# The Practice Of Prolog Logic Programming

The computer programming language Prolog is quickly gaining popularity throughout the world. Since Its beginnings around 1970. Prolog has been chosen by many programmers for applications of symbolic computation. including: D relational databases D mathematical logic D abstract problem solving D understanding natural language D architectural design D symbolic equation solving D biochemical structure analysis D many areas of artificial Intelligence Until now. there has been no textbook with the aim of teaching Prolog as a practical programming language. It Is perhaps a tribute to Prolog that so many people have been motivated to learn It by referring to the necessarily concise reference manuals. a few published papers. and by the orally transmitted 'folklore' of the modern computing community. However. as Prolog is beginning to be Introduced to large numbers of undergraduate and postgraduate students. many of our colleagues have expressed a great need for a tutorial guide to learning Prolog. We hope this little book will go some way towards meeting this need. Many newcomers to Prolog find that the task of writing a Prolog program Is not like specifying an algorithm in the same way as In a conventional programming language. Instead. the Prolog programmer asks more what formal relationships and objects occur In his problem.

This volume contains the proceedings of the 24th

International Conference on Logic Programming (ICLP 2008). The conference took place in Udine, Italy during December 9–13, 2008. The conference focuses on the foundations, dev- opments, and applications in the area of logic programming. The ICLP series of conferences is aimed at providing a technical forum for presenting and d- seminating innovative research results in the ?eld of logic programming. The conference features technical presentations, tutorials, invited speakers, and a number of co-located events, including: – The First Workshop on Answer Set Programming and Other Computing Paradigms (ASPOCP 2008) – The Annual Meeting of the ISO/IEC JTC1/SC22/WG17 working group on the standardization of Prolog – The Third International Workshop on Applications of Logic Programming to (Semantic) Web and Web Services (ALPSWS'08) – The18thWorkshoponLogic-basedMethodsin ProgrammingEnvironments (WLPE 2008) – The 8th Colloquium on Implementation of Constraint Logic Programming Systems (CICLOPS 2008) – The 15th RCRA Workshop on Experimental Evaluation of Algorithms for Solving Problems with Combinatorial Explosion ICLP 2008 also featured two special events. The ?rst was the 4th ICLP Doctoral Student Consortium, an event speci?cally organized to encourage p- ticipation and interaction between doctoralstudents working in the area of logic programming. The second event was a special session celebrating 20 years of Stable Model Semantics.

The emphasis in The Craft of Prolog is on using Prolog effectively. It presents a loose collection of topics that

build on and elaborate concepts learned in a first course. Hacking your program is no substitute for understanding your problem. Prolog is different, but not that different. Elegance is not optional. These are the themes that unify Richard O'Keefe's very personal statement on how Prolog programs should be written. The emphasis in The Craft of Prolog is on using Prolog effectively. It presents a loose collection of topics that build on and elaborate concepts learned in a first course. These may be read in any order following the first chapter, "Basic Topics in Prolog," which provides a basis for the rest of the material in the book. Richard A. O'Keefe is Lecturer in the Department of Computer Science at the Royal Melbourne Institute of Technology. He is also a consultant to Quintus Computer Systems, Inc.Contents: Basic Topics in Prolog. Searching. Where Does the Space Go? Methods of Programming. Data Structure Design. Sequences. Writing Interpreters. Some Notes on Grammar Rules. Prolog Macros. Writing Tokenisers in Prolog. All Solutions.

Logic and Programming in Logci gives a fresh look to both Logic and Logic Programming in Prolog. It offers a novel approach for those learning or teaching either Logic or Logic Programming. The chief innovation lies in the melding of both topics: not only does the discussion of provide a good underpinning for the intending Prolog programmer, but the treatment of Prolog also enables the logician to put theory into practice in Prolog and make the subject come alive. The book presumes no prior knowledge of either Prolog, Logic or Logic Programming and takes a very practical approach. It is

written in an unusually easy?to?read and accessible style. Containing over 100 exercises and their solutions, Logic and Programming in Logic may be used either as a textbook or for self study and is ideally suited to those wishing to get a solid grasp of the exciting world of Logic and Logic Programming.

