



Table of Contents

Section One Getting Started with Arity/Prolog..... 1

Chapter 1 Introduction..... 3

 1.1 What Is Prolog? 3

 1.2 Arity/Prolog..... 4

 1.3 The Arity/Prolog Interpreter..... 5

 1.4 The Arity/Prolog Compiler 5

Chapter 2 Installation 7

 2.1 Installed directory structure..... 7

 2.2 Starting the Arity/Prolog Interpreter..... 8

 2.3 Exiting the Arity/Prolog Interpreter 9

 2.4 Optional Arity/Prolog Interpreter setup procedures 9

Section Two Arity/Prolog Tools 13

Chapter 3 The Arity/Prolog Interpreter 15

 3.1 Main Window and Menu 15

 3.2 The Editor..... 26

 3.3 *Typing and Running Prolog program* 29

 3.4 Consulting files into the database..... 41

 3.5 Escaping to the operating system prompt 42

 3.6 Using the debugger 43

 3.7 Saving and Restoring the contents of the database 55

 3.8 Initializing the Interpreter 57

 3.9 The help facility..... 57

 3.10 Interpreter specific predicates 59

 3.11 Arity/Prolog information..... 61

 3.12 Exiting the interpreter 66

 3.13 Developing Applications..... 66

Chapter 4 The Arity/Prolog Compiler..... 71

 4.1 Elements of a compiled program..... 71

 4.2 Adding Declarations 74

 4.3 Compiling..... 91

 4.4 Inspecting compiled code for errors 96

 4.5 Cloning segment headers 98

 4.6 Linking 98

 4.7 Troubleshooting..... 99

 4.8 Environment files 100

4.9 Loading the program database	111
4.10 Adding evaluable predicates to the interpreter.....	115
4.11 The declaration compiler	119

Section Three The Arity/Prolog Language 121

Chapter 5 Language Structure and Control	123
5.1 Unification.....	123
5.2 Prolog data structures.....	124
5.3 Program control	129
5.4 Backtracking.....	132
5.5 Repeat-fail loops.....	133
5.6 Recursion.....	135
5.7 Cut.....	135
5.8 Cut-Fail combination	137
5.9 Using snip.....	138
5.10 Using the case control operator	140
Chapter 6 Arithmetic and Arithmetic Expressions	143
6.1 Arithmetic expressions.....	145
6.2 Arithmetic predicates.....	147
6.3 Counter predicates	149
6.4 Bit predicates	150
Chapter 7 Manipulating Terms	153
7.1 Classifying terms	153
7.2 Unifying terms	155
7.3 Comparing terms	156
7.4 Converting terms	160
7.5 Manipulating Text	168
Chapter 8 Managing the Database	177
8.1 Clauses in the database	178
8.2 Database Keys	186
8.3 B-trees	201
8.4 Hash tables	213
8.5 Partitioning a database with worlds.....	217
8.6 Saving and restoring databases.....	220
Chapter 9 Input and Output	223
9.1 Term Input and Output.....	223
9.2 Character Input and Output.....	231
9.3 String Input and Output.....	236
9.4 Formatted data Input/Output	238
9.5 File Input and Output.....	240



9.6 Standard Prolog file input and output.....	247
9.7 Low-Level Input and Output.....	250
Chapter 10 Windows.....	253
10.1 Common Window Features.....	253
10.2 Creating and Removing Stayup Windows.....	256
10.3 Returning window information.....	257
10.4 Changing Window Focus.....	258
10.5 Modifying Windows.....	259
10.6 Saving and Refreshing Windows.....	261
10.7 Pop-up windows.....	262
10.8 Windows Input/Output.....	263
Chapter 11 Dialog Boxes.....	273
11.1 Standard dialog box controls.....	275
11.2 Dialog box and control definitions.....	284
11.3 Loading dialog box definitions.....	293
11.4 Running a dialog box.....	293
11.5 Processing control information.....	294
11.6 Handling messages.....	305
11.7 Initializing control settings.....	310
11.8 Designing customized controls.....	312
11.9 Compiling programs which use dialog boxes.....	321
Chapter 12 Menus.....	323
12.1 Moving through and selecting from a menu.....	324
12.2 Menu definitions.....	326
12.3 Sending messages to a menu.....	331
Chapter 13 Definite Clause Grammar Notation.....	339
13.1 Understanding language structure.....	339
13.2 Context-free grammars.....	339
13.3 Definite clause grammars.....	340
13.4 DCG'S and natural language parsers.....	341
Chapter 14 Performing System Functions.....	349
14.1 Operating system interaction and system predicates.....	349
14.2 Handling errors.....	354
14.3 Managing directories.....	356
14.4 Performing file maintenance.....	359
14.5 Accessing the system clock.....	360
14.6 Including arguments in application programs.....	364
14.7 Accessing System Environment Variables.....	364
Chapter 15 The Embedded C Compiler.....	365
15.1 Embedded C Compiler declarations.....	366

15.2 C code and data declarations.....	368
15.3 C expressions within Prolog clauses.....	374
15.4 Calling Prolog from other languages.....	392

Appendices..... 403

Appendix A Glossary	405
Appendix B The Bonus.lib Library.....	411
B.1 Microsoft Mouse predicates	412
B.2 Video pages	416
Appendix C Error Messages	419
C.1 File error messages.....	419
C.2 Syntax error messages.....	420
C.3 Arity/Prolog system error messages.....	421
C.4 Arity/Prolog Compiler error messages.....	424
Appendix D Alint Messages	431
D.1 Alint level 1 messages.....	431
D.2 Alint level 2 messages.....	431
D.3 Alint level 3 messages.....	433
D.4 Alint level 4 messages.....	434
Appendix E Suggested Readings	437
The Prolog Language.....	437
Logic Programming and Language Implementation.....	437
DCGs and Natural Language	438

Index..... 439