

Language, Style and Format drivers for **Listings**

by Carsten Heinz and individual authors:

Knut Lickert	Stefan Pinnow	Andreas Matthias	
Torsten Neuer	Michael Franke	Andrew Zabolotny	
Dr. Christoph Giess	Robert Frank		
José Romildo Malaquias	Jens T. Berger	Thielemann	
Michael Fiedler	Michael Piefel	Michael Piefel	
Detlev Dröge	Jörg Viermann	Martin Brodbeck	
Patrick Cousot	Firmin Launay	Stephan Hennig	
Martin Heller	Kai Below	Riccardo Murri	Scott Pakin
Ralf Schandl	Christian Gudrian	Daniel Gazard	
Detlef Reimers	Heiko Oberdiek	Christian Maurer	
Mark van Eijk	Ignacio Díaz-Empananza		
Riccardo (Jack) Lucchetti	Sven Schreiber	Peter Bartke	
Matthias Bethke	Jürgen Heim	Jonathan Sauer	
Robert Wenner	Martine Gautier	Bastian Germann	
Deloo	Jeffrey Ratcliffe	Mark Schade	Stefan Lagotzki
Jobst Hoffmann	Scott Pakin	Stephan Hennig	
Stephan Hennig	Rolf Niepraschk	Markus Pahlow	
Michael Wiese	Oliver Ruebenkoenig	Simon Pearce	
Dominique de Waleffe	Ralph Becket	Uwe Siart	
Brooks Moses	Peter Bartke	Adam Grabowski	
Torben Hoffmann	Christopher Creutzig	Achim D. Brucker	
Ulrich G. Wortmann	Sebastian Schubert		
Andres Becerra Sandoval	Luca Balzerani	Alessio Pace	
Christophe Jorssen	Berthold Höllmann		
William Thimbleby	Herbert Voss	Michael Weber	
Stephen Kelly	Alexis Dimitriadis	Patrick TJ McPhee	
Shmuel (Seymour J.) Metz	Geraint Paul Bevan		
Esing Zhang	Brian Christensen	Christian Kaiser	
Xavier Noria	Jean-Philippe Grivet		
Aidan Philip Heerdegen	Christoph Kiefer	Christian Haul	
Neil Conway	Stefan Jager	Gerd Neugebauer	

Winfried Theis Robert Denham Sonja Weidmann
Cameron H. G. Wright Kai Wollenweber Steffen Klupsch
Oliver Baum Bernhard Walle

2025/11/14 Version 1.11b

Abstract

This article describes the implementation of the language drivers for the listings package.

Contents

1	Installation and configuration	3	2.27 Go—Groups, Algorithms, Programming	38
2	Language drivers	5	2.28 Guarded Command Language (GCL)	39
2.1	Abap	5	2.29 Gnuplot	39
2.2	ACM	7	2.30 Hansl/Gretl	40
2.3	ACSL	8	2.31 Haskell	43
2.4	Ada	9	2.32 HTML	44
2.5	Algol	9	2.33 IDL	45
2.6	Assembler	10	2.34 Inform	46
2.7	Awk	12	2.35 Java and other JVM based languages	48
2.8	Basic	12	2.35.1 JVMIS—Java bytecode instructions	49
2.9	Clean	15	2.35.2 Scala	50
2.10	Corba IDL	16	2.36 ksh	50
2.11	C, C++, et al	16	2.37 Lingo	51
2.12	Caml and Objective Caml	18	2.38 Lisp, AutoLisp and Emacs Lisp (elisp)	55
2.13	CMake	19	2.39 LLVM	59
2.14	Common Intermediate Language	23	2.40 Logo	61
2.15	Cobol	24	2.41 Lua	61
2.16	Comal 80	25	2.42 Make	67
2.17	COMMAND.COM Batch Files	26	2.43 Matlab	68
2.18	Comsol Multiphysics	26	2.44 Mathematica	70
2.19	bash, csh, and sh	28	2.45 Mercury	112
2.20	Delphi	30	2.46 MetaPost	113
2.21	Eiffel	31	2.47 Miranda	114
2.22	Elan	32	2.48 Mizar	115
2.23	Erlang	33	2.49 ML	116
2.24	Euphoria	33		
2.25	Fortran	34		
2.26	GAP—Groups, Algorithms, Programming	38		

2.50	Modula-2	116	2.68.2	ooRexx	148
2.51	MuPAD	117	2.69	Reduce	149
2.52	NASTRAN	117	2.70	RISC-V Assembly Language	150
2.53	Oberon-2	117	2.71	RSL	152
2.54	OCL	118	2.72	Ruby	154
2.55	Octave	119	2.73	Scilab	155
2.56	Oz	121	2.74	SHELXL	158
2.57	Pascal	121	2.75	Simula	158
2.58	Perl	123	2.76	SPARQL	159
2.59	PHP	123	2.77	SQL	159
2.60	Plasm	135	2.78	Swift	161
2.61	PL/I	137	2.79	Tcl/Tk	161
2.62	PostScript	137	2.80	Statistical languages	163
2.63	POV-Ray	139	2.81	T _E X	166
2.64	Prolog	140	2.82	VBScript	170
2.65	Promela	141	2.83	Verilog	171
2.66	PSTricks	141	2.84	VHDL	172
2.67	Python	144	2.85	VRML	173
2.68	Rexx	147	2.86	XML et al	174
2.68.1	Rexx—VM/XA	148			

1 Installation and configuration

```

1 %% The listings package is copyright 1996--2004 Carsten Heinz, and
2 %% continued maintenance on the package is copyright 2006--2007 Brooks
3 %% Moses. From 2013 on the maintenance is done by Jobst Hoffmann.
4 %% The drivers are copyright 1997/1998/1999/2000/2001/2002/2003/2004/2006/
5 %% 2007/2013 any individual author listed in this file.
6 %%
7 %% This file is distributed under the terms of the LaTeX Project Public
8 %% License from CTAN archives in directory macros/latex/base/lppl.txt.
9 %% Either version 1.3c or, at your option, any later version.
10 %%
11 %% This file is completely free and comes without any warranty.
12 %%
13 %% Send comments and ideas on the package, error reports and additional
14 %% programming languages to Jobst Hoffmann at <j.hoffmann@fh-aachen.de>.
15 %%
16 <*install>
17 \input docstrip
18 \preamble
19 \endpreamble
20
21 \ifToplevel{
22 \usedir{tex/latex/listings}
23 \keepsilent
24 \askonceonly

```

```

25 }
26
27
28 \generate{
29   \file{lstlang1.sty}{\from{lstdrvrs.dtx}{lang1}}
30   \file{lstlang2.sty}{\from{lstdrvrs.dtx}{lang2}}
31   \file{lstlang3.sty}{\from{lstdrvrs.dtx}{lang3}}
32 }
33
34 \generate{
35   \file{listings-acm.prf}{\from{lstdrvrs.dtx}{acm-prf}}
36   \file{listings-bash.prf}{\from{lstdrvrs.dtx}{bash-prf}}
37   \file{listings-fortran.prf}{\from{lstdrvrs.dtx}{fortran-prf}}
38   \file{listings-hansl.prf}{\from{lstdrvrs.dtx}{hansl-prf}}
39   \file{listings-lua.prf}{\from{lstdrvrs.dtx}{lua-prf}}
40   \file{listings-python.prf}{\from{lstdrvrs.dtx}{python-prf}}
41   \file{listings-rexx.prf}{\from{lstdrvrs.dtx}{rexx-prf}}
42   \file{listings-riscv.prf}{\from{lstdrvrs.dtx}{riscv-prf}}
43 }
44
45
46 \ifToplevel{
47 \Msg{*}
48 \Msg{* You probably need to move all created '.sty' and '.cfg'}
49 \Msg{* files into a directory searched by TeX.}
50 \Msg{*}
51 \Msg{* Run 'lstdrvrs.dtx' through LaTeX2e to get the documentation.}
52 \Msg{*}
53 }
54
55 \endbatchfile
56 \install
57 \*config

```

We mainly define default dialects.

```

58 \ProvidesFile{listings.cfg}[2025/11/14 1.11b listings configuration]
59 \def\lstlanguagefiles
60   {lstlang0.sty,lstlang1.sty,lstlang2.sty,lstlang3.sty}
61 \lstset{defaultdialect=[R/3 6.10]ABAP,
62         defaultdialect=[2005]Ada,
63         defaultdialect=[68]Algol,
64         defaultdialect=[gnu]Awk,
65         defaultdialect=[ANSI]C,
66         defaultdialect=[light]Caml,
67         defaultdialect=[1985]Cobol,
68         defaultdialect=[WinXP]command.com,
69         defaultdialect=[ISO]C++,
70         defaultdialect=[95]Fortran,
71         defaultdialect=[11.0]Mathematica,
72         defaultdialect=[OMG]OCL,

```

```

73      defaultdialect=[Standard]Pascal,
74      defaultdialect=[2]Python,
75      defaultdialect=[67]Simula,
76      defaultdialect=[plain]TeX,
77      defaultdialect=[97]VRML}
78 \lstalias[] {TclTk} {tk} {tcl}

```

And now some shortcuts for the ABAP versions (provided by Knut Lickert). I (Knut) think the leading R/2, R/3 is not necessary (The support for R/2 is finished). The version number with letter is important for the runtime-system, but the programming language should be the same for each version.

```

79 \lstalias[6.1]{ABAP}[R/3 6.10]{ABAP}
80 \lstalias[3.1]{ABAP}[R/3 3.1C]{ABAP}
81 \lstalias[4.6]{ABAP}[R/3 4.6C]{ABAP}
82 </config>

83 <+lang1>\ProvidesFile{lstlang1.sty}
84 <+lang2>\ProvidesFile{lstlang2.sty}
85 <+lang3>\ProvidesFile{lstlang3.sty}
86 <+acm-prf>\ProvidesFile{listings-acm.prf}
87 <+bash-prf>\ProvidesFile{listings-bash.prf}
88 <+fortran-prf>\ProvidesFile{listings-fortran.prf}
89 <+hansl-prf>\ProvidesFile{listings-hansl.prf}
90 <+lua-prf>\ProvidesFile{listings-lua.prf}
91 <+python-prf>\ProvidesFile{listings-python.prf}
92 <+rexx-prf>\ProvidesFile{listings-rexx.prf}
93 <+riscv-prf>\ProvidesFile{listings-riscv.prf}
94 <-config> [2025/11/14 1.11b listings language file]

```

2 Language drivers

2.1 Abap

Knut Lickert added support for Abap.¹

```

95 (*lang2)
96 %%
97 %% Abap definition by Knut Lickert
98 %%

```

There are some other new commands in release 6.10. They will follow later, but up to now I don't work with 6.10.

```

99 \lst@definlanguage[R/3 6.10]{ABAP}[R/3 4.6C]{ABAP}%
100 {morekeywords={try,endtry},%
101 }[keywords,comments,strings]

102 \lst@definlanguage[R/3 4.6C]{ABAP}[R/3 3.1]{ABAP}%
103 {morekeywords={method,ref,class,create,object,%
104               methods,endmethod,private,protected,public,section,%
105               catch,system-exceptions,endcatch,%

```

¹In this section 'I' is Knut Lickert.

```

106         },%
107     moreprocnamekeys={class},%
108     literate={->}{\rightarrow$}1{=>}{\Rightarrow$}1,%
109 }[keywords,comments,strings,procnames]

```

Yes there are also some more releases in R/3 (2.1...), but I know them not really. So let's start with R/3 3.1.

```

110 \lst@definlanguage[R/3 3.1]{ABAP}[R/2 5.0]{ABAP}{}%

```

As I remember all this commands exists in R/2. Many commands are new in R/2 5.0 (compared with R/2 4.3). But as I am not using R/2 4.3 any more, I start with R/2 5.0.

```

111 \lst@definlanguage[R/2 5.0]{ABAP}{%
112     sensitive=f,%
113     procnamekeys={report,program,form,function,module},%
114     morekeywords={*, add, after, alias, analyzer, and, append, appending,%
115         area, assign, at, authority-check, before, binary, blank, break-point,%
116         calendar, call, case, change, changing, check, clear, cnt, co, collect,%
117         commit, common, component, compute, condense, corresponding, cos, cp,%
118         cs, currency-conversion, cursor, data, database, dataset, decimals,%
119         define, delete, deleting, dequeue, describe, detail, dialog, directory,%
120         div, divide, do, documentation, during, dynpro, else, end-of-page,%
121         end-of-selection, endat, endcase, enddo, endfor, endform, endif,%
122         endloop, endmodule, endselect, endwhile, enqueue, exceptions, exit,%
123         exp, export, exporting, extract, field, fields, field-groups,%
124         field-symbols, find, for, form, format, free, from, function,%
125         generating, get, giving, hide, id, if, import, importing, in, incl,%
126         include, initial, initialization, input, insert, interrupt, into, is,%
127         language, leave, leading, left-justified, like, line, lines,%
128         line-count, line-selection, list-processing, load, local, log, logfile,%
129         loop, margin, mark, mask, memory, menu, message, mod, modify, module,%
130         move, move-text, multiply, na, new, new-line, new-page, no-gaps, np,%
131         ns, number, obligatory, occurs, of, on, or, others, output, parameter,%
132         parameters, parts, perform, pf-status, places, position, process,%
133         raise, raising, ranges, read, refresh, refresh-dynpro, reject, remote,%
134         replace, report, reserve, reset, restart, right-justified, run, screen,%
135         scroll, search, segments, select, select-options, selection-screen,%
136         set, shift, sin, single, sqrt, start-of-selection, statement,%
137         structure, submit, subtract, summary, summing, suppress, system, table,%
138         tables, task, text, time, to, top-of-page, trace, transaction,%
139         transfer, transfer-dynpro, translate, type, unpack, update,%
140         user-command, using, value, when, where, while, window, with, workfile,%
141         write},%
142     morecomment=[l]",%
143     morecomment=[f][commentstyle][0]*,%
144     morestring=[d]'%
145 }[keywords,comments,strings,procnames]

```

This section for R/2 4.3 is not really maintained. It is just what I remember of the past.

```

146 \lst@definelanguage[R/2 4.3]{ABAP}[R/2 5.0]{ABAP}%
147   {deletekeywords={function,importing,exporting,changing,exceptions,%
148       raise,raising}%
149   }[keywords,comments,strings]
150 </lang2>

```

2.2 ACM

ACM is the language of the Aspen Custom Modeler (<http://www.aspentech.com/products/aspen-custom-modeler.aspx>), the language definition was provided by Stefan Pinnow. It is intended for writing models. Maximilian Dammann pointed out the missing keyword “Description”.

```

151 <*lang2>
152 %%
153 %% ACM and ACMscript definition
154 %% (c) 2013 Stefan Pinnow
155 %%
156 \lst@definelanguage{ACM}{%
157   morekeywords={ abs, After, acos, And, As, asin, atan, At, Call,%
158       Compatibility, Connect, cos, cosh, Create, Delay, Description,%
159       Difference, Do, Else, ElseIf, End, EndFor, EndIf, EndParallel,%
160       EndState, EndSwitch, EndText, EndWith, exp, External, Fixed, For,%
161       ForEach, Free, Global, Hidden, If, Implementation, In, Initial, Input,%
162       InterSection, IntegerSet, Invoke, Is, Language, Library, Link, Log10,%
163       LogE, Max, Min, Model, Of, Once, Options, Output, Parallel, Parameter,%
164       Pause, Port, Print, Private, Procedure, Product, Ramp, Repeat, Restart,%
165       Return, Round, Runs, Sigma, sin, sinh, Size, SnapShot, sqr, sqrt,%
166       SRamp, State, Stream, StringSet, Structure, Switch, SubRoutine,%
167       SymDiff, tan, tanh, Task, Text, Time, Then, Truncate, Union, Until,%
168       Uses, Variable, Wait, When, With, WithIn, Workspace},%
169   sensitive=false,%
170   morecomment=[l]{//},%
171   morecomment=[s]{/*}{*/},%
172   string=[b]{"},%
173 }[keywords,comments,strings]
174 </lang2>

```

In addition to writing models there is a language ACMscript, which is similar to VBScript. According to Stefan Pinnow this language is used for writing scripts for the models.

```

175 <*lang2>
176 \lst@definelanguage{ACMscript}[] {VBScript}{%
177   morekeywords={%
178       ElseIf,False,In,Resume,True%
179   },%
180   deletekeywords={%
181       Abs,Array,Clear,CreateObject,CStr,Err,ForReading,ForWriting,%

```

```

182     OpenTextFile,Replace,WriteLine%
183 }%
184 }[keywords,comments,strings]
185 </lang2>

```

Stefan Pinnow also supplied a definition of a style for printing ACM code:

```

186 <*acm-prf>
187 \usepackage[rgb, x11names]{xcolor}
188
189 \definecolor{Comments}{rgb}{0.00,0.50,0.00}
190 \definecolor{KeyWords}{rgb}{0.00,0.00,0.63}
191 \definecolor{Strings}{rgb}{0.84,0.00,0.00}
192
193 \lstdefinestyle{ACM}{%
194   basicstyle=\scriptsize\ttfamily,%
195   keywordstyle=\color{KeyWords},%
196   showstringspaces=false,%
197   identifierstyle=\color{black},%
198   commentstyle=\color{Comments},%
199   stringstyle=\color{Strings},%
200   frame=shadowbox,%           % for ACM-Code scrartcl commented out
201   %   frame=1,%             % line on the left side
202   rulesepcolor=\color{black},%
203   numbers=left,%             % left
204   firstnumber=1,%
205   stepnumber=5,%
206   columns=fixed,%           % to prevent inserting spaces
207   fontadjust=true,%
208   basewidth=0.5em,%
209   captionpos=t,%
210   abovecaptionskip=\smallskipamount,% same amount as default
211   belowcaptionskip=\smallskipamount,% in caption package
212 }%

```

This code is provided in the file `listings-acm.prf`, see section 2.4.1 (Preferences) of the listings documentation.

```

213 </acm-prf>

```

2.3 ACSL

This language was provided by Andreas Matthias. I'm sorry for forgetting to add this language for a long time.

```

214 <*lang1>
215 %%
216 %% ACSL definition (c) 2000 by Andreas Matthias
217 %%
218 \lst@definlanguage{ACSL}[90]{Fortran}%
219   {morekeywords={algorithm,cinterval,constant,derivative,discrete,%

```



```

220         dynamic,errtag,initial,interval,maxterval,mininterval,%
221         merror,xerror,nsteps,procedural,save,schedule,sort,%
222         table,terminal,term,variable},%
223     sensitive=false,%
224     morecomment=[1]!%
225 }[keywords, comments]%
226 </lang1>

```

2.4 Ada

Data come from

- BARNES, JOHN GILBERT PRESSLIE: **Programming in Ada plus language reference manual**; © 1991 Addison-Wesley Publishing Company, Inc.; ISBN 0-201-56539-0.

Torsten Neuer added support for Ada 95. I changed the definition to reduce the required string memory.

```

227 (*lang1)
228 %%
229 %% Ada 95 definition (c) Torsten Neuer
230 %%
231 %% Ada 2005 definition (c) 2006 Santiago Urue~{n}a Pascual
232 %%                                     <Santiago.Uruena@upm.es>
233 %%
234 \lst@definlanguage[2005]{Ada}[95]{Ada}%
235 {morekeywords={interface,overriding,synchronized}}%
236 \lst@definlanguage[95]{Ada}[83]{Ada}%
237 {morekeywords={abstract,aliased,protected,requeue,tagged,until}}%
238 \lst@definlanguage[83]{Ada}%
239 {morekeywords={abort,abs,accept,access,all,and,array,at,begin,body,%
240     case,constant,declare,delay,delta,digits,do,else,elsif,end,entry,%
241     exception,exit,for,function,generic,goto,if,in,is,limited,loop,%
242     mod,new,not,null,of,or,others,out,package,pragma,private,%
243     procedure,raise,range,record,rem,renames,return,reverse,select,%
244     separate,subtype,task,terminate,then,type,use,when,while,with,%
245     xor},%
246     sensitive=f,%
247     morecomment=[1]--,%
248     morestring=[m]",% percent not defined as stringizer so far
249     morestring=[m]'%
250 }[keywords,comments,strings]
251 </lang1>

```

2.5 Algol

Data come from

- UWE PAPE: **Programmieren in ALGOL 60**; © 1973 Carl Hanser Verlag München; ISBN 3-446-11605-2
- FRANK G. PAGAN: **A practical guide to ALGOL 68**; © 1976 by John Wiley & Sohn Ltd.; ISBN 0-471-65746-8 (Cloth); ISBN 0-471-65747-6 (Pbk).