Provides a systematic introduction to the theory of logic programming and shows how this theory can be applied to reason about pure Prolog programs. The text includes an introduction to programming in Prolog and deals with such programming issues as determination, occur-check freedom and absence of errors. It covers both the natural interpretations of logic programming, as declarative specification and as procedure for computer execution. Topics covered: Theoretical Foundations. Higher-Order Logics. Non-Monotonic Reasoning. Programming Methodology. Programming Environments. Extensions to Logic Programming. Constraint Satisfaction. Meta-Programming. Language Design and Constructs. Implementation of Logic Programming Languages. Compilation Techniques. Architectures. Parallelism. Reasoning about Programs. Deductive Databases. Applications. 13-16 June 1995, Tokyo, Japan ICLP, which is sponsored by the Association for Logic Programming, is one of two major annual international conferences reporting recent research results in logic programming. Logic programming originates from the discovery that a subset of predicate logic could be given a procedural interpretation which was first embodied in the programming language, Prolog. The unique features of logic programming make it appealing for numerous

applications in artificial intelligence, computer-aided design and verification, databases, and operations research, and for exploring parallel and concurrent computing. The last two decades have witnessed substantial developments in this field from its foundation to implementation, applications, and the exploration of new language designs. Topics covered: Theoretical Foundations. Higher-Order Logics. Non-Monotonic Reasoning. Programming Methodology. Programming Environments. Extensions to Logic Programming. Constraint Satisfaction. Meta-Programming. Language Design and Constructs. Implementation of Logic Programming Languages. Compilation Techniques. Architectures. Parallelism. Reasoning about Programs. Deductive Databases. Applications. Logic Programming series, Research Reports and Notes
Software -- Programming Languages.
Prolog has a declarative style. A predicate definition includes both the input and output parameters, and it allows a programmer to define a desired result without being concerned about the detailed instructions of how it is to be computed. Such a declarative language offers a solution to the software crisis, because it is shorter and more concise, more powerful and understandable than present-day languages. Logic highlights novel aspects of programming, namely using the same program to compute a relation and its inverse, and supporting deductive retrieval of informa tion. This is a book about using Prolog. Its real point is the examples introduced from Chapter 3 onwards, and so a Prolog programmer does not need to read Chapters 1 and 2, which are

oriented more to teachers and to students, respec tively. The book is recommended for introductory and advanced university courses, where students may need to remember the basics about logic program ming and Prolog, before starting doing. Chapters 1 and 2 were also kept for the sake of unity of the whole material. In Chapter 1 a teaching strategy is explained based on the key concepts of Pro log which are novel aspects of programming. Prolog is enhanced as a computer programming language used for solving problems that involve objects and the relationships between objects. This chapter provides a pedagogical tour of pre scriptions for the organization of Prolog programs, by pointing out the main draw backs novices may encounter. Investigates the application of logic to problem solving and computer programming. Requires no previous knowledge in this field, and therefore can be used as an introduction to logic, the theory of problem-solving and computer programming. Annotation copyrighted by Book News, Inc., Portland, OR Written for those who wish to learn Prolog as a powerful software development tool, but do not necessarily have any background in logic or AI. Includes a full glossary of the technical terms and self-assessment exercises. Logic programming enjoys a privileged position. It is firmly rooted in mathematical logic, yet it is also immensely practical, as a growing number of users in universities, research institutes, and industry are realizing. Logic programming languages, specifically Prolog, have turned out to be ideal as prototyping and

application development languages. This volume presents the proceedings of the Second Logic Programming Summer School, LPSS'92. The First Logic Programming Summer School, LPSS '90, addressed the theoretical foundations of logic programming. This volume focuses onthe relationship between theory and practice, and on practical applications. The introduction to the volume is by R. Kowalski, one of the pioneers in the field. The following papers are organized into sections on constraint logic programming, deductive databases and expert systems, processing of natural and formal languages, software engineering, and education.

