sensitive built-ins	9
6.4.3 Module name expansion	9
6.4.4 Examples: Metapredicates	9
6.5 Converting a term to a clause, and a clause to a term	10
6.5.1 Converting a term to the head of a clause	10
6.5.2 Converting a module qualified term to a body	10
6.5.3 Converting the body of a clause to a term	11
6.6 Executing a Prolog goal	12

6.6.1	Data types for the execution model	12
6.6.2	Initialization	12
6.6.3	Searching the complete database	13
6.6.4	Selecting a clause for execution	13
6.6.5	Backtracking	14
6.6.6	Executing a user-defined procedure:	14
6.6.7	Executing a built-in predicate	14
6.7	Executing a control construct	14
6.7.1	call/1	14
6.7.2	catch/3	15
6.7.3	throw/1	15
6.8	Predicate properties	16
6.9	Flags	16
6.9.1	Flag: colon_sets_calling_context	16
6.10	Errors	16
6.10.1	Error classification	16
7	Built-in predicates	16
7.1	The format of built-in predicate definitions	16
7.1.1	Type of an argument	16
7.2	Module predicates	16
7.2.1	current_module/1	17
7.2.2	predicate_property/2	17
7.3	Clause retrieval and information	18
7.3.1	clause/2	18
7.3.2	current_predicate/1	19
7.4	Database access and modification	20
7.4.1	asserta/1	20
7.4.2	assertz/1	21
7.4.3	retract/1	21
7.4.4	abolish/1	22

Foreword

ISO (the International Organization for Standardization) and IEC (the International Electrotechnical Commission) form the specialized system for worldwide standardization. National bodies that are members of ISO or IEC participate in the development of International Standards through technical committees established by the respective organization to deal with particular fields of technical activity. ISO and IEC technical committees collaborate in fields of mutual interest. Other international organizations, governmental and non-governmental, in liaison with ISO and IEC, also take part in the work.

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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.