The definition of Algol 68 doesn't support comments enclosed by ϕ .

```

252 (*lang3)
253 \lst@definlanguage[68]{Algol}%
254 % ??? should 'i' be a keyword
255 {morekeywords={abs,and,arg,begin,bin,bits,bool,by,bytes,case,channel,%
256     char,co,comment,compl,conj,divab,do,down,elem,elif,else,empty,%
257     end,entier,eq,esac,exit,false,fi,file,flex,for,format,from,ge,%
258     goto,gt,heap,if,im,in,int,is,isnt,le,leng,level,loc,long,lt,lwb,%
259     minusab,mod,modab,mode,ne,nil,not,od,odd,of,op,or,ouse,out,over,%
260     overab,par,plusab,plusto,pr,pragmat,prio,proc,re,real,ref,repr,%
261     round,sema,shl,short,shorten,shr,sign,skip,string,struct,then,%
262     timesab,to,true,union,up,upb,void,while},%
263     sensitive=f,% ???
264     morecomment=[s]{\#}{\#},%
265     keywordcomment={co,comment}%
266 }[keywords,comments,keywordcomments]%
267 \lst@definlanguage[60]{Algol}%
268 {morekeywords={array,begin,Boolean,code,comment,div,do,else,end,%
269     false,for,goto,if,integer,label,own,power,procedure,real,step,%
270     string,switch,then,true,until,value,while},%
271     sensitive=f,% ???
272     keywordcommentsemicolon={end}{else,end}{comment}%
273 }[keywords,keywordcomments]%
274 (/lang3)

```

2.6 Assembler

Credits go to Michael Franke.

```

275 (*lang3)
276 %%
277 %% Motorola 68K definition (c) 2006 Michael Franke
278 %%
279 \lst@definlanguage[Motorola68k]{Assembler}{%
280     morekeywords={ABCD,ADD,%
281         ADDA,ADDI,ADDQ,ADDX,AND,ANDI,ASL,ASR,BCC,BLS,BCS,BLT,BEQ,BMI,BF,BNE,%
282         BGE,BPL,BGT,BT,BHI,BVC,BLE,BVS,BCHG,BCLR,BRA,BSET,BSR,BTST,CHK,CLR,%
283         CMP,CPMA,CMPI,CMPM,DBCC,DBLS,DBCS,DBLT,DBEQ,DBMI,DBF,DBNE,DBGE,DBPL,%
284         DBG,DBGT,DBT,DBHI,DBVC,DBLE,DBVS,DIVS,DIVU,EOR,EORI,EXG,EXT,ILLEGAL,JMP,%
285         JSR,LEA,LINK,LSL,LSR,MOVE,MOVEA,MOVEM,MOVEP,MOVEQ,MULS,MULU,NBCD,NEG,%
286         NEGX,NOP,NOT,OR,ORI,PEA,RESET,ROL,ROR,ROXL,ROXR,RTE,RTR,RTS,SBCD,%
287         SCC,SLS,SCS,SLT,SEQ,SMI,SF,SNE,SGE,SPL,SGT,ST,SHI,SVC,SLE,SVS,STOP,%
288         SUB,SUBA,SUBI,SUBQ,SUBX,SWAP,TAS,TRAP,TRAPV,TST,UNLK},%

```

```

289     sensitive=false,%
290     morecomment=[1]*,%
291     morecomment=[1];%
292     }[keywords,comments,strings]
293 /lang3)

```

Credits go to Andrew Zabolotny.

```

294 (*lang3)
295 %%
296 %% x86masm definition (c) 2002 Andrew Zabolotny
297 %%
298 \lst@definelanguage[x86masm]{Assembler}%
299 {morekeywords={al,ah,ax,eax,bl,bh,bx,ebx,cl,ch,cx,ecx,dl,dh,dx,edx,%
300     si,esi,di,edi,bp,ebp,sp,esp,cs,ds,es,ss,fs,gs,cr0,cr1,cr2,cr3,%
301     db0,db1,db2,db3,db4,db5,db6,db7,tr0,tr1,tr2,tr3,tr4,tr5,tr6,tr7,%
302     st,aaa,aad,aam,aas,adc,add,and,arpl,bound,bsf,bsr,bswap,bt,btc,%
303     btr,bts,call,cbw,cdq,clc,cld,cli,clts,cmc,cmp,cmps,cmpsb,cmpsw,%
304     cmpsd,cmpxchg,cwd,cwde,daa,das,dec,div,enter,hlt,idiv,imul,in,%
305     inc,ins,int,into,invd,invlpg,iret,ja,jae,jb,jbe,jc,jcxz,jecxz,%
306     je,jg,jge,jl,jle,jna,jnae,jnb,jnbe,jnc,jne,jng,jnge,jnl,jnle,%
307     jno,jnp,jns,jnz,jo,jp,jpe,jpo,js,jz,jmp,lahf,lar,lea,leave,lgdt,%
308     lidt,lldt,lmsw,lock,lods,lodsb,lodsw,lodsd,loop,loopz,lopnz,%
309     loope,loopne,lds,les,lfs,lgs,lss,lsl,ltr,mov,movs,movsb,movsw,%
310     movsd,movsx,movzx,mul,neg,nop,not,or,out,outs,pop,popa,popad,%
311     popf,popfd,push,pusha,pushad,pushf,pushfd,rcl,rcr,rep,repb,%
312     repne,repz,repnz,ret,retf,rol,ror,sahf,sal,sar,sbb,scas,seta,%
313     setae,setb,setbe,setc,sete,setg,setge,setl,setle,setna,setnae,%
314     setnb,setnbe,setnc,setne,setng,setnge,setnl,setnle,setno,setnp,%
315     setns,setnz,seto,setp,setpe,setpo,sets,setz,sgdt,shl,shld,shr,%
316     shrd,sidt,sldt,smsw,stc,std,sti,stos,stosb,stosw,stosd,str,sub,%
317     test,verr,verw,wait,wbinvd,xadd,xchg,xlatb,xor,fabs,fadd,fbld,%
318     fbstp,fchs,fclex,fcom,fcos,fdecstp,fdiv,fdivr,ffree,fiadd,ficom,%
319     fidiv,fidivr,fild,fimul,fincstp,finit,fist,fisub,fisubr,fld,fld1,%
320     fldl2e,fldl2t,fldlg2,fldln2,fldpi,fldz,fldcw,fldenv,fmul,fnop,%
321     fpatan,fprem,fprem1,fptan,frndint,frstor,fsave,fscale,fsetpm,%
322     fsin,fsincos,fsqrt,fst,fstcw,fstenv,fstsw,fsub,fsubr,ftst,fucom,%
323     fwait,fxam,fxch,fxtract,fyl2x,fyl2xp1,f2xm1},%
324     morekeywords=[2]{.align,.alpha,assume,byte,code,comm,comment,.const,%
325         .cref,.data,.data?,db,dd,df,dosseg,dq,dt,dw,dword,else,end,endif,%
326         endm,endp,ends,eq,equ,.err,.err1,.err2,.errb,.errdef,.errdif,%
327         .erre,.erridn,.errnb,.errndef,.errnz,event,exitm,extrn,far,%
328         .fardata,.fardata?,fword,ge,group,gt,high,if,if1,if2,ifb,ifdef,%
329         ifdif,ife,ifidn,ifnb,ifndef,include,includelib,irp,irpc,label,%
330         .lall,le,length,.lfcond,.list,local,low,lt,macro,mask,mod,.model,%
331         name,ne,near,offset,org,out,page,proc,ptr,public,purge,qword,%
332         radix,record,rept,.sall,seg,segment,.seq,.sfcond,short,size,%
333         .stack,struct,subttl,tbyte,.tfcond,this,title,type,.type,width,%
334         word,.xall,.xcref,.xlist},%
335     alsoletter=.,alsodigit=?,%
336     sensitive=f,%

```

```

337   morestring=[b]" ,%
338   morestring=[b]' ,%
339   morecomment=[1];%
340   }[keywords,comments,strings]
341 /<lang3>

```

2.7 Awk

Thanks to Dr. Christoph Giess for providing these definitions.

```

342 <lang1>
343 %%
344 %% awk definitions (c) Christoph Giess
345 %%
346 \lst@definlanguage[gnu]{Awk}[POSIX]{Awk}%
347   {morekeywords={and,asort,bindtextdomain,compl,dcgettext,gensub,%
348     lshift,mktime,or,rshift,strftime,strtonum,system,xor,extension}%
349   }%
350 \lst@definlanguage[POSIX]{Awk}%
351   {keywords={BEGIN,END,close,getline,next,nextfile,print,printf,%
352     system,fflush,atan2,cos,exp,int,log,rand,sin,sqrt,srand,gsub,%
353     index,length,match,split,sprintf,strtonum,sub,substr,tolower,%
354     toupper,if,while,do,for,break,continue,delete,exit,function,%
355     return},%
356   sensitive,%
357   morecomment=[1]\#,%
358   morecomment=[1]//,%
359   morecomment=[s]{/*}{*/},%
360   morestring=[b]"%
361   }[keywords,comments,strings]
362 /<lang1>

```

2.8 Basic

Credits go to Robert Frank.

```

363 <lang1>
364 %%
365 %% Visual Basic definition (c) 2002 Robert Frank
366 %%
367 \lst@definlanguage[Visual]{Basic}
368   {morekeywords={Abs,Array,Asc,AscB,AscW,Atn,Avg,CBool,CByte,CCur,%
369     CDate,CDBl,Cdec,Choose,Chr,ChrB,ChrW,CInt,CLng,Command,Cos,%
370     Count,CreateObject,CSng,CStr,CurDir,CVar,CVDate,CVErr,Date,%
371     DateAdd,DateDiff,DatePart,DateSerial,DateValue,Day,DDB,Dir,%
372     DoEvents,Environ,EOF,Error,Exp,FileAttr,FileDateTime,FileLen,%
373     Fix,Format,FreeFile,FV,GetAllStrings,GetAttr,%
374     GetAutoServerSettings,GetObject,GetSetting,Hex,Hour,IIf,%
375     IMEStatus,Input,InputB,InputBox,InStr,InstB,Int,Integer,IPmt,%
376     IsArray,IsDate,IsEmpty,IsError,IsMissing,IsNull,IsNumeric,%

```

```

377 IsObject,LBound,LCase,Left,LeftB,Len,LenB,LoadPicture,Loc,LOF,%
378 Log,Ltrim,Max,Mid,MidB,Min,Minute,MIRR,Month,MsgBox,Now,NPer,%
379 NPV,Oct,Partition,Pmt,PPmt,PV,QBColor,Rate,RGB,Right,RightB,Rnd,%
380 Rtrim,Second,Seek,Sgn,Shell,Sin,SLN,Space,Spc,Sqr,StDev,StDevP,%
381 Str,StrComp,StrConv,String,Switch,Sum,SYD,Tab,Tan,Time,Timer,%
382 TimeSerial,TimeValue,Trim,TypeName,UBound,Ucase,Val,Var,VarP,%
383 VarType,Weekday,Year},% functions
384 morekeywords=[2]{Accept,Activate,Add,AddCustom,AddFile,AddFromFile,%
385 AddFromTemplate,AddItem,AddNew,AddToAddInToolbar,%
386 AddToolboxProgID,Append,AppendChunk,Arrange,Assert,AsyncRead,%
387 BatchUpdate,BeginTrans,Bind,Cancel,CancelAsyncRead,CancelBatch,%
388 CancelUpdate,CanPropertyChange,CaptureImage,CellText,CellValue,%
389 Circle,Clear,ClearFields,ClearSel,ClearSelCols,Clone,Close,Cls,%
390 ColContaining,ColumnSize,CommitTrans,CompactDatabase,Compose,%
391 Connect,Copy,CopyQueryDef,CreateDatabase,CreateDragImage,%
392 CreateEmbed,CreateField,CreateGroup,CreateIndex,CreateLink,%
393 CreatePreparedStatement,CreateProperty,CreateQuery,%
394 CreateQueryDef,CreateRelation,CreateTableDef,CreateUser,%
395 CreateWorkspace,Customize>Delete>DeleteColumnLabels,%
396 DeleteColumns>DeleteRowLabels>DeleteRows,DoVerb,Drag,Draw>Edit,%
397 EditCopy>EditPaste,EndDoc,EnsureVisible,EstablishConnection,%
398 Execute,ExtractIcon,Fetch,FetchVerbs,Files,FillCache,Find,%
399 FindFirst,FindItem,FindLast,FindNext,FindPrevious,Forward,%
400 GetBookmark,GetChunk,GetClipString,GetData,GetFirstVisible,%
401 GetFormat,GetHeader,GetLineFromChar,GetNumTicks,GetRows,%
402 GetSelectedPart,GetText,GetVisibleCount,GoBack,GoForward,Hide,%
403 HitTest,HoldFields,Idle,InitializeLabels,InsertColumnLabels,%
404 InsertColumns,InsertObjDlg,InsertRowLabels,InsertRows,Item,%
405 KillDoc,Layout,Line,LinkExecute,LinkPoke,LinkRequest,LinkSend,%
406 Listen,LoadFile,LoadResData,LoadResPicture,LoadResString,%
407 LogEvent,MakeCompileFile,MakeReplica,MoreResults,Move,MoveData,%
408 MoveFirst,MoveLast,MoveNext,MovePrevious,NavigateTo,NewPage,%
409 NewPassword,NextRecordset,OLEDrag,OnAddinsUpdate,OnConnection,%
410 OnDisconnection,OnStartupComplete,Open,OpenConnection,%
411 OpenDatabase,OpenQueryDef,OpenRecordset,OpenResultset,OpenURL,%
412 Overlay,PaintPicture,Paste,PastSpecialDlg,PeekData,Play,Point,%
413 PopulatePartial,PopupMenu,Print,PrintForm,PropertyChanged,Pset,%
414 Quit,Raise,RandomDataFill,RandomFillColumns,RandomFillRows,%
415 rdoCreateEnvironment,rdoRegisterDataSource,ReadFromFile,%
416 ReadProperty,Rebind,ReFill,Refresh,RefreshLink,RegisterDatabase,%
417 Reload,Remove,RemoveAddInFromToolbar,RemoveItem,Render,%
418 RepairDatabase,Reply,ReplyAll,Requery,ResetCustom,%
419 ResetCustomLabel,ResolveName,RestoreToolbar,Resync,Rollback,%
420 RollbackTrans,RowBookmark,RowContaining,RowTop,Save,SaveAs,%
421 SaveFile,SaveToFile,SaveToolbar,SaveToOLE1File,Scale,ScaleX,%
422 ScaleY,Scroll>Select>SelectAll>SelectPart,SelPrint,Send,%
423 SendData,Set,SetAutoServerSettings,SetData,SetFocus,SetOption,%
424 SetSize,SetText,SetViewport>Show>ShowColor>ShowFont>ShowHelp,%
425 ShowOpen>ShowPrinter>ShowSave>ShowWhatsThis,SignOff,SignOn,Size,%
426 Span,SplitContaining,StartLabelEdit,StartLogging,Stop,%

```

```

427 Synchronize,TextHeight,TextWidth,ToDefaults,TwipsToChartPart,%
428 TypeByChartType,Update,UpdateControls,UpdateRecord,UpdateRow,%
429 Upto,WhatsThisMode,WriteProperty,ZOrder},% methods
430 morekeywords=[3]{AccessKeyPress,AfterAddFile,AfterChangeFileName,%
431 AfterCloseFile,AfterColEdit,AfterColUpdate,AfterDelete,%
432 AfterInsert,AfterLabelEdit,AfterRemoveFile,AfterUpdate,%
433 AfterWriteFile,AmbienChanged,ApplyChanges,Associate,%
434 AsyncReadComplete,AxisActivated,AxisLabelActivated,%
435 AxisLabelSelected,AxisLabelUpdated,AxisSelected,%
436 AxisTitleActivated,AxisTitleSelected,AxisTitleUpdated,%
437 AxisUpdated,BeforeClick,BeforeColEdit,BeforeColUpdate,%
438 BeforeConnect,BeforeDelete,BeforeInsert,BeforeLabelEdit,%
439 BeforeLoadFile,BeforeUpdate,ButtonClick,ButtonCompleted,%
440 ButtonGotFocus,ButtonLostFocus,Change,ChartActivated,%
441 ChartSelected,ChartUpdated,Click,ColEdit,Collapse,ColResize,%
442 ColumnClick,Compare,ConfigChageCancelled,ConfigChanged,%
443 ConnectionRequest,DataArrival,DataChanged,DataUpdated,DblClick,%
444 Deactivate,DeviceArrival,DeviceOtherEvent,DeviceQueryRemove,%
445 DeviceQueryRemoveFailed,DeviceRemoveComplete,DeviceRemovePending,%
446 DevModeChange,Disconnect,DisplayChanged,Dissociate,%
447 DoGetNewFileName,Done,DonePainting,DownClick,DragDrop,DragOver,%
448 DropDown,EditProperty,EnterCell,EnterFocus,Event,ExitFocus,%
449 Expand,FootnoteActivated,FootnoteSelected,FootnoteUpdated,%
450 GotFocus,HeadClick,InfoMessage,Initialize,IniProperties,%
451 ItemActivated,ItemAdded,ItemCheck,ItemClick,ItemReloaded,%
452 ItemRemoved,ItemRenamed,ItemSeletected,KeyDown,KeyPress,KeyUp,%
453 LeaveCell,LegendActivated,LegendSelected,LegendUpdated,%
454 LinkClose,LinkError,LinkNotify,LinkOpen,Load,LostFocus,%
455 MouseDown,MouseMove,MouseUp,NodeClick,ObjectMove,%
456 OLECompleteDrag,OLEDragDrop,OLEDragOver,OLEGiveFeedback,%
457 OLESetData,OLEStartDrag,OnAddNew,OnComm,Paint,PanelClick,%
458 PanelDblClick,PathChange,PatternChange,PlotActivated,%
459 PlotSelected,PlotUpdated,PointActivated,PointLabelActivated,%
460 PointLabelSelected,PointLabelUpdated,PointSelected,%
461 PointUpdated,PowerQuerySuspend,PowerResume,PowerStatusChanged,%
462 PowerSuspend,QueryChangeConfig,QueryComplete,QueryCompleted,%
463 QueryTimeout,QueryUnload,ReadProperties,Reposition,%
464 RequestChangeFileName,RequestWriteFile,Resize,ResultsChanged,%
465 RowColChange,RowCurrencyChange,RowResize,RowStatusChanged,%
466 SelChange,SelectionChanged,SendComplete,SendProgress,%
467 SeriesActivated,SeriesSelected,SeriesUpdated,SettingChanged,%
468 SplitChange,StateChanged,StatusUpdate,SysColorsChanged,%
469 Terminate,TimeChanged,TitleActivated,TitleSelected,%
470 TitleActivated,UnboundAddData,UnboundDeleteRow,%
471 UnboundGetRelativeBookmark,UnboundReadData,UnboundWriteData,%
472 Unload,UpClick,Updated,Validate,ValidationError,WillAssociate,%
473 WillChangeData,WillDissociate,WillExecute,WillUpdateRows,%
474 WithEvents,WriteProperties},% VB-events
475 morekeywords=[4]{AppActivate,Base,Beep,Call,Case,ChDir,ChDrive,%
476 Const,Declare,DefBool,DefByte,DefCur,DefDate,DefDbl,DefDec,%

```

```

477     DefInt,DefLng,DefObj,DefSng,DefStr,Deftype,DefVar,DeleteSetting,%
478     Dim,Do,Else,ElseIf,End,Enum,Erase,Event,Exit,Explicit,FileCopy,%
479     For,ForEach,Friend,Function,Get,GoSub,GoTo,If,Implements,Kill,%
480     Let,LineInput,Lock,Lset,MkDir,Name,Next,OnError,On,Option,%
481     Private,Property,Public,Put,RaiseEvent,Randomize,ReDim,Rem,%
482     Reset,Resume,Return,Rmdir,Rset,SavePicture,SaveSetting,%
483     SendKeys,SetAttr,Static,Sub,Then,Type,Unlock,Wend,While,Width,%
484     With,Write},% statements
485     sensitive=false,%
486     keywordcomment=rem,%
487     MoreSelectCharTable=\def\lst@BeginKC@{% chmod
488         \lst@ResetToken
489         \lst@BeginComment\lst@GPmode{{\lst@commentstyle}%
490             \lst@Lmodetrue\lst@modetrue}\@empty},%
491     morecomment=[l]{'},%
492     morecomment=[s]{/*}{*/},%
493     morestring=[b]",%
494     }[keywords,comments,strings,keywordcomments]
495 \lang1

```

Thanks to Jonathan de Halleux for reporting a missing comma after `MoreSelectCharTable`, which was the cause of a problem reported by Robert Frank. Martina Hansel also found the bug and the fix.