The Practice of PrologMIT Press

Discrete Structure, Logic, and Computability introduces the beginning computer science student to some of the fundamental ideas and techniques used by computer scientists today, focusing on discrete structures, logic, and computability. The emphasis is on the computational aspects, so that the reader can see how the concepts are actually used. Because of logic's fundamental importance to computer science, the topic is examined extensively in three phases that cover informal logic, the technique of inductive proof; and formal logic and its applications to computer science.

Not long ago" Dennis Merritt wrote one of the best books that I know of about implementing expert systems in Prolog, and I was very glad he published it in our series. The only problem is there are still some unfortunate people around who do not know Prolog and are not sufficiently prepared either to read Merritt's book, or to

use this extremely productive language, be it for knowledge-based work or even for everyday programming. Possibly this last statement may surprise you if you were under the impression that Prolog was an "artificial intelligence language" with very limited application potential. Please believe this editor's statement that quite the opposite is true: for at least four years, I have been using Prolog for every programming task in which I am given the option of choosing the language. Therefore, I 'am indeed happy that Dennis Merritt has written another good book on my language of choice, and that it meets the high standard he set with his prior book, Building Expert Systems in Prolog. All that remains for me to do is to wish you success and enjoyment when taking off on your Adventure in Prolog. This second edition contains revised chapters taking into account recent research advances. More advanced exercises have been included, and "Part II The Prolog Language" has been modified to be compatible with the new Prolog standard. This is a graduate level text that can be used for self-study.

The practical benefits of computational logic need not be limited to mathematics and computing. As this book shows, ordinary people in their everyday lives can profit from the recent advances that have been developed for artificial intelligence. The book draws upon related developments in various fields from philosophy to psychology and law. It pays special attention to the integration of logic with decision theory, and the use of logic to improve the clarity and coherence of communication in natural languages such as English.

This book is essential reading for teachers and researchers who may be out of touch with the latest developments in computational logic. It will also be useful in any undergraduate course that teaches practical thinking, problem solving or communication skills. Its informal presentation makes the book accessible to readers from any background, but optional, more formal, chapters are also included for those who are more technically oriented.

Knowledge representation and reasoning is the foundation of artificial intelligence, declarative programming, and the design of knowledge-intensive software systems capable of performing intelligent tasks. Using logical and probabilistic formalisms based on answer set programming (ASP) and action languages, this book shows how knowledge-intensive systems can be given knowledge about the world and how it can be used to solve non-trivial computational problems. The authors maintain a balance between mathematical analysis and practical design of intelligent agents. All the concepts, such as answering queries, planning, diagnostics, and probabilistic reasoning, are illustrated by programs of ASP. The text can be used for AI-related undergraduate and graduate classes and by researchers who would like to learn more about ASP and knowledge representation.

Answer set programming (ASP) is a programming methodology oriented towards combinatorial search problems. In such a problem, the goal is to find a solution among a large but finite number of possibilities. The idea of ASP came from research on artificial intelligence and computational logic. ASP is a form of declarative programming: an ASP program describes what is counted as a solution to the problem, but does not specify an algorithm for solving it. Search is performed by sophisticated software

systems called answer set solvers. Combinatorial search problems often arise in science and technology, and ASP has found applications in diverse areas—in historical linguistic, in bioinformatics, in robotics, in space exploration, in oil and gas industry, and many others. The importance of this programming method was recognized by the Association for the Advancement of Artificial Intelligence in 2016, when AI Magazine published a special issue on answer set programming. The book introduces the reader to the theory and practice of ASP. It describes the input language of the answer set solver CLINGO, which was designed at the University of Potsdam in Germany and is used today by ASP programmers in many countries. It includes numerous examples of ASP programs and present the mathematical theory that ASP is based on. There are many exercises with complete solutions.

Prolog Versus You shows how you can take up the gauntlet of the logic programming language Prolog (PROgramming in LOGic) and use it as an obedient programming and problem solving tool. Logic programming emphasizes that programming is a human activity and consequently that programs should be easy for humans to write, understand and manipulate. In a program knowledge about the problem is stated in a logical language without consideration of the underlying machine language. This book has emerged from undergraduate courses in logic programming. The relation to logic is described and the necessary logic is provided continuously. No previous programming experience is assumed and it can be used by beginners as well as by advanced programmers. The book emphasizes the declarative reading of Prolog programs which greatly facilitates the thinking about the problems and yields programs easy to understand. The book covers logic programs, their execution and data structures; databases and

expert systems; program synthesis, program correctness and program transformation as well as an efficient computation of Prolog programs. Each chapter ends with some exercises (with solutions). The book also contains a thorough index, appendices and a chapter on Prolog implementations: DECsystem-10 Prolog, Tricia, Quintus Prolog, MProlog, Turbo Prolog, micro-Prolog and LM-Prolog.

This is a mathematics textbook with theorems and proofs. The choice of topics has been guided by the needs of computer science students. The method of semantic tableaux provides an elegant way to teach logic that is both theoretically sound and yet sufficiently elementary for undergraduates. In order to provide a balanced treatment of logic, tableaux are related to deductive proof systems. The book presents various logical systems and contains exercises. Still further, Prolog source code is available on an accompanying Web site. The author is an Associate Professor at the Department of Science Teaching, Weizmann Institute of Science.

Addressed to readers at different levels of programming expertise, The Practice of Prolog offers a departure from current books that focus on small programming examples requiring additional instruction in order to extend them to full programming projects. It shows how to design and organize moderate to large Prolog programs, providing a collection of eight programming projects, each with a particular application, and illustrating how a Prolog program was written to solve the application. These range from a simple learning program to designing a database for molecular biology to natural language generation from plans and stream data analysis. Leon Sterling is Associate Professor in the Department of Computer Engineering and Science at Case Western Reserve University. He is the coauthor, along with Ehud Shapiro, of The Art of Prolog. Contents: A Simple

Learning Program, Richard O'Keefe. Designing a Prolog Database for Molecular Biology, Ewing Lusk, Robert Olson, Ross Overbeek, Steve Tuecke. Parallelizing a Pascal Compiler, Eran Gabber. PREDITOR: A Prolog-Based VLSI Editor, Peter B. Reintjes. Assisting Register Transfer Level Hardware Design, Paul Drongowski. Design and Implementation of a Partial Evaluation System, Arun Lakhotia, Leon Sterling. Natural Language Generation from Plans, Chris Mellish. Stream Data Analysis in Prolog, Stott Parker.

In writing this book, our goal was to produce a text suitable for a first course in mathematical logic more attuned than the traditional textbooks to the re cent dramatic growth in the applications oflogic to computer science. Thus, our choice oftopics has been heavily influenced by such applications. Of course, we cover the basic traditional topics: syntax, semantics, soundnes5, completeness and compactness as well as a few more advanced results such as the theorems of Skolem-Lowenheim and Herbrand. Much ofour book, however, deals with other less traditional topics. Resolution theorem proving plays a major role in our treatment of logic especially in its application to Logic Programming and PRO LOG. We deal extensively with the mathematical foundations ofall three ofthese subjects. In addition, we include two chapters on nonclassical logics - modal and intuitionistic - that are becoming increasingly important in computer sci ence. We develop the basic material on the syntax and semantics (via Kripke frames) for each of these logics. In both cases, our approach to formal proofs, soundness and completeness uses modifications of the same tableau method in troduced for classical logic. We indicate how it can easily be adapted to various other special types of modal logics. A number of more advanced topics (includ ing nonmonotonic logic) are also briefly introduced both in the nonclassical logic chapters and

in the material on Logic Programming and PROLOG. Programming examples include exercises in the text; does not include programming language.

What sets this book apart from others on logic programming is the breadth of its coverage. The authors have achieved a fine balance between a clear and authoritative treatment of the theory and a practical, problem-solving approach to its applications. This edition introduces major new developments in a continually evolving field and includes such topics as concurrency and equational and constraint logic programming.