2.9 Clean

Thanks to José Romildo Malaquias. Markus Pahlow found a missing comma.

```

496 (*lang3)
497 %%
498 %% Clean definition (c) 1999 Jos'e Romildo Malaquias
499 %%
500 %% Clean 1.3 :  some standard functional language: pure, lazy,
501 %%               polymorphic type system, modules, type classes,
502 %%               garbage collection, functions as first class citizens
503 %%
504 \lst@definlanguage{Clean}%
505 {otherkeywords={:,:=:,=:,=:,>,>,<,<,<:,\{,\},\{|\,|\},\#,\#!,|,\&,%
506     [,],!,.,\\,\\,;,_,%
507     morekeywords={from,definition,implementation,import,module,system,%
508         case,code,if,in,let,let!,of,where,with,infix,infixl,infixr},%
509     moreendkeywords={True,False,Start,Int,Real,Char,Bool,String,World,%
510         File,ProcId},%
511     sensitive,%
512     morecomment=[l]//,% missing comma: Markus Pahlow
513     morecomment=[n]{/*}{*/},%
514     morestring=[b]"%
515     }[keywords,comments,strings]
516 \lang3

```

2.10 Corba IDL

This language definition is due to Jens T. Berger Thielemann.

```
517 <*lang2>
518 %%
519 %% Corba IDL definition (c) 1999 Jens T. Berger Thielemann
520 %%
521 \lst@definelanguage[CORBA]{IDL}%
522   {morekeywords={any,attribute,boolean,case,char,const,context,default,%
523     double,enum,exception,fixed,float,in,inout,interface,long,module,%
524     native,Object,octet,oneway,out,raises,readonly,sequence,short,%
525     string,struct,switch,typedef,union,unsigned,void,wchar,wstring,%
526     FALSE,TRUE},%
527   sensitive,%
528   moredirectives={define,elif,else,endif,error,if,ifdef,ifndef,line,%
529     include,pragma,undef,warning},%
530   moredelim=[directive]\#,%
531   morecomment=[l]//,%
532   morecomment=[s]{/*}{*/},%
533   morestring=[b]"%
534   }[keywords,comments,strings,directives]%
535 </lang2>
```

2.11 C, C++, et al

```
536 <*lang1>
```

Michael Fiedler provided the following list of new introduced keywords for C++11.

```
537 \lst@definelanguage[11]{C++}[ISO]{C++}%
538   {morekeywords={alignas,alignof,char16_t,char32_t,constexpr,%
539     decltype,noexcept,nullptr,static_assert,thread_local},%
540   }%
```

Michael Piefel suggested some more changes and added GNU C++. For compatibility the ‘ANSI’ language is defined in terms of ISO.

```
541 \lst@definelanguage[ANSI]{C++}[ISO]{C++}{}%
```

Michael Piefel suggested some more changes and added GNU C++.

```
542 \lst@definelanguage[GNU]{C++}[ISO]{C++}%
543   {morekeywords={__attribute__,__extension__,__restrict,__restrict__,%
544     typeof,__typeof__},%
545   }%
546 \lst@definelanguage[Visual]{C++}[ISO]{C++}%
547   {morekeywords={__asm,__based,__cdecl,__declspec,dllexport,%
548     dllimport,__except,__fastcall,__finally,__inline,__int8,__int16,%
549     __int32,__int64,naked,__stdcall,thread,__try,__leave},%
550   }%
551 \lst@definelanguage[ISO]{C++}[ANSI]{C}%
552   {morekeywords={and,and_eq,asm,bad_cast,bad_typeid,bitand,bitor,bool,%
553     catch,class,compl,const_cast,delete,dynamic_cast,explicit,export,%
554     false,friend,inline,mutable,namespace,new,not,not_eq,operator,or,%
```



```

555     or_eq,private,protected,public,reinterpret_cast,static_cast,%
556     template,this,throw,true,try,typeid,type_info,typename,using,%
557     virtual,wchar_t,xor,xor_eq},%
558 }%
559 http://www.celoxica.com
574 %%
575 \lst@definlanguage[Handel]{C}[ANSI]{C}
576 {morekeywords={assert,chan,chanin,chanout,clock,delay,expr,external,%
577     external_divide,family,ifselect,in,inline,interface,internal,%
578     internal_divid,intwidth,let,macro,mpram,par,part,prialt,proc,ram,%
579     releasesema,reset,rom,select,sema,set,seq,shared,signal,try,%
580     reset,trysema,typeof,undefined,width,with,wom},%
581 }%
582 

```

599 $\langle *lang1 \rangle$

Thanks go to Martin Brodbeck.

```
600 %%
601 %% C-Sharp definition (c) 2002 Martin Brodbeck
602 %%
603 \lst@definlanguage[Sharp]{C}%
604 {morekeywords={abstract,base,bool,break,byte,case,catch,char,checked,%
605     class,const,continue,decimal,default,delegate,do,double,else,%
606     enum,event,explicit,extern,false,finally,fixed,float,for,foreach,%
607     goto,if,implicit,in,int,interface,internal,is,lock,long,%
608     namespace,new,null,object,operator,out,override,params,private,%
609     protected,public,readonly,ref,return,sbyte,sealed,short,sizeof,%
610     static,string,struct,switch,this,throw,true,try,typeof,uint,%
611     ulong,unchecked,unsafe,ushort,using,virtual,void,while,%
612     as,volatile,stackalloc},% Kai K\'ohne
613     sensitive,%
614     morecomment=[s]{/*}{*/},%
615     morecomment=[l]//,%
616     morestring=[b]"
617 }[keywords,comments,strings]
618  $\langle /lang1 \rangle$ 
```

2.12 Caml and Objective Caml

Patrick Cousot mailed me the definition. Tom Hirschowitz added two keywords.

```
619  $\langle *lang2 \rangle$ 
620 %%
621 %% (Objective) Caml definition (c) 1999 Patrick Cousot
622 %%
623 %% Objective CAML and Caml light are freely available, together with a
624 %% reference manual, at URL ftp.inria.fr/lang/caml-light for the Unix,
625 %% Windows and Macintosh OS operating systems.
626 %%
627 \lst@definlanguage[Objective]{Caml}[light]{Caml}
628 {deletekeywords={not,prefix,value,where},%
629     morekeywords={assert,asr,class,closed,constraint,external,false,%
630         functor,include,inherit,land,lazy,lor,lsl,lsr,lxor,method,mod,%
631         module,new,open,parser,private,sig,struct,true,val,virtual,when,%
632         object,ref},% TH
633 }%
634 \lst@definlanguage[light]{Caml}
635 {morekeywords={and,as,begin,do,done,downto,else,end,exception,for,%
636     fun,function,if,in,let,match,mutable,not,of,or,prefix,rec,then,%
637     to,try,type,value,where,while,with},%
638     sensitive,%
639     morecomment=[n]{(*}{*)},%
640     morestring=[b]" ,%
641     moredelim=[directive]\#,%
642     moredirectives={open,close,include}%

```

```

643 }[keywords,comments,strings,directives]%
644 </lang2>

```

2.13 CMake

CMake language definition for LaTeX package ‘listings’ © 2025 Firmin Launay.

```

645 <*lang2>
646 \lst@definelanguage{CMake}{
647   % morekeywords[1] - operators
648   morekeywords=[1]{ ABSOLUTE, AND, BOOL, CACHE, COMMAND, COMMENT,
649     DEFINED, DOC, EQUAL, EXISTS, EXT, FALSE, GREATER, GREATER_EQUAL,
650     IGNORE, INTERNAL, IN_LIST, IS_ABSOLUTE, IS_DIRECTORY, IS_NEWER_THAN,
651     IS_SYMLINK, LESS, LESS_EQUAL, MATCHES, NAME, NAMES, NAME_WE, NO, NOT,
652     NOTFOUND, OFF, ON, OR, PATH, PATHS, POLICY, PROGRAM, STREQUAL,
653     STRGREATER, STRGREATER_EQUAL, STRING, STRLESS, STRLESS_EQUAL, TARGET,
654     TEST, TRUE, VERSION_EQUAL, VERSION_GREATER, VERSION_GREATER_EQUAL,
655     VERSION_LESS, YES},
656   % morekeywords[2] - system variables
657   morekeywords=[2]{ APPLE, BORLAND, CYGWIN, MSVC, MSVC80, MSVC_IDE,
658     MSVC_VERSION, UNIX, WIN32, XCODE_VERSION, MSVC60, MSVC70, MSVC90,
659     MSVC71, BUILD_SHARED_LIBS, EXECUTABLE_OUTPUT_PATH,
660     LIBRARY_OUTPUT_PATH, PROJECT_BINARY_DIR, PROJECT_NAME,
661     PROJECT_SOURCE_DIR, CMAKE_CL_64, CMAKE_COMPILER_2005,
662     CMAKE_HOST_APPLE, CMAKE_HOST_SYSTEM, CMAKE_HOST_SYSTEM_NAME,
663     CMAKE_HOST_SYSTEM_PROCESSOR, CMAKE_HOST_SYSTEM_VERSION,
664     CMAKE_HOST_UNIX, CMAKE_HOST_WIN32, CMAKE_LIBRARY_ARCHITECTURE,
665     CMAKE_LIBRARY_ARCHITECTURE_REGEX, CMAKE_OBJECT_PATH_MAX,
666     CMAKE_SYSTEM, CMAKE_SYSTEM_NAME, CMAKE_SYSTEM_PROCESSOR,
667     CMAKE_SYSTEM_VERSION, CMAKE_ABSOLUTE_DESTINATION_FILES,
668     CMAKE_AUTOMOC_RELAXED_MODE, CMAKE_BACKWARDS_COMPATIBILITY,
669     CMAKE_BUILD_TYPE, CMAKE_COLOR_MAKEFILE, CMAKE_CONFIGURATION_TYPES,
670     CMAKE_DEBUG_TARGET_PROPERTIES, CMAKE_FIND_LIBRARY_PREFIXES,
671     CMAKE_FIND_LIBRARY_SUFFIXES, CMAKE_IGNORE_PATH, CMAKE_INCLUDE_PATH,
672     CMAKE_INSTALL_DEFAULT_COMPONENT_NAME, CMAKE_INSTALL_PREFIX,
673     CMAKE_LIBRARY_PATH, CMAKE_MFC_FLAG, CMAKE_MODULE_PATH,
674     CMAKE_NOT_USING_CONFIG_FLAGS, CMAKE_PREFIX_PATH, CMAKE_PROGRAM_PATH,
675     CMAKE_SKIP_INSTALL_ALL_DEPENDENCY, CMAKE_SYSTEM_IGNORE_PATH,
676     CMAKE_SYSTEM_INCLUDE_PATH, CMAKE_SYSTEM_LIBRARY_PATH,
677     CMAKE_SYSTEM_PREFIX_PATH, CMAKE_SYSTEM_PROGRAM_PATH,
678     CMAKE_USER_MAKE_RULES_OVERRIDE,
679     CMAKE_WARN_ON_ABSOLUTE_INSTALL_DESTINATION,
680     CMAKE_ARCHIVE_OUTPUT_DIRECTORY, CMAKE_AUTOMOC,
681     CMAKE_AUTOMOC_MOC_OPTIONS, CMAKE_BUILD_WITH_INSTALL_RPATH,
682     CMAKE_DEBUG_POSTFIX, CMAKE_EXE_LINKER_FLAGS, CMAKE_Fortran_FORMAT,
683     CMAKE_Fortran_MODULE_DIRECTORY, CMAKE_GNUtoMS,
684     CMAKE_INCLUDE_CURRENT_DIR, CMAKE_INCLUDE_CURRENT_DIR_IN_INTERFACE,
685     CMAKE_INSTALL_NAME_DIR, CMAKE_INSTALL_RPATH,
686     CMAKE_INSTALL_RPATH_USE_LINK_PATH, CMAKE_LIBRARY_OUTPUT_DIRECTORY,

```

```

687 CMAKE_LIBRARY_PATH_FLAG, CMAKE_LINK_DEF_FILE_FLAG,
688 CMAKE_LINK_DEPENDS_NO_SHARED, CMAKE_LINK_INTERFACE_LIBRARIES,
689 CMAKE_LINK_LIBRARY_FILE_FLAG, CMAKE_LINK_LIBRARY_FLAG,
690 CMAKE_MACOSX_BUNDLE, CMAKE_NO_BUILTIN_CHRPATH,
691 CMAKE_PDB_OUTPUT_DIRECTORY, CMAKE_COMPILE_PDB_OUTPUT_DIRECTORY,
692 CMAKE_POSITION_INDEPENDENT_CODE, CMAKE_RUNTIME_OUTPUT_DIRECTORY,
693 CMAKE_SKIP_BUILD_RPATH, CMAKE_SKIP_INSTALL_RPATH,
694 CMAKE_TRY_COMPILE_CONFIGURATION, CMAKE_USE_RELATIVE_PATHS,
695 CMAKE_WIN32_EXECUTABLE, CMAKE_AR, CMAKE_ARGC, CMAKE_ARGV0,
696 CMAKE_BINARY_DIR, CMAKE_BUILD_TOOL, CMAKE_CACHEFILE_DIR,
697 CMAKE_CACHE_MAJOR_VERSION, CMAKE_CACHE_MINOR_VERSION,
698 CMAKE_CACHE_PATCH_VERSION, CMAKE_CFG_INTDIR, CMAKE_COMMAND,
699 CMAKE_CROSSCOMPILING, CMAKE_CTEST_COMMAND, CMAKE_CURRENT_BINARY_DIR,
700 CMAKE_CURRENT_LIST_DIR, CMAKE_CURRENT_LIST_FILE,
701 CMAKE_CURRENT_LIST_LINE, CMAKE_CURRENT_SOURCE_DIR, CMAKE_DL_LIBS,
702 CMAKE_EDIT_COMMAND, CMAKE_EXECUTABLE_SUFFIX, CMAKE_EXTRA_GENERATOR,
703 CMAKE_EXTRA_SHARED_LIBRARY_SUFFIXES, CMAKE_GENERATOR,
704 CMAKE_HOME_DIRECTORY, CMAKE_IMPORT_LIBRARY_PREFIX,
705 CMAKE_IMPORT_LIBRARY_SUFFIX, CMAKE_LINK_LIBRARY_SUFFIX,
706 CMAKE_MAJOR_VERSION, CMAKE_MAKE_PROGRAM, CMAKE_MINOR_VERSION,
707 CMAKE_PARENT_LIST_FILE, CMAKE_PATCH_VERSION, CMAKE_PROJECT_NAME,
708 CMAKE_RANLIB, CMAKE_ROOT, CMAKE_SCRIPT_MODE_FILE,
709 CMAKE_SHARED_LIBRARY_PREFIX, CMAKE_SHARED_LIBRARY_SUFFIX,
710 CMAKE_SHARED_MODULE_PREFIX, CMAKE_SHARED_MODULE_SUFFIX,
711 CMAKE_SIZEOF_VOID_P, CMAKE_SKIP_RPATH, CMAKE_SOURCE_DIR,
712 CMAKE_STANDARD_LIBRARIES, CMAKE_STATIC_LIBRARY_PREFIX,
713 CMAKE_STATIC_LIBRARY_SUFFIX, CMAKE_TWEAK_VERSION,
714 CMAKE_USING_VC_FREE_TOOLS, CMAKE_VERBOSE_MAKEFILE, CMAKE_VERSION },
715 % morekeywords[3] - commands
716 morekeywords=[3]{ add_compile_definitions, add_compile_options,
717 add_custom_command, add_custom_target, add_definitions,
718 add_dependencies, add_executable, add_library, add_link_options,
719 add_subdirectory, add_test, aux_source_directory, build_command,
720 build_name, cmake_host_system_information, cmake_minimum_required,
721 cmake_parse_arguments, cmake_policy, configure_file,
722 create_test_sourcelist, ctest_build, ctest_configure, ctest_coverage,
723 ctest_empty_binary_directory, ctest_memcheck,
724 ctest_read_custom_files, ctest_run_script, ctest_sleep, ctest_start,
725 ctest_submit, ctest_test, ctest_update, ctest_upload,
726 define_property, enable_language, enable_testing, exec_program,
727 execute_process, export, export_library_dependencies, file,
728 find_file, find_library, find_package, find_path, find_program,
729 fltk_wrap_ui, get_cmake_property, get_directory_property,
730 get_filename_component, get_property, get_source_file_property,
731 get_target_property, get_test_property, include, include_directories,
732 include_external_msproject, include_guard,
733 include_regular_expression, install, install_files, install_programs,
734 install_targets, link_directories, link_libraries, list, load_cache,
735 load_command, make_directory, mark_as_advanced, math, message,
736 option, output_required_files, project, qt_wrap_cpp, qt_wrap_ui,

```

```

737     remove, remove_definitions, return, separate_arguments, set,
738     set_directory_properties, set_property, set_source_files_properties,
739     set_target_properties, set_tests_properties, site_name, source_group,
740     string, subdir_depends, subdirs, target_compile_definitions,
741     target_compile_features, target_compile_options,
742     target_include_directories, target_link_directories,
743     target_link_libraries, target_link_options, target_sources,
744     try_compile, try_run, unset, use_mangled_mesa, utility_source,
745     variable_requires, variable_watch, write_file, break, continue, else,
746     elseif, endforeach, endfunction, endif, endmacro, endwhile, foreach,
747     function, if, macro, while },
748     % morekeywords[4] - properties
749     morekeywords=[4]{ ADVANCED, HELPSTRING, MODIFIED, STRINGS, TYPE, VALUE,
750     ABSTRACT, COMPILER_DEFINITIONS, COMPILER_DEFINITIONS_CONFIG,
751     COMPILER_FLAGS, EXTERNAL_OBJECT, Fortran_FORMAT, GENERATED,
752     HEADER_FILE_ONLY, KEEP_EXTENSION, LABELS, LANGUAGE, LOCATION,
753     MACOSX_PACKAGE_LOCATION, OBJECT_DEPENDS, OBJECT_OUTPUTS, SYMBOLIC,
754     WRAP_EXCLUDE, ATTACHED_FILES, ATTACHED_FILES_ON_FAIL, COST, DEPENDS,
755     ENVIRONMENT, FAIL_REGULAR_EXPRESSION, LABELS, MEASUREMENT,
756     PASS_REGULAR_EXPRESSION, PROCESSORS, REQUIRED_FILES, RESOURCE_LOCK,
757     RUN_SERIAL, TIMEOUT, WILL_FAIL, WORKING_DIRECTORY,
758     ADDITIONAL_MAKE_CLEAN_FILES, CACHE_VARIABLES, CLEAN_NO_CUSTOM,
759     COMPILER_DEFINITIONS, DEFINITIONS, EXCLUDE_FROM_ALL,
760     IMPLICIT_DEPENDS_INCLUDE_TRANSFORM, INCLUDE_DIRECTORIES,
761     INCLUDE_REGULAR_EXPRESSION, INTERPROCEDURAL_OPTIMIZATION,
762     LINK_DIRECTORIES, LISTFILE_STACK, MACROS, PARENT_DIRECTORY,
763     RULE_LAUNCH_COMPILE, RULE_LAUNCH_CUSTOM, RULE_LAUNCH_LINK,
764     TEST_INCLUDE_FILE, VARIABLES, ALLOW_DUPLICATE_CUSTOM_TARGETS,
765     DEBUG_CONFIGURATIONS, DISABLED_FEATURES, ENABLED_FEATURES,
766     ENABLED_LANGUAGES, FIND_LIBRARY_USE_LIB64_PATHS,
767     FIND_LIBRARY_USE_OPENBSD_VERSIONING, GLOBAL_DEPENDS_DEBUG_MODE,
768     GLOBAL_DEPENDS_NO_CYCLES, IN_TRY_COMPILE, PACKAGES_FOUND,
769     PACKAGES_NOT_FOUND, PREDEFINED_TARGETS_FOLDER,
770     REPORT_UNDEFINED_PROPERTIES, RULE_LAUNCH_COMPILE, RULE_LAUNCH_CUSTOM,
771     RULE_LAUNCH_LINK, RULE_MESSAGES, TARGET_ARCHIVES_MAY_BE_SHARED_LIBS,
772     TARGET_SUPPORTS_SHARED_LIBS, USE_FOLDERS,
773     __CMAKE_DELETE_CACHE_CHANGE_VARS_, ARCHIVE_OUTPUT_DIRECTORY,
774     ARCHIVE_OUTPUT_NAME, AUTOMOC, AUTOMOC_MOC_OPTIONS,
775     BUILD_WITH_INSTALL_RPATH, BUNDLE, BUNDLE_EXTENSION,
776     COMPATIBLE_INTERFACE_BOOL, COMPATIBLE_INTERFACE_STRING,
777     COMPILER_DEFINITIONS, COMPILER_FLAGS, DEBUG_POSTFIX, DEFINE_SYMBOL,
778     ENABLE_EXPORTS, EXCLUDE_FROM_ALL, EchoString, FOLDER, FRAMEWORK,
779     Fortran_FORMAT, Fortran_MODULE_DIRECTORY, GENERATOR_FILE_NAME,
780     GNUtoMS, HAS_CXX, IMPLICIT_DEPENDS_INCLUDE_TRANSFORM, IMPORTED,
781     IMPORTED_CONFIGURATIONS, IMPORTED_IMPLIB,
782     IMPORTED_LINK_DEPENDENT_LIBRARIES, IMPORTED_LINK_INTERFACE_LANGUAGES,
783     IMPORTED_LINK_INTERFACE_LIBRARIES,
784     IMPORTED_LINK_INTERFACE_MULTIPLICITY, IMPORTED_LOCATION,
785     IMPORTED_NO_SONAME, IMPORTED_SONAME, IMPORT_PREFIX, IMPORT_SUFFIX,
786     INSTALL_NAME_DIR, INSTALL_RPATH, INSTALL_RPATH_USE_LINK_PATH,