Prolog is a programming language, but a rather unusual one. Prolog'' is short for Programming with Logic'', and the link with logic gives Prolog its special character. At the heart of Prolog lies a surprising idea: don't tell the computer what to do. Instead, describe situations of interest, and compute by asking questions. Prolog will logically deduce new facts about the situations and give its deductions back to us as answers. Why learn Prolog? For a start, its say what the problem is, rather than how to solve it'' stance, means that it is a very high level language, good for knowledge rich applications such as artificial intelligence, natural language processing, and the semantic web. So by studying Prolog, you gain insight into how sophisticated tasks can be handled computationally. Moreover, Prolog requires a different mindset. You have to learn to see problems from a new perspective, declaratively rather than procedurally. Acquiring this mindset, and learning to appreciate the links between logic and programming, makes the study of Prolog both challenging and rewarding. Learn Prolog Now! is a practical introduction to this fascinating

language. Freely available as a web-book since 2002 (see www.learnprolognow.org) Learn Prolog Now! has became one of the most popular introductions to the Prolog programming language, an introduction prized for its clarity and down-to-earth approach. It is widely used as a textbook at university departments around the world, and even more widely used for self study. College Publications is proud to present here the first hard-copy version of this online classic. Carefully revised in the light of reader's feedback, and now with answers to all the exercises, here you will find the essential material required to help you learn Prolog now.

This accessible and engaging textbook presents a concise introduction to the exciting field of artificial intelligence (AI). The broad-ranging discussion covers the key subdisciplines within the field, describing practical algorithms and concrete applications in the areas of agents, logic, search, reasoning under uncertainty, machine learning, neural networks, and reinforcement learning. Fully revised and updated, this much-anticipated second edition also includes new material on deep learning. Topics and features: presents an application-focused and hands-on approach to learning, with supplementary teaching resources provided at an associated website; contains numerous study exercises and solutions, highlighted examples, definitions, theorems, and illustrative cartoons; includes chapters on predicate logic, PROLOG, heuristic search, probabilistic reasoning, machine learning and data mining, neural networks and reinforcement learning; reports on developments in deep learning, including

applications of neural networks to generate creative content such as text, music and art (NEW); examines performance evaluation of clustering algorithms, and presents two practical examples explaining Bayes' theorem and its relevance in everyday life (NEW); discusses search algorithms, analyzing the cycle check, explaining route planning for car navigation systems, and introducing Monte Carlo Tree Search (NEW); includes a section in the introduction on AI and society, discussing the implications of AI on topics such as employment and transportation (NEW). Ideal for foundation courses or modules on AI, this easy-to-read textbook offers an excellent overview of the field for students of computer science and other technical disciplines, requiring no more than a high-school level of knowledge of mathematics to understand the material.
Formal systems that describe computations over syntactic structures occur frequently in computer science. Logic programming provides a natural framework for encoding and animating such systems. However, these systems often embody variable binding, a notion that must be treated carefully at a computational level. This book aims to show that a programming language based on a simply typed version of higher-order logic provides an elegant, declarative means for providing such a treatment. Three broad topics are covered in pursuit of this goal. First, a proof-theoretic framework that supports a general view of logic programming is identified. Second, an actual language called ?Prolog is developed by applying this view to higher-order logic. Finally, a methodology for

programming with specifications is exposed by showing how several computations over formal objects such as logical formulas, functional programs, and ?-terms and ?-calculus expressions can be encoded in ?Prolog. Answer Set Programming (ASP) is a declarative problem solving approach, initially tailored to modeling problems in the area of Knowledge Representation and Reasoning (KRR). More recently, its attractive combination of a rich yet simple modeling language with high-performance solving capacities has sparked interest in many other areas even beyond KRR. This book presents a practical introduction to ASP, aiming at using ASP languages and systems for solving application problems. Starting from the essential formal foundations, it introduces ASP's solving technology, modeling language and methodology, while illustrating the overall solving process by practical examples This book is for people who have done some programming, either in Prolog or in a language other than Prolog, and who can find their way around a reference manual. The emphasis of this book is on a simplified and disciplined methodology for discerning the mathematical structures related to a problem, and then turning these structures into Prolog programs. This book is therefore not concerned about the particular features of the language nor about Prolog programming skills or techniques in general. A relatively pure subset of Prolog is used, which includes the 'cut', but no input/output, no assert/retract, no syntactic extensions such as if then-else and grammar rules, and hardly any built-in predicates apart from arithmetic operations. I trust that