```

```

787     INTERFACE, INTERFACE_COMPILE_DEFINITIONS,
788     INTERFACE_INCLUDE_DIRECTORIES, INTERPROCEDURAL_OPTIMIZATION, LABELS,
789     LIBRARY_OUTPUT_DIRECTORY, LIBRARY_OUTPUT_NAME, LINKER_LANGUAGE,
790     LINK_DEPENDS, LINK_FLAGS, LINK_INTERFACE_LIBRARIES,
791     LINK_INTERFACE_MULTIPLICITY, LINK_LIBRARIES, LINK_SEARCH_END_STATIC,
792     LINK_SEARCH_START_STATIC, LOCATION, MACOSX_BUNDLE,
793     MACOSX_BUNDLE_INFO_PLIST, MACOSX_FRAMEWORK_INFO_PLIST, NO_SONAME,
794     OSX_ARCHITECTURES, OUTPUT_NAME, PDB_NAME, POST_INSTALL_SCRIPT,
795     PREFIX, PRE_INSTALL_SCRIPT, PRIVATE, PRIVATE_HEADER, PROJECT_LABEL,
796     PUBLIC, PUBLIC_HEADER, RESOURCE, RULE_LAUNCH_COMPILE,
797     RULE_LAUNCH_CUSTOM, RULE_LAUNCH_LINK, RUNTIME_OUTPUT_DIRECTORY,
798     RUNTIME_OUTPUT_NAME, SKIP_BUILD_RPATH, SOURCES, SOVERSION,
799     STATIC_LIBRARY_FLAGS, SUFFIX, TYPE, VERSION, VS_DOTNET_REFERENCES,
800     VS_GLOBAL_KEYWORD, VS_GLOBAL_PROJECT_TYPES, VS_KEYWORD,
801     VS_SCC_AUXPATH, VS_SCC_LOCALPATH, VS_SCC_PROJECTNAME,
802     VS_SCC_PROVIDER, VS_WINRT_EXTENSIONS, VS_WINRT_REFERENCES,
803     WIN32_EXECUTABLE, ALL, APPEND, BOOL, BUILD, BYPRODUCTS, CACHE,
804     CAPTURE_CMAKE_ERROR, CMAKE_FIND_PACKAGE_NAME,
805     CMAKE_FIND_ROOT_PATH_BOTH, CMAKE_FLAGS, COMMAND,
806     COMMAND_EXPAND_LISTS, COMMENT, COMPILE_DEFINITIONS,
807     COMPILE_OUTPUT_VARIABLE, COMPONENT, CONDITION, CONFIGURATION,
808     CONFIGURATIONS, CONTENT, COPY_FILE, COPY_FILE_ERROR, COPYONLY,
809     DEFECT_COUNT, DEPENDS, DEPFILE, DESTINATION, DIRECTORY, DOC,
810     ENCODING, END, ESCAPE_QUOTES, EXCLUDE, EXCLUDE_FIXTURE,
811     EXCLUDE_FIXTURE_CLEANUP, EXCLUDE_FIXTURE_SETUP, EXCLUDE_FROM_ALL,
812     EXCLUDE_LABEL, EXPECTED_HASH, EXPECTED_MD, EXPR, FILEPATH, FILES,
813     FILTER, FIND, FLAGS, GET, GLOBAL, HINTS, HTTPHEADER,
814     IMPLICIT_DEPENDS, INACTIVITY_TIMEOUT, INCLUDE, INCLUDE_LABEL, INPUT,
815     INPUT_FILE, INSERT, INSTALL, INTERNAL, LABELS, LENGTH,
816     LENGTH_MAXIMUM, LENGTH_MINIMUM, LIMIT_COUNT, LIMIT_INPUT,
817     LIMIT_OUTPUT, LINK_LIBRARIES, LOG, MAIN_DEPENDENCY, MD, NAMES, NETRC,
818     NETRC_FILE, NEWLINE_CONSUME, NEWLINE_STYLE, NO_CMAKE_FIND_ROOT_PATH,
819     NO_HEX_CONVERSION, NUMBER_ERRORS, NUMBER_WARNINGS,
820     ONLY_CMAKE_FIND_ROOT_PATH, OPTIONAL, OPTIONS, OUTPUT, OUTPUT_QUIET,
821     OUTPUT_VARIABLE, PACKAGE_FIND_NAME, PACKAGE_VERSION, PARALLEL_LEVEL,
822     PARTS, PATH, PATH_SUFFIXES, PERMISSIONS, PRE_BUILD, PREFIX,
823     PROJECT_NAME, QUIET, REGEX, REGULAR_EXPRESSION, REMOVE_AT,
824     REMOVE_DUPLICATES, RENAME, RESULT_VARIABLE, RESULTS_VARIABLE,
825     RETRY_COUNT, RETRY_DELAY, RETURN_VALUE, REVERSE, RUN_OUTPUT_VARIABLE,
826     SCHEDULE_RANDOM, SHOW_PROGRESS, SORT, SOURCE, SOURCES, START, STATIC,
827     STATUS, STOP_TIME, STRIDE, STRING, TARGET, TEST, TEST_LOAD, TIMEOUT,
828     TLS_CAINFO, TLS_VERIFY, TREE, TYPE, USERPWD, USES_TERMINAL, VARIABLE,
829     VERBATIM, WORKING_DIRECTORY },
830 % morekeywords[5] - compiler flags
831 morekeywords=[5]{ CMAKE_CXX_FLAGS, CMAKE_CXX_FLAGS_DEBUG,
832     CMAKE_CXX_FLAGS_MINSIZEREL, CMAKE_CXX_FLAGS_RELEASE,
833     CMAKE_CXX_FLAGS_RELWITHDEBINFO },
834 sensitive=false,
835 morecomment=[1]\#,
836 morestring=[b]",

```

```

837     morestring=[b]',
838     alsoletter={_,-,<,>},
839 }
840 </lang2>

```

2.14 Common Intermediate Language

This language definition for CIL (Common Intermediate Language, part of Microsoft's .NET interface) was provided by Olaf Conradi Akim Demaille pointed out that the support for Algol was broken, but that came from a long missing '@' in the following `lst@definelanguage`.

```

841 (*lang3)
842 \lst@definelanguage{CIL}{%
843   morekeywords=[1]{assembly, beforefieldinit, class, default, cdecl, cil,%
844     corflags, culture, custom, data, entrypoint, fastcall, field, file,%
845     hidebysig, hash, il, imagebase, locals, managed, marshall, maxstack,%
846     mresource, method, module, namespace, publickey, stdcall, subsystem,%
847     thiscall, unmanaged, vararg, ver, vtfixup,%
848     % types
849     bool, char, float32, float64, int, int8, int16, int32, int64, method,%
850     native, object, string, modopt, modreq, pinned, typedref, valuetype,%
851     unsigned, void,%
852     % defining types
853     abstract, ansi, auto, autochar, beforefieldinit, boxed, class,%
854     explicit, extends, implements, interface, famandassem, family,%
855     famorassem, inherits, nested, override, pack, private, property,%
856     public, rtspecialname, sealed, sequential, serializable, size,%
857     specialname, static, unicode,%
858     % postfix
859     algorithm, alignment, extern, init, from, nometadata, with},%
860   morekeywords=[2]{add, and, arglist, beq, bge, bgt, ble, blt, bne, br,%
861     break, brfalse, brtrue, call, calli, ceq, cgt, ckfinite, clt, conv,%
862     cpblk, div, dup, endfilter, endfinally, initblk, jmp, ldarg, ldarga,%
863     ldc, ldftn, ldind, ldloc, ldloca, ldnull, leave, localloc, mul, neg,%
864     nop, not, or, pop, rem, ret, shl, shr, starg, stind, stloc, sub,%
865     switch, xor,%
866     % prefix
867     tail, unaligned, volatile,
868     % postfix
869     un, s, ovf,
870     % object
871     box, callvirt, castclass, cpobj, ctor, ctor, initobj, isinst, ldelem,%
872     ldelema, ldfld, ldflda, ldlen, ldobj, ldsfld, ldsflda, ldstr, ldtoken,%
873     ldvirtftn, mkrefany, newarr, newobj, refanytype, refanyval, rethrow,%
874     sizeof, stelem, stfld, stobj, stsfld, throw, unbox},%
875   sensitive=true,%
876   morecomment=[1]{//},%
877   morestring=[b]"%

```

```

878 }[keywords,comments,strings]
879 </lang3>

```

2.15 Cobol

Keywords are not marked if their names are broken by EOL, for example DEBUG-CONTENTS. Sometimes portions of a string are not printed as a string. This happens if the double quote is not doubled to insert a quote, e.g. `"bad" cobol` won't be printed correctly.

```

880 (*lang2)

881 \lst@definelanguage[ibm]{Cobol}[1985]{Cobol}%
882   {morekeywords={ADDRESS,BEGINNING,COMP-3,COMP-4,COMPUTATIONAL,%
883     COMPUTATIONAL-3,COMPUTATIONAL-4,DISPLAY-1,EGCS,EJECT,ENDING,%
884     ENTRY,GOBACK,ID,MORE-LABELS,NULL,NULLS,PASSWORD,RECORDING,%
885     RETURN-CODE,SERVICE,SKIP1,SKIP2,SKIP3,SORT-CONTROL,SORT-RETURN,%
886     SUPPRESS,TITLE,WHEN-COMPILED},%
887   }%

888 \lst@definelanguage[1985]{Cobol}[1974]{Cobol}%
889   {morekeywords={ALPHABET,ALPHABETIC-LOWER,ALPHABETIC-UPPER,%
890     ALPHANUMERIC,ALPHANUMERIC-EDITED,ANY,CLASS,COMMON,CONTENT,%
891     CONTINUE,DAY-OF-WEEK,END-ADD,END-CALL,END-COMPUTE,END-DELETE,%
892     END-DIVIDE,END-EVALUATE,END-IF,END-MULTIPLY,END-PERFORM,END-READ,%
893     END-RECEIVE,END-RETURN,END-REWRITE,END-SEARCH,END-START,%
894     END-STRING,END-SUBTRACT,END-UNSTRING,END-WRITE,EVALUATE,EXTERNAL,%
895     FALSE,GLOBAL,INITIALIZE,NUMERIC-EDITED,ORDER,OTHER,%
896     PACKED-DECIMAL,PADDING,PURGE,REFERENCE,RELOAD,REPLACE,STANDARD-1,%
897     STANDARD-2,TEST,THEN,TRUE},%
898   }%

899 \lst@definelanguage[1974]{Cobol}%
900   {morekeywords={ACCEPT,ACCESS,ADD,ADVANCING,AFTER,ALL,ALPHABETIC,ALSO,%
901     ALTER,ALTERNATE,AND,ARE,AREA,AREAS,ASCENDING,ASSIGN,AT,AUTHOR,%
902     BEFORE,BINARY,BLANK,BLOCK,BOTTOM,BY,CALL,CANCEL,CD,CF,CH,%
903     CHARACTER,CHARACTERS,CLOCK-UNITS,CLOSE,COBOL,CODE,CODE-SET,%
904     COLLATING,COLUMN,COMMA,COMMUNICATION,COMP,COMPUTE,CONFIGURATION,%
905     CONTAINS,CONTROL,CONTROLS,CONVERTING,COPY,CORR,CORRESPONDING,%
906     COUNT,CURRENCY,DATA,DATE,DATE-COMPILED,DATE-WRITTEN,DAY,DE,%
907     DEBUG-CONTENTS,DEBUG-ITEM,DEBUG-LINE,DEBUG-NAME,DEBUG-SUB1,%
908     DEBUG-SUB2,DEBUG-SUB3,DEBUGGING,DECIMAL-POINT,DECLARATIVES,%
909     DELETE,DELIMITED,DELIMITER,DEPENDING,DESCENDING,DESTINATION,%
910     DETAIL,DISABLE,DISPLAY,DIVIDE,DIVISION,DOWN,DUPLICATES,DYNAMIC,%
911     EGI,ELSE,EMI,ENABLE,END,END-OF-PAGE,ENTER,ENVIRONMENT,EOP,EQUAL,%
912     ERROR,ESI,EVERY,EXCEPTION,EXIT,EXTEND,FD,FILE,FILE-CONTROL,%
913     FILLER,FINAL,FIRST,FOOTING,FOR,FROM,GENERATE,GIVING,GO,GREATER,%
914     GROUP,HEADING,HIGH-VALUE,HIGH-VALUES,I-O,I-O-CONTROL,%
915     IDENTIFICATION,IF,IN,INDEX,INDEXED,INDICATE,INITIAL,INITIATE,%
916     INPUT,INPUT-OUTPUT,INSPECT,INSTALLATION,INTO,INVALID,IS,JUST,%
917     JUSTIFIED,KEY,LABEL,LAST,LEADING,LEFT,LENGTH,LESS,LIMIT,LIMITS,%

```



```

918     LINAGE,LINAGE-COUNTER,LINE,LINE-COUNTER,LINES,LINKAGE,LOCK,%
919     LOW-VALUE,LOW-VALUES,MEMORY,MERGE,MESSAGE,MODE,MODULES,MOVE,%
920     MULTIPLE,MULTIPLY,NATIVE,NEGATIVE,NEXT,NO,NOT,NUMBER,NUMERIC,%
921     OBJECT-COMPUTER,OCCURS,OF,OFF,OMITTED,ON,OPEN,OPTIONAL,OR,%
922     ORGANIZATION,OUTPUT,OVERFLOW,PAGE,PAGE-COUNTER,PERFORM,PF,PH,PIC,%
923     PICTURE,PLUS,POINTER,POSITION,PRINTING,POSITIVE,PRINTING,%
924     PROCEDURE,PROCEDURES,PROCEED,PROGRAM,PROGRAM-ID,QUEUE,QUOTE,%
925     QUOTES,RANDOM,RD,READ,RECEIVE,RECORD,RECORDING,RECORDS,REDEFINES,%
926     REEL,REFERENCES,RELATIVE,RELEASE,REMAINDER,REMOVAL,RENAMES,%
927     REPLACING,REPORT,REPORTING,REPORTS,RERUN,RESERVE,RESET,RETURN,%
928     REVERSED,REWIND,REWRITE,RF,RH,RIGHT,ROUNDED,RUN,SAME,SD,SEARCH,%
929     SECTION,SECURITY,SEGMENT,SEGMENT-LIMIT,SELECT,SEND,SENTENCE,%
930     SEPARATE,SEQUENCE,SEQUENTIAL,SET,SIGN,SIZE,SORT,SORT-MERGE,%
931     SOURCE,SOURCE-COMPUTER,SPACE,SPACES,SPECIAL-NAMES,STANDARD,START,%
932     STATUS,STOP,STRING,SUB-QUEUE-1,SUB-QUEUE-2,SUB-QUEUE-3,SUBTRACT,%
933     SUM,SYMBOLIC,SYNC,SYNCHRONIZED,TABLE,TALLYING,TAPE,TERMINAL,%
934     TERMINATE,TEXT,THAN,THROUGH,THRU,TIME,TIMES,TO,TOP,TRAILING,TYPE,%
935     UNIT,UNSTRING,UNTIL,UP,UPON,USAGE,USE,USING,VALUE,VALUES,VARYING,%
936     WHEN,WITH,WORDS,WORKING-STORAGE,WRITE,ZERO,ZEROES,ZEROS},%
937     alsodigit=-,%
938     sensitive=f,% ???
939     morecomment=[f][commentstyle][6]*,%
940     morestring=[d]"% ??? doubled
941 }[keywords,comments,strings]

```

`commentstyle` (not the surrounding brackets) have been added after a bug report by Stephen Reindl.

```
942 
```

2.16 Comal 80

The data is from

- BORGE R. CHRISTENSEN: **Strukturierte Programmierung mit COMAL 80** [aus dem Dänischen übertragen und bearbeitet von Margarete Kragh]; 2., verb. Auflage – München; Wien: Oldenburg, 1985; ISBN 3-486-26902-X.

```

943 (*lang3)
944 \lstdefinlanguage{Comal 80}%
945 {morekeywords={AND,AUTO,CASE,DATA,DEL,DIM,DIV,DO,ELSE,ENDCASE,ENDIF,%
946     ENDPROC,ENDWHILE,EOD,EXEC,FALSE,FOR,GOTO,IF,INPUT,INT,LIST,LOAD,%
947     MOD,NEW,NEXT,NOT,OF,OR,PRINT,PROC,RANDOM,RENUM,REPEAT,RND,RUN,%
948     SAVE,SELECT,STOP,TAB,THEN,TRUE,UNTIL,WHILE,ZONE},%
949     sensitive=f,% ???
950     morecomment=[1]//,%
951     morestring=[d]"%
952 }[keywords,comments,strings]
953 
```

2.17 COMMAND.COM Batch Files

This definition for DOS and Windows batch files is from Stephan Hennig.

```
954 (*lang3)
955 \lst@definelanguage[WinXP]{command.com}%
956 {morekeywords={assoc,at,attrib,bootcfg,break,caccls,call,cd,chcp,chdir,%
957     chkdsk,chkntfs,cls,cmd,cmdextversion,color,comp,compact,convert,copy,%
958     date,defined,del,dir,diskcomp,diskcopy,do,doskey,echo,else,endlocal,%
959     erase,errorlevel,exist,exit,fc,find,findstr,for,format,ftype,goto,%
960     graftabl,help,if,in,label,md,mkdir,mode,more,move,not,off,path,%
961     pause,popd,print,prompt,pushd,rd,recover,ren,rename,replace,rmdir,%
962     set,setlocal,shift,sort,start,subst,time,title,tree,type,ver,%
963     verify,vol,xcopy},%
964     sensitive=false,%
965     alsoother={@},%
966     alsoletter={\%~:-/},%
967     morecomment=[1]{rem},%
968     morecomment=[1]{reM},%
969     morecomment=[1]{rEm},%
970     morecomment=[1]{rEM},%
971     morecomment=[1]{Rem},%
972     morecomment=[1]{ReM},%
973     morecomment=[1]{REm},%
974     morecomment=[1]{REM},%
975     morestring=[d]"%
976 }[keywords,comments,strings]
977 (/lang3)
```

2.18 Comsol Multiphysics

Comsol Multiphysics (Prior to version 3.2 known as Femlab) can be used standalone or as an extension to MatLab. This definition is due to Martin Heller.