practitioners of Prolog program ming who have a particular interest in the finer details of syntactic style and language features will understand my purposes in not discussing these matters. The presentation, which I believe is novel for a Prolog programming text, is in terms of an outline of basic concepts interleaved with worksheets. The idea is that worksheets are rather like musical exercises. Carefully graduated in scope, each worksheet introduces only a limited number of new ideas, and gives some guidance for practising them. The principles introduced in the worksheets are then applied to extended examples in the form of case studies. This text covers natural language processing in Prolog and presumes knowledge of Prolog, but not of linguistics. It includes simple but practical database query systems; covers syntax, formal semantics, and morphology; emphasizes working computer programs that implement subsystems of a natural language processor; features programs that are clearly designed and compatible with any Edinburgh-compatible prolog implementation (Quintas, ESL, Arity, ALS etc.); and contains nearly 100 hands-on Prolog programming exercises and problem sets. A new edition of a book, written in a humorous question-and-answer style, that shows how to implement and use an elegant little programming language for logic programming. The goal of this book is to show the beauty and elegance of relational programming, which captures the essence of logic programming. The book shows how to implement a relational programming language in Scheme, or in any other functional language,

and demonstrates the remarkable flexibility of the resulting relational programs. As in the first edition, the pedagogical method is a series of questions and answers, which proceed with the characteristic humor that marked The Little Schemer and The Seasoned Schemer. Familiarity with a functional language or with the first five chapters of The Little Schemer is assumed. For this second edition, the authors have greatly simplified the programming language used in the book, as well as the implementation of the language. In addition to revising the text extensively, and simplifying and revising the "Laws" and "Commandments," they have added explicit "Translation" rules to ease translation of Scheme functions into relations.
The machine learning capabilities of today's AI are extremely exciting, but they are only one part of the architecture of today's systems. For example, self-driving car technology uses machine learning to interpret the visual field around a car, but it's good old fashioned rule-based AI that contains the plans on what to do with that information.Similarly, the phenomenal program that plays Go at a master level uses machine learning to evaluate board positions (very difficult for a machine to do) but uses conventional AI for deciding what to do with that information.Written a number of years ago, Building Expert Systems in Prolog is still a classic text on knowledge engineering. The name might be a bit misleading, as it's not so much about building expert systems, but rather on building the knowledge representation and reasoning engine tools used for various types of expert system applications. (Including,

of course, examples of each kind of system.)As such, it provides details and working code for identification systems, systems that need to cope with uncertainty, forward-chaining planning and configuration systems, frames for representing complex layers of information, and ideas for prototyping/implementing any way of representing knowledge and algorithms for reasoning over that knowledge.The text is a bit more general than just a Prolog text. Yes, all the code for implementing these systems is written in Prolog, but Prolog is more than just an implementation language. Because it is logic programming, a Prolog program is really a logical specification of an application. Yes it runs, but it can also be used for rapid prototyping, and the Prolog code itself can be used to precisely specify how to implement the system in any other language.In other words, the architectures of these systems will be the same, no matter what language they are implemented in, and the use of Prolog for rapid prototyping is covered in the book as well.

Concurrent programming has become a required discipline for all programmers. Multi-core processors and the increasing demand for maximum performance and scalability in mission-critical applications have renewed interest in functional languages like Erlang that are designed to handle concurrent programming. Erlang, and the OTP platform, make it possible to deliver more robust applications that satisfy rigorous uptime and performance requirements. Erlang and OTP in Action teaches you to apply Erlang's message passing model for concurrent programming--a completely different way of tackling the problem of parallel programming from the more common multi-threaded approach. This book walks you

through the practical considerations and steps of building systems in Erlang and integrating them with real-world C/C++, Java, and .NET applications. Unlike other books on the market, Erlang and OTP in Action offers a comprehensive view of how concurrency relates to SOA and web technologies. This hands-on guide is perfect for readers just learning Erlang or for those who want to apply their theoretical knowledge of this powerful language. You'll delve into the Erlang language and OTP runtime by building several progressively more interesting real-world distributed applications. Once you are competent in the fundamentals of Erlang, the book takes you on a deep dive into the process of designing complex software systems in Erlang. Purchase of the print book comes with an offer of a free PDF, ePub, and Kindle eBook from Manning. Also available is all code from the book.