Unfortunately, there is a conflict in that Comsol is case-insensitive, whereas Matlab is case-sensitive; listings does not currently support different case-sensitivities in the same listing.

```
978 (*lang3)
979 \lst@definelanguage{Comsol}%
980 {morekeywords={%
981     adaption,arc1,arc2,arrayr,assemble,aseminit,beziercurve2,block2,%
982     block3,bsplinecurve2,bsplinecurve3,bsplinesurf3,bypassplot,cardg,%
983     ccoeffgroup,chamfer,checkgeom,circ1,circ2,coeff2cell,comsol,%
984     cone2,cone3,Contents,createhexes,createprisms,createquads,csgbl2,%
985     csgbl3,csgcmpbz,csgimplbz,csginitaux,csginitnr,csgproputil,%
986     csgrbconv,csgunique3,csguniquep,csgversion,csgvvovl,curve2,%
987     curve3,cylinder2,cylinder3,dst2str,defastget,display,drawgetobj,%
988     drawreobj,drawsetobj,dst,duplicate,dxflayers,dxfread,dxfwrite,%
989     eccone2,eccone3,eigloop,elcconstr,elcplbnd,elcplextr,elcplproj,%
```

```

990     elcplscalar,elempty,elemreobj,eleqc,eleqw,elevate,elgeom,ellip1,%
991     ellip2,ellipsoid2,ellipsoid3,ellipsoidgen_fl23,elmat,elovar,%
992     elpconstr,elshape,elvar,elvarm,embed,extrude,face3,faceprim3,%
993     fastsetop,fem2jxfem,femblocksu,femdiff,femeig,femexport,femgui,%
994     femimport,femiter,femlab,femlin,femmesh,femmeshepx,femnlin,%
995     femplot,femsfun,femsim,femsimlowlevel,femsimserver,femsol,%
996     femsolver,femstate,femstruct,femtime,femwave,festyle,fieldnames,%
997     fillet,fl1d,fl2d,fl3d,flaction,flafun,flappconvert,flappobj,%
998     flaxisequal,flbase,flbinary,flc1hs,flc2hs,flcanpnt,flcell2draw,%
999     flclear,flcolorbar,flcompact,flconeplot,flcontour2mesh,%
1000    flcontour2meshaux,flconvreact,flconvreact1d,flconvreact2d,%
1001    flconvreact3d,flcyl,fldc1hs,fldc2hs,fldegree,fldegreer3,%
1002    fldegreet3,fldimvarsgen,fldisp,fldraw2cell,fldrawnow,flsmsg,%
1003    fldsmg,flvalmat,flexch,flexchprop,flfastgeom,flform,flgc,%
1004    flgcb,flgdconv,flgeom2cellstr,flgeomadj,flgeomarcize,flgeomec,%
1005    flgeommed,flgeomepol,flgeomex,flgeomfc,flgeomfd,flgeomfdp,%
1006    flgeomff1,flgeomff2,flgeomfn,flgeomfs,flgeomgetlocalsys,%
1007    flgeominit,flgeominitprop,flgeomittransform,flgeomloft,flgeommesh,%
1008    flgeomnbs,flgeomnes,flgeomnmr,flgeomnv,flgeompsinv,flgeomrmsing,%
1009    flgeomrotp,flgeomsd,flgeomsdm,flgeomse,flgeomsf2,flgeomspm,%
1010    flgeomtransform,flgeomud,flgeomvtx,flgetdraw,flheat,flheat1d,%
1011    flheat2d,flheat3d,flhelmholtz,flhelmholtz1d,flhelmholtz2d,%
1012    flhelmholtz3d,flim2curve,flinterp1,fliscont,flismember,%
1013    flisnumeric,fljaction,flaplace,flaplace1d,flaplace2d,%
1014    flaplace3d,flload,flloadfl,flloadmatfile,flloadmfile,%
1015    fllobj2cellstr,flmakeevalstr,flmapsoljac,flmat2str,flmatch,%
1016    flmesh2spline,flmesh2splineaux,flml65setup,flngdof,flnull,%
1017    flnullorth,flpde,flpdeac,flpdec,flpdec1d,flpdec2d,flpdec3d,%
1018    flpdedc,flpdedc2d,flpdedc3d,flpdedf,flpdedf1d,flpdedf2d,%
1019    flpdedf3d,flpdees,flpdees2d,flpdees3d,flpdeg,flpdeg1d,flpdeg2d,%
1020    flpdeg3d,flpdeht,flpdeht1d,flpdeht2d,flpdeht3d,flpdems,flpdems2d,%
1021    flpdems3d,flpdens,flpdens2d,flpdens3d,flpdepn,flpdeps,flpdsm3d,%
1022    flpdew,flpdew1d,flpdew2d,flpdew3d,flpdewb,flpdewb1d,flpdewb2d,%
1023    flpdewb3d,flpdewc,flpdewc1d,flpdewc2d,flpdewc3d,flpdewe,%
1024    flpdewe3d,flpdewp,flpdewp2d,flpdewp3d,flplot,flpoisson,%
1025    flpoisson1d,flpoisson2d,flpoisson3d,flpric2,flpric3,flreobj,%
1026    flreport,flresolvepath,flsave,flschrodinger,flschrodinger1d,%
1027    flschrodinger2d,flschrodinger3d,flsde,flsdp,flsdt,flsetalpha,%
1028    flsetdraw,flsmsg,flsmsg,flspnull,fltherm_cond1,fltrg,flversion,%
1029    flversions,flverver,flwave,flwave1d,flwave2d,flwave3d,%
1030    flwriteghist,formstr,gdsread,gencyl2,gencyl3,genextrude,%
1031    genextrudeaux,geom,geom0,geom0get,geom1,geom1get,geom2,geom2get,%
1032    geom3,geom3get,geom3j2m,geom3m2j,geomaddlblmargin,geomanalyze,%
1033    geomarrayr,geomassign,geomcoerce,geomcomp,geomconnect,geomcopy,%
1034    geomcsg,geomdel,geomedit,geomexport,geomfile,geomget,%
1035    geomgetlabels,geomgetwrkpln,geomimport,geominfo,geominfoaux,%
1036    geomlblplot,geomload,geomnumparse,geomobject,geomparse,geomplot,%
1037    geomplot1,geomplot2,geomplot3,geomposition,geompropoutil,%
1038    geomreconstruct,geomreobj,geomserver,geomspline,geomsurf,%
1039    geomupdate,get,getfemgeom,getisocurve,getjptr,getmesh,getsdim,%

```

```

1040     getvmatrixexch,handlesolnumstr, helix1, helix2, helix3, hexahedron2,%
1041     hexahedron3, histfrommat, idst, igesread, importplotdata, isempty,%
1042     isfield, isfunc, isscript, javaclass, jproputil, jptr2geom, jptrgeom1,%
1043     jptrgeom1_fl23, jptrgeom2, jptrgeom2_fl23, jptrgeom3, jptrgeom3_fl23,%
1044     keiter, line1, line2, loadobj, loft, matlabinterpdata, mesh2geom,%
1045     meshassign, meshcaseadd, meshcasedel, meshcaseutil, meshcheck,%
1046     meshembed, meshenrich, meshenrich1, meshenrich2, meshenrich3,%
1047     meshexport, meshextend, meshextrude, meshget, meshimport, meshinit,%
1048     meshintegrate, meshmap, meshoptim, meshparse, meshplot, meshplot1,%
1049     meshplot2, meshplot3, meshplotproputil, meshpoi, meshproputil,%
1050     meshptplot, meshqual, meshrefine, meshrevolve, meshsmooth,%
1051     meshsmooth2, meshsweep, meshvolume, minus, mirror, mkreflparams,%
1052     mmsolve, modetype, move, moveglobalfields, mphproputil, mtimes,%
1053     multiphysics, mypostinterp, notscript, onlyelsconstr, outassign,%
1054     paramgeom, pde2draw, pde2equ, pde2fem, pde2geom, pdeblxpd, plus, point1,%
1055     point2, point3, poisson, poly1, poly2, postanim, postapplysettings,%
1056     postarrow, postarrowbnd, postcolorbar, postcont, postcontdomind,%
1057     postcoord, postcopyprop, postcrossplot, postdistrprops, posteval,%
1058     postflow, postfnd, postgeomplot, postgetfem, postgetstylecolor,%
1059     postglobaleval, postglobalplot, postgp, postinit, postint, postinterp,%
1060     postiso, postlin, postmakecontcol, postmax, postmaxmin, postmin,%
1061     postmkcontbar, postmknormexpr, postmovie, postnewplot,%
1062     postoldmaxminprops, postpd2pm, postplot, postplotconstants,%
1063     postpm2pd, postprinc, postprincbnd, postprocgui, postproputil,%
1064     postslice, postsurf, posttet, posttitle, print2file, pyramid2,%
1065     pyramid3, rect1, rect2, restorefields, revolve, rmfield, rotate,%
1066     rotmatrix, scale, serialize, set, setmesh, sh2str, sharg_2_5, shbub,%
1067     shdisc, shdiv, shherm, shlag, shvec, simplecoerce, simreobj, slblocks,%
1068     solassign, solid0, solid1, solid2, solid3, solidprim3, solproputil,%
1069     solsize, solveraddcases, sphere2, sphere3, spiceimport, splineaux,%
1070     split, splittoprim, square1, square2, stlread, submode, submodes,%
1071     subsasgn, subsref, tangent, taucs, tetrahedron2, tetrahedron3,%
1072     tobsplines, torus2, torus3, transform, update, updateassoc,%
1073     updateassocinfo, updatefem, updateguistruct, updateobj, vrmlread,%
1074     xmeshinfo, xmeshinit},%
1075     sensitive=false,%
1076     morecomment=[1]\%,%
1077     morestring=[m] '%
1078 }[keywords, comments, strings]
1079 </lang3>

```

2.19 bash, csh, and sh

csh is from Kai Below, but he pointed out that some keywords are probably missing.

```

1080 <lang1>
1081 %%
1082 %% csh definition (c) 1998 Kai Below

```

```

1083 %%
1084 \lst@definelanguage{csh}
1085   {morekeywords={alias,awk,cat,echo,else,end,endif,endsw,exec,exit,%
1086     foreach,glob,goto,history,if,logout,nice,nohup,onintr,repeat,sed,%
1087     set,setenv,shift,source,switch,then,time,while,umask,unalias,%
1088     unset,wait,while,@,env,argv,child,home,ignoreeof,noclobber,%
1089     noglob,nomatch,path,prompt,shell,status,verbose,print,printf,%
1090     sqrt,BEGIN,END},%
1091   morecomment=[l]\#,%
1092   morestring=[d]"%
1093 }[keywords,comments,strings]

```

Thanks to Riccardo Murri for the following two definitions. Scott Pakin pointed out some missing keywords (`elif`, `in` for `sh`, `caller`, `compopt`, `coproc`, `dirs`, `help`, `mapfile`, `readarray` for `bash`) to the current maintainer. The `sh` list of keywords was checked against the “Manual of the Bourne Shell on Version 7”, found at <http://www.in-ulm.de/~mascheck/bourne/v7/>, last visited on 2014/09/06. Ralf Schandl indicated the missing of an apostrophe as delimiter of strings.

```

1094 %%
1095 %% bash,sh definition (c) 2003 Riccardo Murri <riccardo.murri@gmx.it>
1096 %%
1097 \lst@definelanguage{bash}[] {sh}%
1098   {morekeywords={alias,bg,bind,builtin,caller,command,compgen,compopt,%
1099     complete,coproc,declare,disown,dirs,enable,fc,fg,help,history,%
1100     jobs,let,local,logout,mapfile,printf,pushd,popd,readarray,select,%
1101     set,suspend,shopt,source,times,type,typeset,ulimit,unalias,wait},%
1102   }%
1103 \lst@definelanguage{sh}%
1104   {morekeywords={awk,break,case,cat,cd,continue,do,done,echo,elif,else,%
1105     env,esac,eval,exec,exit,export,expr,false,fi,for,function,getopts,%
1106     hash,history,if,in,kill,login,newgrp,nice,nohup,ps,pwd,read,%
1107     readonly,return,set,sed,shift,test,then,times,trap,true,type,%
1108     ulimit,umask,unset,until,wait,while},%
1109   morecomment=[l]\#,%
1110   morestring=[d]"%,%
1111   morestring=[d]'%
1112 }[keywords,comments,strings]
1113 </lang1>

```

Jobst Hoffmann copied the definition of a style for printing Fortran code to a style for printing shell programs:

```

1114 <*bash-prf>
1115 \usepackage[rgb, x11names]{xcolor}
1116
1117 % common settings
1118 \lstset{%
1119   frame=tlb,%           the frame is open on the right side
1120   resetmargins=false,%
1121   rulesepcolor=\color{black},%

```

```

1122 numbers=left,%                % left
1123 numberstyle=\tiny,%
1124 numbersep=5pt,%
1125 firstnumber=1,%
1126 stepnumber=5,%
1127 columns=fixed,%                % to prevent inserting spaces
1128 fontadjust=true,%
1129 keepspaces=true,%
1130 basewidth=0.5em,%
1131 captionpos=t,%
1132 abovecaptionskip=\smallskipamount,% same amount as default
1133 belowcaptionskip=\smallskipamount,% in caption package
1134 }
1135 % settings for colored printing
1136 \lstdefinestyle{bash}{%
1137   backgroundcolor=\color{yellow!10},%
1138   basicstyle=\small\ttfamily,%
1139   identifierstyle=\color{black},%
1140   keywordstyle=\color{blue},%
1141   keywordstyle={[2]\color{cyan}},%
1142   keywordstyle={[3]\color{olive}},%
1143   stringstyle=\color{teal},%
1144   commentstyle=\itshape\color{orange},%
1145 }%
1146 % settings for back and white printing
1147 \lstdefinestyle{bashbw}{%
1148   backgroundcolor={},%
1149   basicstyle=\small\ttfamily,%
1150   identifierstyle={},%
1151   keywordstyle=\bfseries,%
1152   stringstyle=\itshape,%
1153   commentstyle=\slshape,%
1154   rulesepcolor=\color{black},%
1155 }%

```

This code is provided in the file `listings-bash.prf`, see section 2.4.1 (Preferences) of the listings documentation.

```
1156 </bash-prf>
```

2.20 Delphi

I took the data from Delphi 1.0 (?) online help. Christian Gudrian provided the ‘double slash’ comment.

```

1157 (*lang2)
1158 \lst@definlanguage{Delphi}%
1159 {morekeywords={and,as,asm,array,begin,case,class,const,constructor,%
1160   destructor,div,do,downto,else,end,except,exports,file,finally,%
1161   for,function,goto,if,implementation,in,inherited,inline,%
1162   initialization,interface,is,label,library,mod,nil,not,object,of,%

```

```

1163 or,packed,procedure,program,property,raise,record,repeat,set,%
1164 shl,shr,string,then,to,try,type,unit,until,uses,var,while,with,%
1165 xor,%
1166 absolute,abstract,assembler,at,cdecl,default,dynamic,export,%
1167 external,far,forward,index,name,near,nodefault,on,override,%
1168 private,protected,public,published,read,resident,storedir,%
1169 virtual,write},%
1170 morendkeywords={Abs,AddExitProc,Addr,AllocMem,AnsiCompareStr,%
1171 AnsiCompareText,AnsiLowerCase,AnsiUpperCase,Append,AppendStr,%
1172 ArcTan,AssignCrt,Assigned,AssignFile,BlockRead,BlockWrite,Break,%
1173 ChangeFileExt,ChDir,Chr,CloseFile,ClrEol,ClrScr,Concat,Continue,%
1174 Copy,Cos,CSeg,CursorTo,Date,DateTimeToFileDate,DateTimeToStr,%
1175 DateTimeToString,DateToStr,DayOfWeek,Dec,DecodeDate,DecodeTime,%
1176 Delete,DeleteFile,DiskFree,DiskSize,Dispose,DisposeStr,%
1177 DoneWinCrt,DSeg,EncodeDate,EncodeTime,Eof,Eoln,Erase,Exclude,%
1178 Exit,Exp,ExpandFileName,ExtractFileExt,ExtractFileName,%
1179 ExtractFilePath,FileAge,FileClose,FileDateToDateTime,FileExists,%
1180 FileGetAttr,FileGetDate,FileOpen,FilePos,FileRead,FileSearch,%
1181 FileSeek,FileSetAttr,FileSetDate,FileSize,FillChar,FindClose,%
1182 FindFirst,FindNext,FloatToDecimal,FloatToStrF,FloatToStr,%
1183 FloatToText,FloatToTextFmt,Flush,FmtLoadStr,FmtStr,Format,%
1184 FormatBuf,FormatDateTime,FormatFloat,Frac,Free,FreeMem,GetDir,%
1185 GetMem,GotoXY,Halt,Hi,High,Inc,Include,InitWinCrt,Insert,Int,%
1186 IntToHex,IntToStr,IOResult,IsValidIdent,KeyPressed,Length,Ln,Lo,%
1187 LoadStr,Low,LowerCase,MaxAvail,MemAvail,MkDir,Move,New,NewStr,%
1188 Now,Odd,Ofs,Ord,ParamCount,ParamStr,Pi,Pos,Pred,Ptr,Random,%
1189 Randomize,Read,ReadBuf,ReadKey,ReadLn,ReAllocMem,Rename,%
1190 RenameFile,Reset,Rewrite,RmDir,Round,RunError,ScrollTo,Seek,%
1191 SeekEof,SeekEoln,Seg,SetTextBuf,Sin,SizeOf,SPtr,Sqr,Sqrt,SSeg,%
1192 Str,StrCat,StrComp,StrCopy,StrDispose,StrECopy,StrEnd,StrFmt,%
1193 StrLCat,StrLComp,StrLComp,StrLCopy,StrLen,StrLFmt,StrLComp,%
1194 StrLower,StrMove,StrNew,StrPas,StrPCopy,StrPos,StrScan,StrRScan,%
1195 StrToDate,StrToDateTime,StrToFloat,StrToInt,StrToIntDef,%
1196 StrToTime,StrUpper,Succ,Swap,TextToFloat,Time,TimeToStr,%
1197 TrackCursor,Trunc,Truncate,TypeOf,UpCase,UpperCase,Val,WhereX,%
1198 WhereY,Write,WriteBuf,WriteChar,Writeln},%
1199 sensitive=f,%
1200 morecomment=[s]{(*){(*)}},%
1201 morecomment=[s]{\{\}\{\}\},%
1202 morecomment=[l]{//},% 2001 Christian Gudrian
1203 morestring=[d]'%
1204 }[keywords,comments,strings]
1205 />lang2)

```

2.21 Eiffel

Data is from

- BERTRAND MEYER: **Eiffel: the language**; Prentice Hall International (UK) Ltd, 1992; ISBN 0-13-247925-7.

```

1206 <*lang2>
1207 \lst@definlanguage{Eiffel}%
1208   {morekeywords={alias,all,and,as,BIT,BOOLEAN,CHARACTER,check,class,%
1209     creation,Current,debug,deferred,do,DOUBLE,else,elseif,end,%
1210     ensure,expanded,export,external,false,feature,from,frozen,if,%
1211     implies,indexing,infix,inherit,inspect,INTEGER,invariant,is,%
1212     like,local,loop,NONE,not,obsolete,old,once,or,POINTER,prefix,%
1213     REAL,redefine,rename,require,rescue,Result,retry,select,%
1214     separate,STRING,strip,then,true,undefine,unique,until,variant,%
1215     when,xor},%
1216     sensitive,%
1217     morecomment=[l]--,%
1218     morestring=[d] ",%
1219   }[keywords,comments,strings]

```

The key=value stringtest=false has been removed after a bug report from Xavier Crégut.

```

1220 </lang2>

```

2.22 Elan

The data come from

- LEO H. KLINGEN, JOCHEN LIEDTKE: **Programmieren mit ELAN**; B.G. Teubner, Stuttgart 1983; ISBN 3-519-02507-8.

```

1221 <*lang3>
1222 \lst@definlanguage{Elan}%
1223   {morekeywords={ABS,AND,BOOL,CAND,CASE,CAT,COLUMNS,CONCR,CONJ,CONST,%
1224     COR,DECR,DEFINES,DET,DIV,DOWNT,ELIF,ELSE,END,ENDIF,ENDOP,%
1225     ENDPACKET,ENDPROC,ENDREP,ENDSELECT,FALSE,FI,FILE,FOR,FROM,IF,%
1226     INCR,INT,INV,LEAVE,LENGTH,LET,MOD,NOT,OF,OP,OR,OTHERWISE,PACKET,%
1227     PROC,REAL,REP,REPEAT,ROW,ROWS,SELECT,SIGN,STRUCT,SUB,TEXT,THEN,%
1228     TRANSP,TRUE,TYPE,UNTIL,UPTO,VAR,WHILE,WITH,XOR,%
1229     maxint,sign,abs,min,max,random,initializerandom,subtext,code,%
1230     replace,text,laenge,pos,compress,change,maxreal,smallreal,floor,%
1231     pi,e,ln,log2,log10,sqrt,exp,tan,tand,sin,sind,cos,cosd,arctan,%
1232     arctand,int,real,lastconversionok,put,putline,line,page,get,%
1233     getline,input,output,sequentialfile,maxlinelaenge,reset,eof,%
1234     close,complexzero,complexone,complexi,complex,realpart,imagpart,%
1235     dphi,phi,vector,norm,replace,matrix,idn,row,column,sub,%
1236     replacerow,replacecolumn,replaceelement,transp,errorsstop,stop},%
1237     sensitive,%
1238     morestring=[d] "%
1239   }[keywords,strings]
1240 </lang3>

```


2.23 Erlang

Thanks to Daniel Gazard.

```
1241 (*lang3)

1242 %%
1243 %% Erlang definition (c) 2003 Daniel Gazard
1244 %%
1245 \lst@definlanguage{erlang}%
1246 {morekeywords={abs,after,and,apply,atom,atom_to_list,band,binary,%
1247     binary_to_list,binary_to_term,bor,bsl,bsr,bxor,case,catch,%
1248     date,div,element,erase,end,exit,export,float,float_to_list,%
1249     get,halt,hash,hd,if,info,import,integer,integer_to_list,%
1250     length,link,list,list_to_atom,list_to_float,list_to_integer,%
1251     list_to_tuple,module,node,nodes,now,of,or,pid,port,ports,%
1252     processes,put,receive,reference,register,registered,rem,%
1253     round,self,setelement,size,spawn,throw,time,tl,trace,trunc,%
1254     tuple,tuple_to_list,unlink,unregister,whereis,error,false,%
1255     infinity,nil,ok,true,undefined,when},%
1256 otherkeywords={->,!,[],\{\,\}},%
1257 morecomment=[l]\%,%
1258 morestring=[b]",%
1259 morestring=[b]'%
1260 }[keywords,comments,strings]

1261 (/lang3)
```

2.24 Euphoria

Detlef Reimers sent me the language definition.

```
1262 (*lang2)

1263 %%
1264 %% Euphoria definition (c) 1998 Detlef Reimers
1265 %%
1266 \lst@definlanguage{Euphoria}%
1267 % for Euphoria 2.0, Rapid Deployment Software, Kanada
1268 {morekeywords={abort,and,and_bits,append,arctan,atom,by,call,%
1269     call_proc,call_func,c_proc,c_func,clear_screen,close,%
1270     command_line,compare,constant,cos,do,date,else,elsif,end,exit,%
1271     find,floor,for,function,getc,getenv,get_key,gets,global,%
1272     get_pixel,if,include,integer,length,log,match,machine_func,%
1273     machine_proc,mem_copy,mem_set,not,not_bits,or,object,open,%
1274     or_bits,procedure,puts,position,prepend,print,printf,power,peek,%
1275     poke,pixel,poke4,peek4s,peek4u,return,rand,repeat,remainder,%
1276     routine_id,sequence,sqrt,sin,system,sprintf,then,type,to,time,%
1277     trace,tan,while,with,without,xor,xor_bits},%
1278 sensitive,%
1279 morecomment=[l]--,%
1280 morestring=[d]',%
1281 morestring=[d]"%
```

```

1282 }[keywords,comments,strings]
1283 </lang2>

```

2.25 Fortran

Took things from

- KARL HANS MÜLLER: **Fortran 77: Programmieranleitung**; 3., völlig neu bearb. Aufl. – Mannheim; Wien; Zürich: Bibliographisches Institut, 1984; ISBN 3-411-05804-8
- THOMAS MICHEL: **Fortran 90: Lehr- und Handbuch**; Mannheim; Leipzig; Wien; Zürich: BI-Wiss.-Verlag, 1994; ISBN 3-411-16861-7.

Another source for Fortran keywords is <http://fortranwiki.org/fortran/show/Keywords> where the keywords for Fortran 2003 and 2008 are taken from.

```

1284 (*lang1)

```

The current version of Fortran (Fortran 2018) is defined by ISO/IEC 1539-1:2018, for a deeper insight have a look at <https://wg5-fortran.org/f2018.html>. It contains ? new keywords, ? of them consisting of two words: FAIL IMAGE, so the list of keywords contains the single parts FAIL and IMAGE. So there is the following definition of Fortran 2018 keywords

```

1285 \lst@defineline[18]{Fortran}[08]{Fortran}{%
1286   morekeywords={FAIL, IMAGE, NON_RECURSIVE},%

```

and procedures:

```

1287   morekeywords=[3]{GET_TEAM, TEAM_NUMBER, IMAGE_TEAMS, NUM_IMAGES,
1288     THIS_IMAGE, FAILED_IMAGES, STOPPED_IMAGES, IMAGES_STATUS, CO_BROADCAST,
1289     CO_MAX, CO_MIN, CO_SUM, CO_REDUCE, ATOMIC_ADD, ATOMIC_AND, ATOMIC_OR,
1290     ATOMIC_XOR, ATOMIC_FETCH_ADD, ATOMIC_FETCH_AND, ATOMIC_FETCH_OR,
1291     ATOMIC_FETCH_XOR, ATOMIC_FETCH_CAS, IEEE_GET_MODES, IEEE_SET_MODES,
1292     IEEE_FMA, IEEE_SIGNBIT, IEEE_INT, IEEE_REM, IEEE_MAX_NUM,
1293     IEEE_MAX_NUM_MAG,
1294     IEEE_MIN_NUM, IEEE_MAX_NUM_MAG, IEEE_NEXT_DOWN, IEEE_NEXT_UP,
1295     IEEE_SUPPORT_DATATYPE, IEEE_QUIET_EQ, IEEE_QUIET_GE, IEEE_QUIET_GT,
1296     IEEE_QUIET_LE, IEEE_QUIET_LT, IEEE_QUIET_NE, IEEE_SIGNALING_EQ,
1297     IEEE_SIGNALING_GE, IEEE_SIGNALING_GT, IEEE_SIGNALING_LE,
1298     IEEE_SIGNALING_LT, IEEE_SIGNALING_NE}%
1299 }%

```

The Fortran 2008 version is defined by ISO/IEC 1539-1:2010. It contains nine new keywords, four of them consisting of two words: ERROR STOP, SYNC ALL, SYNC IMAGES, SYNC MEMORY, so the list of keywords contains the single parts ALL, ERROR, IMAGES, MEMORY, and SYNC.

```

1300 \lst@defineline[08]{Fortran}[03]{Fortran}{%
1301   morekeywords={ALL, BLOCK, CODIMENSION, CONCURRENT, CONTIGUOUS, CRITICAL,%
1302     ERROR, IMAGES, LOCK, MEMORY, SUBMODULE, SYNC, UNLOCK},%

```

New procedures in Fortran 2008:

```
1303 morekeywords=[3]{ACOSH, ASINH, ATANH, ATOMIC_DEFINE, ATOMIC_REF,%  
1304 BESSEL_J0, BESSEL_J1, BESSEL_JN, BESSEL_Y0, BESSEL_Y1, BESSEL_YN,%  
1305 BGE, BGT, BLE, BLT, C_SIZEOF, COMPILER_OPTIONS, COMPILER_VERSION,%  
1306 DSHIFTL, DSHIFTR, ERF, ERFC, ERFC_SCALED, EXECUTE_COMMAND_LINE,%  
1307 FINDLOC, GAMMA, HYPOT, IALL, IANY, IMAGE_INDEX, IPARITY, LCOBOUND,%  
1308 LEADZ, LOG_GAMMA, MASKL, MASKR, MERGE_BITS, NORM2, NUM_IMAGES,%  
1309 PARITY, POPCNT, POPPAR, SHIFTA, SHIFTL, SHIFTR, STORAGE_SIZE,%  
1310 THIS_IMAGE, TRAILZ, UCBOUND}%  
1311 }%
```

Fortran 2003 introduces the following keywords:

```
1312 \lst@definlanguage[03]{Fortran}[95]{Fortran}{%  
1313 morekeywords={ABSTRACT, ASSOCIATE, ASYNCHRONOUS, BIND, CLASS, DEFERRED,%  
1314 ENUM, ENUMERATOR, EXTENDS, FINAL, FLUSH, GENERIC, IMPORT,%  
1315 NON_OVERRIDABLE, NOPASS, PASS, PROTECTED, VALUE, VOLATILE, WAIT},%  
1316 }
```

These are new options/specifiers:

```
1316 morekeywords=[2]{DECIMAL, ENCODING, IOMSG, ROUND},%
```

And also some new procedures:

```
1317 morekeywords=[3]{C_ASSOCIATED, C_F_POINTER, C_F_PROCPONTER, C_FUNLOC,%  
1318 C_LOC, COMMAND_ARGUMENT_COUNT, EXTENDS_TYPE_OF, GET_COMMAND,%  
1319 GET_COMMAND_ARGUMENT, GET_ENVIRONMENT_VARIABLE, IS_IOSTAT_END,%  
1320 MOVE_ALLOC, NEW_LINE, SAME_TYPE_AS, SELECTED_CHAR_KIND}%  
1321 }
```

Denis Girou proposed to have Fortran 95 and Fortran 90 to be equivalent.

```
1322 \lst@definlanguage[90]{Fortran}[95]{Fortran}{}
```

There is no `morecomment=[f]` in Fortran 90 since otherwise `CONTAINS` could start a comment. This problem was reported by Magne Rudshaug. Moreover the keyword `INCLUDE` is due to him.

```
1323 \lst@definlanguage[95]{Fortran}[77]{Fortran}{%  
1324 deletekeywords=SAVE,%  
1325 morekeywords={ALLOCATABLE, ALLOCATE, ASSIGNMENT, CASE, CONTAINS, CYCLE,%  
1326 DEALLOCATE, DEFAULT, EXIT, INCLUDE, IN, NONE, OUT, INTENT, INTERFACE,%  
1327 MODULE, NAMELIST, NULLIFY, ONLY, OPERATOR, OPTIONAL, OUT, POINTER,%  
1328 PRIVATE, PUBLIC, RECURSIVE, RESULT, SELECT, SEQUENCE, TARGET, TYPE,%  
1329 USE, WHERE, WHILE, BLOCKDATA, DOUBLEPRECISION, ENDBLOCKDATA, ENDFILE,%  
1330 ENDFUNCTION, ENDINTERFACE, ENDMODULE, ENDPROGRAM, ENDSELECT,%  
1331 ENDSUBROUTINE, ENDTYPE, ENDWHERE, INOUT, SELECTCASE,%  
1332 }
```

Theses keys were missing from the 1.4 version of listings:

```
1332 ELEMENTAL, ELSEWHERE, FORALL, PURE,%  
1333 PROCEDURE},%
```

This is another key missing from the 1.4 version of listings:

The list of option keywords/specifiers new in Fortran 90 and 95:

```
1334 morekeywords=[2]{ACTION, ADVANCE, DELIM, IOLENGTH, LEN, NAME, NML, PAD,%  
1335 POSITION, READWRITE, SIZE, STAT},% corrected NML from NMT
```

and the list of intrinsic procedures new in Fortran 90 and 95:

```

1336 morekeywords=[3]{ACHAR, ADJUSTL, ADJUSTR, ALL, ALLOCATED, ANY, ASSOCIATED,%
1337     BIT_SIZE, BTEST, CEILING, COUNT, CPU_TIME, CSHIFT, DATE_AND_TIME, DIGITS,%
1338     DOT_PRODUCT, EOSHIFT, EPSILON, EXPONENT, FLOOR, FRACTION, HUGE, IACHAR,%
1339     IAND, IBCLR, IBITS, IBSET, ICHAR, IEOR, IOR, ISHFT, ISHFTC, KIND, LBOUND,%
1340     LEN_TRIM,% left out LOGICAL
1341     MATMUL, MAXEXPONENT, MAXLOC, MAXVAL, MERGE, MINEXPONENT, MINLOC, MINVAL,%
1342     MODULO, MVBITS, NEAREST, NOT, NULL, PACK, PRECISION, PRESENT, PRODUCT,%
1343     RADIX, RANDOM_NUMBER, RANDOM_SEED, RANGE, RANK, REPEAT, RESHAPE,%
1344     RRSPACING, SCALE, SCAN, SELECTED_INT_KIND, SELECTED_REAL_KIND,%
1345     SET_EXPONENT, SHAPE, SINH, SIZE, SPACING, SPREAD, SUM, SYSTEM_CLOCK,%
1346     TINY, TRANSFER, TRANSPOSE, TRIM, UBOUND, UNPACK, VERIFY},%
1347 deletacomment=[f],% no fixed comment line: 1998 Magne Rudshaug
1348 morecomment=[l]!%
1349 }%

```

As proposed by Jörn Wilms keywords are *not* case sensitive. Also, note that Fortran 77 (and fixed-format source in later versions) allows space in keywords; thus, this list contains some of the more common variants (e.g., ‘GO TO’ and ‘GOTO’).

```

1350 \lstdefinlanguage[77]{Fortran}{%

```

Jobst Hoffmann divided the list of keywords into two lists. The first list contains the statement keywords, the second list contains the option keywords/specifiers and values. This makes the different meanings of the keywords distinguishable.

```

1351 morekeywords={ASSIGN, BACKSPACE, CALL, CHARACTER, %
1352     CLOSE, COMMON, COMPLEX, CONTINUE, DATA, DIMENSION, DO, DOUBLE, %
1353     ELSE, ELSEIF, END, ENDIF, ENDDO, ENTRY, EQUIVALENCE, EXTERNAL, %
1354     FILE, FORMAT, FUNCTION, GO, TO, GOTO, IF, IMPLICIT, %
1355     INQUIRE, INTEGER, INTRINSIC, LOGICAL, %
1356     OPEN, PARAMETER, PAUSE, PRECISION, PRINT, PROGRAM, READ, REAL, %
1357     RETURN, REWIND, SAVE, STOP, SUBROUTINE, THEN, %
1358     WRITE},%
1359 morekeywords=[2]{ACCESS, BLANK, BLOCK, DIRECT, EOF, ERR, EXIST,%
1360     FMT, FORM, FORMATTED, IOSTAT, NAMED, NEXTREC, NUMBER, OPENED,%
1361     REC, RECL, SEQUENTIAL, STATUS, TYPE, UNFORMATTED, UNIT},%

```

And here is another list: the list of intrinsic procedures (remember: all functions belong to the Fortran language specification!)

```

1362 morekeywords=[3]{INT, DBLE, CMPLX, ICHAR, CHAR, AINT, ANINT,% left out real
1363     NINT, ABS, MOD, SIGN, DIM, DPROD, MAX, MIN, AIMAG, CONJG, SQRT,%
1364     EXP, LOG, LOG10, SIN, COS, TAN, ASIN, ACOS, ATAN, ATAN2, SINH,%
1365     COSH, TANH, LGE, LGT, LLE, LLT, LEN, INDEX},%

```

And here is the last list: fortran operators:

```

1366 morekeywords=[4]{AND, EQ, EQV, FALSE, GE, GT, OR, LE, LT, NE, NEQV,%
1367     NOT, TRUE},%
1368 sensitive=f,% not Fortran-77 standard, but allowed in Fortran-95 %%
1369 morecomment=[f]*,%
1370 morecomment=[f]C,%
1371 morecomment=[f]c,%
1372 morestring=[d]",%% not Fortran-77 standard, but allowed in Fortran-95 %%

```

```

1373   morestring=[d] '%
1374   }[keywords,comments,strings]
1375 />lang1)

Jobst Hoffmann supplied a definition of a style for printing Fortran code:
1376 <(*fortran-prf)
1377 \usepackage[rgb, x11names]{xcolor}
1378
1379 % common settings
1380 \lstset{%
1381   frame=tlb,%           the frame is open on the right side
1382   resetmargins=false,%
1383   rulesepcolor=\color{black},%
1384   numbers=left,%           % left
1385   numberstyle=\tiny,%
1386   numbersep=5pt,%
1387   firstnumber=1,%
1388   stepnumber=5,%
1389   columns=fixed,%           % to prevent inserting spaces
1390   fontadjust=true,%
1391   keepspaces=true,%
1392   basewidth=0.5em,%
1393   captionpos=t,%
1394   abovecaptionskip=\smallskipamount,% same amount as default
1395   belowcaptionskip=\smallskipamount,% in caption package
1396 }
1397 % settings for colored printing
1398 \lstdefinestyle{fortran}{%
1399   backgroundcolor=\color{yellow!10},%
1400   basicstyle=\small\ttfamily,%
1401   identifierstyle=\color{black},%
1402   keywordstyle=\color{blue},%
1403   keywordstyle={[2]\color{cyan}},%
1404   keywordstyle={[3]\color{olive}},%
1405   stringstyle=\color{teal},%
1406   commentstyle=\itshape\color{orange},%
1407 }%
1408 % settings for back and white printing
1409 \lstdefinestyle{fortranbw}{%
1410   backgroundcolor={},%
1411   basicstyle=\small\ttfamily,%
1412   identifierstyle={},%
1413   keywordstyle=\bfseries,%
1414   stringstyle=\itshape,%
1415   commentstyle=\slshape,%
1416   rulesepcolor=\color{black},%
1417 }%

```

This code is provided in the file `listings-fortran.prf`, see section 2.4.1 (Preferences) of the listings documentation.

```
1418 </fortran-prf>
```

2.26 GAP—Groups, Algorithms, Programming

GAP is a System for Computational Discrete Algebra, a description can be found at <http://www.gap-system.org/>. Heiko Oberdiek provided a language definition without knowing this language, so any error should be announced to the current maintainer of the listings package.

```
1419 <*lang2>
1420 %%
1421 %% GAP definition
1422 %% (c) 2013 Heiko Oberdiek
1423 %%
1424 \lst@definlanguage{GAP}{%
1425   morekeywords={%
1426     Assert,Info,IsBound,QUIT,%
1427     TryNextMethod,Unbind,and,break,%
1428     continue,do,elif,%
1429     else,end,false,fi,for,%
1430     function,if,in,local,%
1431     mod,not,od,or,%
1432     quit,rec,repeat,return,%
1433     then,true,until,while%
1434   },%
1435   sensitive,%
1436   morecomment=[l]\#,%
1437   morestring=[b]" ,%
1438   morestring=[b]' ,%
1439 }[keywords,comments,strings]
1440 </lang2>
```

2.27 Go—Groups, Algorithms, Programming

From [https://en.wikipedia.org/wiki/Go_\(programming_language\)](https://en.wikipedia.org/wiki/Go_(programming_language)): Go (often referred to as Golang) is a programming language created by Google in 2009 by Robert Griesemer, Rob Pike, and Ken Thompson. Go is a statically typed, compiled language in the tradition of C, with memory safety, garbage collection, structural typing, and CSP-style concurrency. The compiler, tools, and source code are all free and open source.