Logic Programming is the name given to a distinctive style of programming, very different from that of conventional programming languages such as C++ and Java. By far the most widely used Logic Programming language is Prolog. Prolog is a good choice for developing complex applications, especially in the field of Artificial Intelligence. Logic Programming with Prolog does not assume that the reader is an experienced programmer or has a background in Mathematics, Logic or Artificial Intelligence. It starts from scratch and aims to arrive at the point where quite powerful programs can be written in the language. It is intended both as a textbook for an introductory course and as a self-study book. On completion readers will know enough to use Prolog in their own research or practical projects. Each chapter has self-assessment exercises so that readers may check their own progress. A glossary of the technical terms used completes the book. This second edition has been revised to be fully compatible with SWI-Prolog, a popular multi-platform

public domain implementation of the language. Additional chapters have been added covering the use of Prolog to analyse English sentences and to illustrate how Prolog can be used to implement applications of an 'Artificial Intelligence' kind. Max Bramer is Emeritus Professor of Information Technology at the University of Portsmouth, England. He has taught Prolog to undergraduate computer science students and used Prolog in his own work for many years.
This book is an introduction to Prolog (£rQgramming in ~ic). It presents the basic foundations of Prolog and basic and fundamental programming methods. This book is written for programmers familiar with other programming languages, as well as for novices in computer science, willing to have an original introduction to programming. The approach adopted in this book is thus based on methodological elements together with some pragmatic aspects. The book is composed of two parts. In the fIrst part the major aspects of programming in Prolog are presented step by step. Each new aspect is illustrated by short examples and exercises. The second part is composed of more developed examples, which are often games, that illustrate major aspects of artifIcial intelligence. More advanced books are given in the bibliography and will allow the reader to deepen his or her know ledge of Prolog. Prolog was first designed in France at OJ.A., Marseille, with a specific syntax. We have adopted here a more common notation, defIned at Edinburgh, which tends to be an implicit norm. At the end of each chapter of the fIrst part, there are exercises that the reader is invited to do and to test on his or her machine. Complete answers are given in Appendix A, at the end of the book.
This book gives a tutorial overview of Gödel, presents example programs, provides a formal definition of the syntax and semantics of the language, and covers background material on logic. Gödel is a new, general-purpose,

declarative programming language that is based on the paradigm of logic programming and can be regarded as a successor to Prolog. This book gives a tutorial overview of Gödel, presents example programs, provides a formal definition of the syntax and semantics of the language, and covers background material on logic. The Gödel language supports types and modules. It has a rich collection of system modules and provides constraint solving in several domains. It also offers metalogical facilities that provide significant support for metaprograms that do analysis, transformation, compilation, verification, debugging, and the like. The declarative nature of Gödel makes it well suited for use as a teaching language, narrows the gap that currently exists between theory and practice in logic programming, makes possible advanced software engineering tools such as declarative debuggers and compiler generators, reduces the effort involved in providing a parallel implementation of the language, and offers substantial scope for parallelization in such implementations. Logic Programming series

An introduction to Prolog programming for artificial intelligence covering both basic and advanced AI material. A unique advantage to this work is the combination of AI, Prolog and Logic. Each technique is accompanied by a program implementing it. Seeks to simplify the basic concepts of logic programming. Contains exercises and authentic examples to help facilitate the understanding of difficult concepts.

This book constitutes the refereed proceedings of the International Conference on Principles and Practice of Declarative Programming, PPDP'99, held in Paris, France, in September/October 1999. The 22 revised full papers presented together with three invited contributions were carefully reviewed and selected from a total of 52 full-length papers submitted. Among the topics covered are type theory;

logics and logical methods in understanding, defining, integrating, and extending programming paradigms such as functional, logic, object-oriented, constraint, and concurrent programming; support for modularity; the use of logics in the design of program development tools; and development and implementation methods.

Copyright: 5b7a08422df61a883d1c26551bead535