Christian Maurer provided the following language definition.

```
1441 <*lang3>
1442 %%
1443 %% Go definition
1444 %% (c) 2018 Christian Maurer
1445 %%
1446 \lst@definlanguage{Go}{%
1447   morekeywords={append,bool,break,byte,case,chan,close,complex,%
```

```

1448     complex128,complex64,const,continue,copy,default,defer,delete,%
1449     else,error,fallthrough,false,float32,float64,for,func,go,goto,%
1450     if,imag,import,int,int16,int32,int64,int8,interface,iota,len,%
1451     make,map,new,nil,package,panic,print,println,range,real,%
1452     recover,return,rune,select,string,struct,switch,true,type,%
1453     uint,uint16,uint32,uint64,uint8,uintptr,var},%
1454     sensitive,%
1455     morecomment=[s]{/*}{*/},%
1456     morecomment=[l]//,%
1457     morestring=[b]',%
1458     morestring=[b]",%
1459     morestring=[s]{'}{'},%
1460 }[keywords,comments,strings]
1461 </lang3>

```

2.28 Guarded Command Language (GCL)

As you can read below, Mark van Eijk provided this language definition.

```

1462 <lang2>
1463 %%
1464 %% Guarded Command Language (GCL)  definition
1465 %% (c) 2002 Mark van Eijk
1466 %%
1467 \lst@definlanguage{GCL}%
1468 {morekeywords={const,con,var,array,of,skip,if,fi,do,od,div,mod},%
1469   literate={| []{\ensuremath{|\hspace{-0.1em|}}2%
1470             {}|}{\ensuremath{|\hspace{-0.1em|}}2%
1471             {[]}{\ensuremath{[\hspace{-0.1em}]}}2%
1472             {->}{\ensuremath{\rightarrow}}2%
1473             {==}{\ensuremath{\equiv}}2%
1474             {>=}{\ensuremath{\geq}}2%
1475             {<=}{\ensuremath{\leq}}2%
1476             {/\!/}{\ensuremath{\land}}2%
1477             {\!/}{\ensuremath{\lor}}2%
1478             {!}{\ensuremath{\lnot}}1%
1479             {!=}{\ensuremath{\neq}}2%
1480             {max}{\ensuremath{\uparrow}}1%
1481             {min}{\ensuremath{\downarrow}}1,%
1482     sensitive=f,%
1483     morecomment=[s]{\{\}\{\}},%
1484     morestring=[d]'%
1485   }[keywords,comments,strings]
1486 </lang2>

```

2.29 Gnuplot

Thanks to Dr. Christoph Giess for providing this definition.

```

1487 (*lang2)
1488 %%
1489 %% gnuplot definition (c) Christoph Giess
1490 %%
1491 \lst@definlanguage{Gnuplot}{%
1492   {keywords={abs,acos,acosh,arg,asin,asinh,atan,atan2,atanh,besj0,%
1493     besj1,besy0,besy1,ceil,cos,cosh,erf,erfc,exp,floor,gamma,ibeta,%
1494     inverf,igamma,imag,invnorm,int,lgamma,log,log10,norm,rand,real,%
1495     sgn,sin,sinh,sqrt,tan,tanh,column,tm_hour,tm_mday,tm_min,tm_mon,%
1496     tm_sec,tm_wday,tm_yday,tm_year,valid,cd,call,clear,exit,fit,%
1497     help,if,load,pause,plot,print,pwd,quit,replot,reread,reset,save,%
1498     set,show,shell,spplot,test,update,angles,arrow,autoscale,border,%
1499     boxwidth,clabel,clip,cntrparam,contour,data,dgrid3d,dummy,%
1500     format,function,functions,grid,hidden3d,isosamples,key,keytitle,%
1501     label,logscale,mapping,offsets,output,parametric,pointsize,%
1502     polar,rrange,samples,size,style,surface,terminal,tics,time,%
1503     timefmt,title,trange,urange,variables,view,vrange,xdata,xlabel,%
1504     xmargin,xrange,xtics,mxtics,mytics,xdtics,xmtics,xzeroaxis,%
1505     ydata,ylabel,yrange,ytics,ydtics,ymtics,yzeroaxis,zdata,zero,%
1506     zeroaxis,zlabel,zrange,ztics,zdtics,zmtics,timefm,using,title,%
1507     with,index,every,thru,smooth},%
1508     sensitive,%
1509     comment=[l]\#,%
1510     morestring=[b]" ,%
1511     morestring=[b]' ,%
1512   }[keywords,comments,strings]
1513 (/lang2)

```

2.30 Hansl/Gretl

Thanks to Ignacio Díaz-Emparanza, Riccardo (Jack) Lucchetti, and Sven Schreiber for providing the definition of hansl. Hansl is the gretl scripting language (see <http://gretl.sourceforge.net>).

```

1514 (*lang2)
1515 \lst@definlanguage{hansl}{%
1516   showstringspaces = false, %
1517   morekeywords={ % hansl commands:
1518     add, adf, anova, append, ar, ar1, arbond, arch, arima, biprobit, break,%
1519     boxplot, chow, clear, coeffsum, coint, coint2, corr, corrgm, cusum,%
1520     data, dataset, delete, diff, difftest, discrete, dpanel, dummify,%
1521     duration, elif, else, end, endif, endloop, eqnprint, equation,%
1522     estimate, eval, fcast, flush, foreign, fractint, freq, function,%
1523     funcerr, garch, genr, gmm, gnuplot, graphpg, hausman, heckit, help,%
1524     hplot, hsk, hurst, if, include, info, intreg, join, kpss, labels, lad,%
1525     lags, ldif, leverage, levinlin, logistic, logit, logs, loop, mahal,%
1526     makepkg, markers, meantest, midasreg, mle, modeltab, modprint, modtest,%
1527     mpi, mpols, negbin, nls, normtest, nulldata, ols, omit, open, orthdev,%
1528     outfile, panel, pca, pergm, plot, poisson, print, printf, probit,%
1529     pvalue, quantreg, qlrtest, qqplot, quit, rename, reset, restrict,%

```



```

1530  rmplot, run, runs, scatters, sdiff, set, setinfo, setobs, setopt,%
1531  setmiss, smpl, spearman, square, store,%
1532  summary, system, tabprint, textplot, tobit, tsls, var, varlist,%
1533  vartest, vecm, vif, wls, xcorrgm, xtab, debug, return, catch, pkg,%
1534  arma, deriv, params, hessian, for, foreach, while, const},%
1535  morekeywords=[2]{ % accessors:
1536  \ $nobs, \ $nvars, \ $pd, \ $t1, \ $t2, \ $tmax, \ $datatype, \ $test,%
1537  \ $pvalue, \ $qlrbreak, \ $rlnl, \ $stopwatch, \ $unit, \ $obsmajor,%
1538  \ $obsminor, \ $obsmicro, \ $obsdate, \ $windows, \ $version, \ $error,%
1539  \ $seed, \ $huge, \ $ess, \ $T, \ $rsq, \ $sigma, \ $df, \ $ncoeff, \ $lnl,%
1540  \ $gmmcrit, \ $aic, \ $bic, \ $hqc, \ $trs, \ $dw, \ $dwpval, \ $Fstat,%
1541  \ $chisq, \ $diagtest, \ $diagpval, \ $pmanteau, \ $uhat, \ $yhat, \ $llt,%
1542  \ $ahat, \ $sample, \ $h, \ $coeff, \ $stderr, \ $vcv, \ $rho, \ $compan,%
1543  \ $xtxinv, \ $vecGamma, \ $vma, \ $fevd, \ $evals, \ $jalpha, \ $jbeta,%
1544  \ $jvbeta, \ $s00, \ $s11, \ $s01, \ $ec, \ $hausman, \ $sargan, \ $sysGamma,%
1545  \ $sysA, \ $sysB, \ $fcast, \ $fcse, \ $coeff_ci, \ $ehat, \ $mnlprobs,%
1546  \ $xlist, \ $ylist, \ $command, \ $depvar, \ $model, \ $system, \ $sysinfo},%
1547  morekeywords=[3]{ % functions
1548  BFGScmax, BFGSmax, GSSmax, I, NMmax, NRmax, abs, acos, acosh,%
1549  aggregate, argname, array, asin, asinh, atan, atanh, atof, bessell,%
1550  bkfilt, bootci, bootpval, boxcox, bread, bwfilt, bwrite, cdemean, cdf,%
1551  cdiv, cdummify, ceil, cholesky, chowlin, cmult, cnameget, cnameset,%
1552  cnorm, cnumber, cols, corr, corrgm, cos, cosh, cov, critical, cum,%
1553  curl, dayspan, defarray, defbundle, deflist, deseas, det, diag,%
1554  diagcat, diff, digamma, dnorm, dropcoll, dsort, dummify, easterday,%
1555  ecdf, eigengen, eigensym, eigsolve, epochday, errmsg, exists, exp,%
1556  fcstats, fdjac, feval, fevd, fft, ffti, filter, firstobs, fixname,%
1557  floor, fracdiff, fraclag, freq, gammafun, genseries, getenv, getinfo,%
1558  getkeys, getline, ghk, gini, ginv, grab, halton, hdprod, hfdiff,%
1559  hflags, hfldiff, hflist, hpfilt, imaxc, imaxr, imhof, iminc, iminr,%
1560  inbundle, infnorm, inlist, instring, int, inv, invcdf, invmills, invpd,%
1561  irf, irr, isconst, isdiscrete, isdummy, isnan, isoconv, isodate,%
1562  iwishart, jsonget, jsongetb, juldate, kdensity, kdsMOOTH, kfilter,%
1563  kmeier, kpsscric, ksetup, ksimdata, ksimul, ksmooth, kurtosis, lags,%
1564  lastobs, ldet, ldiff, lincomb, linearize, ljungbox, lngamma, loess,%
1565  log, log10, log2, logistic, lower, lrcovar, lrvar, max, maxc, maxr,%
1566  mcorr, mcov, mcovg, mean, meanc, meanr, median, mexp, mgradient, min,%
1567  minc, minr, missing, misszero, mlag, mlincomb, mnormal, mols, monthlen,%
1568  movavg, mpiallred, mpibcast, mpirecv, mpireduce, mpiscatter, mpisend,%
1569  mpols, mrandgen, mread, mreverse, mrls, mshape, msortby, muniform,%
1570  mweights, mwrite, mxtab, naalen, nadarwat, nelem, ngetenv, nlines,%
1571  nobs, normal, normtest, npcrr, npv, nullspace, numhess, obslabel,%
1572  obsnum, ok, onenorm, ones, orthdev, pdf, pergm, pexpand, pmax, pmean,%
1573  pmin, pnobs, polroots, polyfit, princomp, printf, prodc, prodr, psd,%
1574  psdroot, pshrink, psum, pvalue, pxnobs, pxsum, qform, qlrpval, qnorm,%
1575  qrdecomp, quadtable, quantile, randgen, randgen1, randint, rank,%
1576  ranking, rcond, readfile, regsub, remove, replace, resample, rnameget,%
1577  rnameset, round, rows, sd, sdc, sdiff, seasonals, selifc, selifr, seq,%
1578  setnote, simann, sin, sinh, skewness, sleep, smpls, span, sort, sortby,%
1579  sprintf, sqrt, square, sscanf, sst, stringify, strlen, strncmp,%

```

```

1580     strsplit, strstr, strstrip, strsub, strvals, substr, sum, sumall, sumc,%
1581     sumr, svd, svm, tan, tanh, toepsolv, tolower, toupper, tr, transp,%
1582     trimr, typeof, typestr, uniform, uniq, unvec, upper, urcpval, values,%
1583     var, varname, varnames, varnum, varsimul, vec, vech, weekday, wmean,%
1584     wsd, wvar, xmax, xmin, xmlget, zeromiss, zeros, NMmin, GSSmin,%
1585     BFGScmin, BFGSmin },%
1586     morekeywords=[4]{ % genr aliases:
1587         null, series, scalar, matrix, string, list, bundle, strings, matrices,%
1588         bundles, lists%
1589     },%
1590     sensitive=t,%
1591     morecomment=[l]{\#},%
1592     morecomment=[s]{/*}{*/},%
1593     morestring=[b]{"}%
1594 }%
1595 \lstalias{gretl}{hansl}
1596 

```

The developers of the hansl support also supplied a definition of a style for printing hansl code:

```

1597 <*hansl-prf>

1598 \usepackage[rgb, x11names]{xcolor}
1599
1600 % settings for black and white
1601 \lstdefinestyle{hanslbw}{%
1602     keywordstyle = \bfseries,
1603     keywordstyle = [2]\bfseries,
1604     keywordstyle = [3]\itshape,
1605     keywordstyle = [4]\underbar,
1606     commentstyle = \ttfamily,
1607     stringstyle = \ttfamily
1608 }
1609 % settings for colored printing
1610 \lstdefinestyle{hanslcolor}{%
1611     basicstyle = \small\ttfamily,
1612     keywordstyle = \color{red},
1613     keywordstyle = [2]\color{green},
1614     keywordstyle = [3]\color{cyan},
1615     keywordstyle = [4]\color{olive},
1616     commentstyle = \color{blue}\rmfamily, %
1617     stringstyle = \color{magenta},
1618     moredelim = [1][\color{green}]{--}
1619 }%

```

This code is provided in the file `listings-hansl.prf`, see section 2.4.1 (Preferences) of the listings documentation.

```

1620 </hansl-prf>

```

2.31 Haskell

Thanks to Peter Bartke for providing the new definition.

```
1621 (*lang2)
1622 %%
1623 %% Haskell98 as implemented in Hugs98. See http://www.haskell.org
1624 %% All keywords from Prelude and Standard Libraries
1625 %% (c) 1999 Peter Bartke
1626 %%
1627 \lst@definlanguage{Haskell}%
1628 {otherkeywords={=>},%
1629   morekeywords={abstype,if,then,else,case,class,data,default,deriving,%
1630     hiding,if,in,infix,infixl,infixr,import,instance,let,module,%
1631     newtype,of,qualified,type,where,do,AbsoluteSeek,AppendMode,%
1632     Array,BlockBuffering,Bool,BufferMode,Char,Complex,Double,Either,%
1633     FilePath,Float,Int,Integer,IO,IOError,Ix,LineBuffering,Maybe,%
1634     Ordering,NoBuffering,ReadMode,ReadWriteMode,ReadS,RelativeSeek,%
1635     SeekFromEnd,SeekMode,ShowS,StdGen,String,Void,Bounded,Enum,Eq,%
1636     Eval,ExitCode,exitFailure,exitSuccess,Floating,Fractional,%
1637     Functor,Handle,HandlePosn,IOMode,Integral,List,Monad,MonadPlus,%
1638     MonadZero,Num,Numeric,Ord,Random,RandomGen,Ratio,Rational,Read,%
1639     Real,RealFloat,RealFrac,Show,System,Prelude,EQ,False,GT,Just,%
1640     Left,LT,Nothing,Right,WriteMode,True,abs,accum,accumArray,%
1641     accumulate,acos,acosh,all,and,any,ap,appendFile,applyM,%
1642     approxRational,array,asTypeOf,asin,asinh,assocs,atan,atan2,atanh,%
1643     bounds,bracket,bracket_,break,catch,catMaybes,ceiling,chr,cis,%
1644     compare,concat,concatMap,conjugate,const,cos,cosh,curry,cycle,%
1645     decodeFloat,delete,deleteBy,deleteFirstBy,denominator,%
1646     digitToInt,div,divMod,drop,dropWhile,either,elem,elems,elemIndex,%
1647     elemIndices,encodeFloat,enumFrom,enumFromThen,enumFromThenTo,%
1648     enumFromTo,error,even,exitFailure,exitWith,exp,exponent,fail,%
1649     filter,filterM,find,findIndex,findIndices,flip,floatDigits,%
1650     floatRadix,floatRange,floatToDigits,floor,foldl,foldM,foldl1,%
1651     foldr,foldr1,fromDouble,fromEnum,fromInt,fromInteger,%
1652     fromIntegral,fromJust,fromMaybe,fromRat,fromRational,%
1653     fromRealFrac,fst,gcd,genericLength,genericTake,genericDrop,%
1654     genericSplitAt,genericIndex,genericReplicate,getArgs,getChar,%
1655     getContents,getEnv,getLine,getProgName,getStdGen,getStdRandom,%
1656     group,groupBy,guard,hClose,hFileSize,hFlush,hGetBuffering,%
1657     hGetChar,hGetContents,hGetLine,hGetPosn,hIsClosed,hIsEOF,hIsOpen,%
1658     hIsReadable,hIsSeekable,hIsWritable,hLookAhead,hPutChar,hPutStr,%
1659     hPutStrLn,hPrint,hReady,hSeek,hSetBuffering,hSetPosn,head,%
1660     hugsIsEOF,hugsHIsEOF,hugsIsSearchErr,hugsIsNameErr,%
1661     hugsIsWriteErr,id,ioError,imagPart,index,indices,init,inits,%
1662     inRange,insert,insertBy,interact,intersect,intersectBy,%
1663     intersperse,intToDigit,ioeGetErrorString,ioeGetFileName,%
1664     ioeGetHandle,isAlreadyExistsError,isAlreadyInUseError,isAlpha,%
1665     isAlphaNum,isAscii,isControl,isDenormalized,isDoesNotExistError,%
1666     isDigit,isEOF,isEOFError,isFullError,isHexDigit,isIEEE,%
```

```

1667     isIllegalOperation,isInfinite,isJust,isLower,isNaN,%
1668     isNegativeZero,isNothing,isOctDigit,isPermissionError,isPrefixOf,%
1669     isPrint,isSpace,isSuffixOf,isUpper,isUserError,iterate,ixmap,%
1670     join,last,lcm,length,lex,lexDigits,lexLitChar,liftM,liftM2,%
1671     liftM3,liftM4,liftM5,lines,listArray,listToMaybe,log,logBase,%
1672     lookup,magnitude,makePolar,map,mapAccumL,mapAccumR,mapAndUnzipM,%
1673     mapM,mapM_,mapMaybe,max,maxBound,maximum,maximumBy,maybe,%
1674     maybeToList,min,minBound,minimum,minimumBy,mkPolar,mkStdGen,%
1675     mplus,mod,msum,mzero,negate,next,newStdGen,not,notElem,nub,nubBy,%
1676     null,numerator,odd,openFile,or,ord,otherwise,partition,phase,pi,%
1677     polar,pred,print,product,properFraction,putChar,putStr,putStrLn,%
1678     quot,quotRem,random,randomIO,randomR,randomRIO,randomRs,randoms,%
1679     rangeSize,read,readDec,readFile,readFloat,readHex,readInt,readIO,%
1680     readList,readLitChar,readLn,readParen,readOct,readSigned,reads,%
1681     readsPrec,realPart,realToFrac,recip,rem,repeat,replicate,return,%
1682     reverse,round,scaleFloat,scanl,scanl1,scanr,scanr1,seq,sequence,%
1683     sequence_,setStdGen,show,showChar,showEFloat,showFFloat,%
1684     showFloat,showGFloat,showInt,showList,showLitChar,showParen,%
1685     showSigned,showString,shows,showsPrec,significand,signum,sin,%
1686     sinh,snd,sort,sortBy,span,split,splitAt,sqrt,stderr,stdin,stdout,%
1687     strict,subtract,succ,sum,system,tail,tails,take,takeWhile,tan,%
1688     tanh,toEnum,toInt,toInteger,toLower,toRational,toUpper,transpose,%
1689     truncate,try,uncurry,undefined,unfoldr,union,unionBy,unless,%
1690     unlines,until,unwords,unzip,unzip3,unzip4,unzip5,unzip6,unzip7,%
1691     userError,when,words,writeFile,zero,zip,zip3,zip4,zip5,zip6,zip7,%
1692     zipWith,zipWithM,zipWithM_,zipWith3,zipWith4,zipWith5,zipWith6,%
1693     zipWith7},%
1694     sensitive,%
1695     morecomment=[1]--,%
1696     morecomment=[n]{\{-}{-\}},%
1697     morestring=[b] "%
1698 }[keywords,comments,strings]
1699 /</lang2>

```

2.32 HTML

I'm quite the opposite of a HTML wizard. In particular this is true for the defined keywords. Matthias Bethke helped me out and extended the list.

```

1700 <*</lang1>
1701 \lst@definelanguage{HTML}%
1702 {morekeywords={A, ABBR, ACRONYM, ADDRESS, APPLET, AREA, B, BASE, BASEFONT,%
1703     BDO, BIG, BLOCKQUOTE, BODY, BR, BUTTON, CAPTION, CENTER, CITE, CODE, COL,%
1704     COLGROUP, DD, DEL, DFN, DIR, DIV, DL, DOCTYPE, DT, EM, FIELDSET, FONT, FORM,%
1705     FRAME, FRAMESET, HEAD, HR, H1, H2, H3, H4, H5, H6, HTML, I, IFRAME, IMG, INPUT,%
1706     INS, ISINDEX, KBD, LABEL, LEGEND, LH, LI, LINK, LISTING, MAP, META, MENU,%
1707     NOFRAMES, NOSCRIPT, OBJECT, OPTGROUP, OPTION, P, PARAM, PLAINTEXT, PRE,%
1708     OL, Q, S, SAMP, SCRIPT, SELECT, SMALL, SPAN, STRIKE, STRING, STRONG, STYLE,%
1709     SUB, SUP, TABLE, TBODY, TD, TEXTAREA, TFOOT, TH, THEAD, TITLE, TR, TT, U, UL,%

```

```

1710     VAR,XMP,%
1711     accesskey,action,align,alink,alt,archive,axis,background,bgcolor,%
1712     border,cellpadding,cellspacing,charset,checked,cite,class,classid,%
1713     code,codebase,codetype,color,cols,colspan,content,coords,data,%
1714     datetime,defer,disabled,dir,event,error,for,frameborder,headers,%
1715     height,href,hreflang,hspace,http-equiv,id,ismap,label,lang,link,%
1716     longdesc,marginwidth,marginheight,maxlength,media,method,multiple,%
1717     name,nohref,noresize,noshade,nowrap,onblur,onchange,onclick,%
1718     ondblclick,onfocus,onkeydown,onkeypress,onkeyup,onload,onmousedown,%
1719     profile,readonly,onmousemove,onmouseout,onmouseover,onmouseup,%
1720     onselect,onunload,rel,rev,rows, rowspan,scheme,scope,scrolling,%
1721     selected,shape,size,src,standby,style,tabindex,text,title,type,%
1722     units,usemap,valign,value,valuetype,vlink,vspace,width,xmlns},%
1723     tag=**[s]<>,%
1724     sensitive=f,%
1725     morestring=[d]",% ??? doubled

```

Now we take care of comments. We don't enter comment mode if we aren't inside <>.

```

1726     MoreSelectCharTable=%
1727         \lst@CArgX--\relax\lst@DefDelimB{}{}%
1728         {\ifnum\lst@mode=\lst@tagmode\else
1729             \expandafter\@gobblethree
1730             \fi}%
1731         \lst@BeginComment\lst@commentmode{{\lst@commentstyle}}%
1732         \lst@CArgX--\relax\lst@DefDelimE{}{}%
1733         \lst@EndComment\lst@commentmode
1734     }[keywords,comments,strings,html]%

```

Peter Biechele reported a problem which was due to missing \empty in value of SelectCharTable. And after receiving a bug report from Jochen Schneider I converted the version 0.21 contents of MoreSelectCharTable to version 1.0.

```

1735 </lang1>

```

2.33 IDL

The definition is from Jürgen Heim.

```

1736 <*lang2>
1737 %%
1738 %% IDL definition (c) 1998 Juergen Heim
1739 %%
1740 \lst@definlanguage{IDL}%
1741 {morekeywords={and,begin,case,common,do,else,end,endcase,endelse,%
1742     endfor,endif,endrep,endwhile,eq,for,function,ge,goto,gt,if,le,lt,%
1743     mod,ne,not,of,on_ioerror,or,pro,repeat,return,then,until,while,%
1744     xor,on_error,openw,openr,openu,print,printf,printu,plot,read,%
1745     readf,readu,writu,stop},%
1746     sensitive=f,%
1747     morecomment=[l];,%

```

```

1748   morestring=[d] '%'
1749   }[keywords,comments,strings]
1750 </lang2>

```

2.34 Inform

Thanks to Jonathan Sauer for this language definition. Ulrike Fischer pointed out that `\lstdefinelanguage` should be `\lst@definelanguage`.

```

1751 <*lang2>

1752 %%
1753 %% Inform definition (c) 2003 Jonathan Sauer
1754 %%
1755 \lst@definelanguage{Inform}{%
1756   % Language keywords
1757   morekeywords={breakdo,else,false,for,has,hasnt,if,%
1758     in,indirect,jump,notin,nothing,NULL,objectloop,ofclass,%
1759     private,property,provides,return,rfalse,rtrue,self,string,%
1760     switch,to,true,until,while,with,%
1761     creature,held,multiexcept,multiheld,multiinside,noun,number,%
1762     scope,topic},%
1763   %
1764   % Inform functions
1765   morekeywords=[2]{box,child,children,font,give,inversion,metaclass,move,%
1766     new_line,parent,print,print_ret,read,remove,restore,sibling,%
1767     save,spaces,quit,style,bold,underline,reverse,roman remaining,%
1768     create,destroy,recreate,copy},%
1769   %
1770   % Inform definitions
1771   morekeywords=[3]{Attribute,Array,Class,Constant,Default,End,Endif,Extend,%
1772     Global,Ifdef,Iffalse,Ifndef,Ifnot,Iftrue,Include,Object,%
1773     Property,Verb,Release,Serial,Statusline},%
1774   %
1775   % Library attributes
1776   morekeywords=[4]{absent,animate,clothing,concealed,container,door,edible,%
1777     enterable,female,general,light,lockable locked,male,moved,%
1778     neuter,on,open,openable,pluralname,proper,scenery,scored,%
1779     static,supporter,switchable,talkable,transparent,visited,%
1780     workflag,worn},%
1781   %
1782   % Library properties
1783   morekeywords=[5]{n_to,s_to,e_to,w_to,ne_to,nw_to,se_to,sw_to,in_to,%
1784     out_to,u_to,d_to,add_to_scope,after,article,articles,before,%
1785     cant_go,capacity,daemon,describe,description,door_dir,door_to,%
1786     each_turn,found_in,grammar,initial,inside_description,invent,%
1787     life,list_together,name number,orders,parse_name,plural,%
1788     react_after,react_before,short_name,short_name_indef,time_left,%
1789     time_out,when_closed,when_open,when_on,when_off,%
1790     with_key},%

```

```

1791 %
1792 % Library routines
1793 morekeywords=[6]{Achieved,AfterRoutines,AllowPushDir,Banner,ChangePlayer,%
1794     CommonAncestor,DictionaryLookup,GetGNAOfObject,HasLightSource,%
1795     IndirectlyContains,IsSeeThrough,Locale,LoopOverScope,LTI_Insert,%
1796     MoveFloatingObjects,NextWord,NextWordStopped,NounDomain,%
1797     ObjectIsUntouchable OffersLight,ParseToken,PlaceInScope,PlayerTo,%
1798     PronounNotice,PronounValue,ScopeWithin,SetPronoun,SetTime,%
1799     StartDaemon,StartTimer,StopDaemon,StopTimer,TestScope,TryNumber,%
1800     UnsignedCompare,WordAddress,WordInProperty,WordLength,%
1801     WriteListFrom,YesOrNo},%
1802 %
1803 % Library,entry points
1804 morekeywords=[7]{AfterLife,AfterPrompt,Amusing,BeforeParsing,ChooseObjects,%
1805     DarkToDark,DeathMessage,GamePostRoutine GamePreRoutine,%
1806     Initialise,InScope,LookRoutine,NewRoom,ParseNoun,ParseNumber,%
1807     ParserError,PrintRank,PrintTaskName,PrintVerb,TimePasses,%
1808     UnknownVerb},%
1809 %
1810 % Library constants
1811 morekeywords=[8]{NEWLINE_BIT,INDENT_BIT,FULLINV_BIT,ENGLISH_BIT,%
1812     RECURSE_BIT,ALWAYS_BIT,TERSE_BIT,PARTINV_BIT,DEFART_BIT,%
1813     WORKFLAG_BIT,ISARE_BIT,CONCEAL_BIT},%
1814 %
1815 % Library,meta actions
1816 morekeywords=[9]{Pronouns,Quit,Restart,Restore,Save,Verify,ScriptOn,%
1817     ScriptOff,NotifyOn,NotifyOff,Places,Objects,Score,FullScore,Version,%
1818     LMode1,LMode2,LMode3},%
1819 %
1820 % Library,main actions
1821 morekeywords=[10]{Close,Disrobe,Drop,Eat,Empty,EmptyT,Enter,Examine,%
1822     Exit,GetOff,Give,Go,GoIn,Insert,Inv,InvTall,InvWide,Lock,Look,Open,%
1823     PutOn,Remove,Search,Show,SwitchOff,SwitchOn,Take,Transfer,%
1824     Unlock VagueGo, Wear},%
1825 %
1826 % Library,stub actions
1827 morekeywords=[11]{Answer,Ask,AskFor,Attack,Blow,Burn,Buy,Climb,%
1828     Consult,Cut,Dig,Drink,Fill,Jump,JumpOver,Kiss,Listen,LookUnder,%
1829     Mild,No,Pray,Pull,Push,PushDir,Rub,Set,SetTo,Sing,Sleep,Smell,%
1830     Sleep,Smell,Sorry,Squeeze,Strong,Swim,Swing,Taste,Tell,Think,%
1831     ThrowAt,Tie,Touch,Turn,
1832     Wait,Wake,WakeOther,Wave,WaveHands,Yes},%
1833 %
1834 otherkeywords={->,<-->},%
1835 sensitive=false,%
1836 morestring=[d]{"},%
1837 morecomment=[l]{!}%
1838 }[keywords,comments,strings]
1839 </lang2>

```

2.35 Java and other JVM based languages

Robert Wenner sent in the first of the following two definitions.

```
1840 (*lang1)
1841 %%
1842 %% AspectJ definition (c) Robert Wenner
1843 %%
1844 \lst@definlanguage[AspectJ]{Java}[]{}{Java}%
1845   {morekeywords={%
1846     adviceexecution,after,args,around,aspect,aspectOf,before,%
1847     call,cflow,cflowbelow,%
1848 % declare error,declare parents,declare precedence,
1849 % declare soft,declare warning,
1850     execution,get,handler,if,initialization,issingleton,pointcut,%
1851     percfow,percfowbelow,perthis,pertarget,preinitialization,%
1852     privileged,proceed,returning,set,staticinitialization,strictfp,%
1853     target,this,thisEnclosingJoinPoint,thisJoinPoint,throwing,%
1854     within,withincode},%
1855   MoreSelectCharTable=%
1856     \lst@DefSaveDef{'.'}\lst@umdot{\lst@umdot\global\let\lst@derefop\@empty}%
1857     \ifx\lst@derefinstalled\@empty\else
1858       \global\let\lst@derefinstalled\@empty
1859 \lst@AddToHook{Output}%
1860 {\lst@ifkeywords
1861   \ifx\lst@derefop\@empty
1862     \global\let\lst@derefop\relax
1863   \ifx\lst@thestyle\lst@gkeywords\sty
1864     \ifx\lst@currstyle\relax
1865       \let\lst@thestyle\lst@identifierstyle
1866     \else
1867       \let\lst@thestyle\lst@currstyle
1868     \fi
1869   \fi
1870 \fi
1871 \fi}
1872 \lst@AddToHook{BOL}{\global\let\lst@derefop\relax}%
1873 \lst@AddTo\lst@ProcessSpace{\global\let\lst@derefop\relax}%
1874 \fi
1875 }%
1876 (/lang1)
```

Got data from <http://java.sun.com>.

```
1877 (*lang1)
1878 \lst@definlanguage{Java}%
1879   {morekeywords={abstract,boolean,break,byte,case,catch,char,class,%
1880     const,continue,default,do,double,else,extends,false,final,%
1881     finally,float,for,goto,if,implements,import,instanceof,int,%
1882     interface,label,long,native,new,null,package,private,protected,%
1883     public,return,short,static,super,switch,synchronized,this,throw,%
```



```

1884     throws,transient,true,try,void,volatile,while},%
1885     sensitive,%
1886     morecomment=[l]//,%
1887     morecomment=[s]{/*}{*/},%
1888     morestring=[b]",%
1889     morestring=[b]',%
1890 }[keywords,comments,strings]

```

Herbert Voss added the keyword label.

```

1891 </lang1>

```

2.35.1 JVMIS—The Java bytecode instructions

Martine Gautier made the following contribution.

```

1892 <*lang1>
1893 %%
1894 %% ByteCodeJava definition (c) 2004 Martine Gautier
1895 %%
1896 \lst@definlanguage{JVMIS}%
1897 {morekeywords={aaload,astore,acnst_null,aload,aload_0,aload_1,%
1898     aload_2,aload_3,anewarray,areturn,arraylength,astore,astore_0,%
1899     astore_1,astore_2,astore_3,athrow,baload,bastore,bipush,caload,%
1900     castore,checkcast,d2f,d2i,d2l,dadd,daload,dastore,dcmprg,dcmpl,%
1901     dconst_0,dconst_1,ddiv,dload,dload_0,dload_1,dload_2,dload_3,%
1902     dmul,dneg,drem,dreturn,dstore,dstore_0,dstore_1,dstore_2,%
1903     dstore_3,dsub,dup,dup_x1,dup_x2,dup2,dup2_x1,dup2_x2,f2d,%
1904     f2i,f2l,fadd,faload,fastore,fcmpg,fcmpl,fconst_0,fconst_1,%
1905     fconst_2,fdiv,fload,fload_0,fload_1,fload_2,fload_3,fmul,%
1906     fneg,frem,freturn,fstore,fstore_0,fstore_1,fstore_2,fstore_3,%
1907     fsub,getfield,getstatic,goto,goto_w,i2b,i2c,i2d,i2f,i2l,i2s,%
1908     iadd,iaload,iand,iastore,iconst_0,iconst_1,iconst_2,iconst_3,%
1909     iconst_4,iconst_5,idiv,if_acmpeq,if_acmpne,if_icmpeq,if_icmpne,%
1910     if_icmplt,if_cmpge,if_cmpgt,if_cmple,ifeq,ifne,iflt,ifge,ifgt,%
1911     ifle,ifnonnull,ifnull,iinc,iload,iload_0,iload_1,iload_2,%
1912     iload_3,imul,ineg,instanceof,invokeinterface,invokespecial,%
1913     invokestatic,invokevirtual,ior,irem,ireturn,ishl,ishr,istore,%
1914     istore_0,istore_1,istore_2,istore_3,isub,iushr,ixor,jsr,jsr_w,%
1915     l2d,l2f,l2i,ladd,laload,land,lastore,lcmp,lconst_0,lconst_1,%
1916     ldc,ldc_w,ldc2_w,ldiv,lload,lload_0,lload_1,lload_2,lload_3,%
1917     lmul,lneg,lookupswitch,lor,lrem,lreturn,lshl,lshr,lstore,%
1918     lstore_0,lstore_1,lstore_2,lstore_3,lsub,lushr,lxor,%
1919     monitorenter,monitorexit,multianewarray,new,newarray,nop,pop,%
1920     pop2,putfield,putstatic,ret,return,saload,sastore,sipush,swap,%
1921     tableswitch,wide,limit,locals,stack},%
1922 }[keywords]%
1923 </lang1>

```

2.35.2 Scala

Bastian Germann asked to include the Scala definition provided by Frank Teubler (2009). Here it is—the definition has got a small overhaul according to the Scala syntax published for version 2.13 (<https://scala-lang.org/files/archive/spec/2.13/spec.pdf>):

```
1924 (*lang3)

1925 \lst@definelanguage{Scala}{%
1926   morekeywords={abstract,case,catch,class,def,%
1927     do,else,extends,false,final,finally,%
1928     for,forSome,if,implicit,import,lazy,macro,match,%
1929     mixin,new,null,object,override,package,%
1930     private,protected,requires,return,sealed,%
1931     super,this,trait,true,try,%
1932     type,val,var,while,with,yield},%+
1933   otherkeywords={_, :, =, =>, <-, <\%, <:, >:, \#, @},%
1934   sensitive,%
1935   morecomment=[l]//,%
1936   morecomment=[n]{/*}{*/},%
1937   morestring=[b]",%
1938   morestring=[b]',%
1939   morestring=[b]""",%
1940 }[keywords,comments,strings]
```

Remark: This definition contains the keywords `mixin` and `requires`, which don't belong to the official Scala 2.13 language definition, the keywords `forSome`, `macro`, and `throw`, which were missing in listings prior than v1.10a, are added silently. The Unicode operators `\u21D2` and `\u2190`, which have the ASCII equivalents `=>` and `<-`, are also reserved but cannot be used with PDF_{TEX}.

Deloo asked for Scala 3.0 support. The following code according to <http://docs.scala-lang.org/scala3/reference/syntax.html> is a simple approach, listings cannot correctly support soft keywords, because they are context dependent.

```
1941 \lst@definelanguage[3.0]{Scala}[]{Scala}{%
1942   morekeywords={as, derives, end, enum, export, extension, given},
1943   morekeywords=[2]{infix, inline, opaque, open, transparent}
1944   otherkeywords={=>>, ?=>, =>}, % =>> isn't recognized, even after
1945                                     % the keyword => is deleted
1946   alsoletter={*, +, -, |},
1947   deletekeywords={<\%, _, forSome, macro, mixin, requires, this},
1948 }[keywords,comments,strings]

1949 </lang3>
```

2.36 ksh

Thanks to Jeffrey Ratcliffe for this language definition.

```
1950 (*lang3)
```

```

1951 \lst@definelanguage{ksh}
1952   {morekeywords={alias,awk,cat,echo,else,elif,fi,exec,exit,%
1953     for,in,do,done,select,case,esac,while,until,function,%
1954     time,export,cd,eval,fc,fg,kill,let,pwd,read,return,rm,%
1955     glob,goto,history,if,logout,nice,nohup,onintr,repeat,sed,%
1956     set,setenv,shift,source,switch,then,umask,unalias,%
1957     unset,wait,@,env,argv,child,home,ignoreeof,noclobber,%
1958     noglob,nomatch,path,prompt,shell,status,verbose,print,printf,%
1959     sqrt,BEGIN,END},%
1960   morecomment=[l]\#,%
1961   morestring=[d]",%
1962   morestring=[d]',%
1963   morestring=[d]'%
1964   }[keywords,comments,strings]
1965 </lang3>

```

Herbert Voss suggested to add the string delimiter ‘.

2.37 Lingo

Thanks to Mark Schade for this language definition.

```

1966 (*lang3)
1967 \lst@definelanguage[Lingo]{%
1968   morekeywords={abort, after, and, before, do, down, halt, me, new, not,%
1969     of, on, or, otherwise, pass, put, result, return, set, tell, the, then,%
1970     to, with, repeat, while, case, if, else, true, false, global, property,%
1971     \_global, \_key, \_mouse, \_movie, \_player, \_sound, \_system, abbr,%
1972     abbrev, abbreviated, abs, actionsenabled, activateapplication,%
1973     activatwindow, active3drenderer, activecastlib, activewindow,%
1974     actorlist, add, addat, addbackdrop, addcamera, addchild, addmodifier,%
1975     addoverlay, addprop, addtoworld, addvertex, alert, alerthook,%
1976     alignment, allowcustomcaching, allowgraphicmenu, allowsavelocal,%
1977     allowtransportcontrol, allowvolumecontrol, allowzooming,%
1978     alphathreshold, ambient, ambientcolor, ancestor, angle, anglebetween,%
1979     animationenabled, antialias, antialiasthreshold, append,%
1980     applicationname, applicationpath, appminimize, atan, attenuation,%
1981     attributevalue, auto, autoblend, automask, autotab, axisangle, back,%
1982     backcolor, backdrop, backgroundcolor, backspace, beep, beepon,%
1983     beginrecording, beginsprite, beveldepth, beveltype, bgcolor, bias,%
1984     bitand, bitmap, bitmapsizes, bitnot, bitor, bitrate, bitspersample,%
1985     bitxor, blend, blendconstant, blendconstantlist, blendfactor,%
1986     blendfunction, blendfunctionlist, blendlevel, blendrange, blendsource,%
1987     blendsourcelist, blendtime, bone, bonesplayer, border, both, bottom,%
1988     bottomcap, bottomradius, bottomspacing, boundary, boundsphere, box,%
1989     boxdropshadow, boxtype, breakconnection, breakloop, brightness,%
1990     broadcastprops, browsername, buffersize, build, buttonsenabled,%
1991     buttonstyle, buttontype, bytesstreamed, boolean, cachedocverify,%
1992     cachesize, call, callancestor, camera, cameracount, cameraposition,%
1993     camerarotation, cancelidleload, castlib, castlibnum, castmemberlist,%

```

1994 center, centerregpoint, centerstage, changearea, channelcount, char,%
 1995 characteraset, charpostoloc, chars, charspacing, chartonum,%
 1996 checkboxaccess, checkboxtype, checkmark, checknetmessages, child,%
 1997 chunksize, clearatrender, clearcache, clearerror, clearframe,%
 1998 clearglobals, clearvalue, clickloc, clickmode, clickon, clone,%
 1999 clonedeep, clonemodelfromcastmember, clonemotionfromcastmember, close,%
 2000 closed, closewindow, closexlib, collision, collisiondata,%
 2001 collisionnormal, color, world, colorbuffer, colorbufferdepth,%
 2002 colordepth, colorlist, colorrange, colors, colorsteps, commanddown,%
 2003 comments, compressed, connecttonetserver, constrainh, constraint,%
 2004 constrainv, continue, controldown, controller, coppixels,%
 2005 copyrightinfo, copyto, copytoclipboard, cos, count, cpuhogticks,%
 2006 creaseangle, creases, [contains], createfolder, createmask,%
 2007 creatematte, creationdate, creator, crop, cross, crossproduct,%
 2008 cuepassed, cuepointnames, cuepointtimes, currentloopstate,%
 2009 currentspritenum, currenttime, cursor, cursorsize, curve, cylinder,%
 2010 ate, day, deactivateapplication, deactivatewindow, debug,%
 2011 debugplaybackenabled, decaymode, defaultrect, defaultrectmode, delay,%
 2012 delete, deleteall, deleteat, deletecamera, deletefolder, deleteframe,%
 2013 deletegroup, deletelight, deletemodel, deletemodelresource,%
 2014 deletemotion, deleteone, deleteprop, deleteshader, deletetexture,%
 2015 deletevertex, density, depth, depthbufferdepth, desktoprectlist,%
 2016 diffuse, diffusecolor, diffuselightmap, digitalvideotimescale,%
 2017 digitalvideotype, direction, directionalcolor, directionalpreset,%
 2018 directtostage, disableimagingtransformation, displayface, displaymode,%
 2019 distanceto, distribution, dither, done, doneparsing, dot, dotproduct,%
 2020 doubleclick, downloadnetthing, drag, draw, drawrect, dropshadow,%
 2021 duplicate, duplicateframe, duration, editable, editshortcutsenabled,%
 2022 elapsedtime, emissive, emitter, empty, emulatemultibuttonmouse,%
 2023 enabled, enablehotspot, end, endangle, endcolor, endframe,%
 2024 endrecording, endsprite, endtime, enter, enterframe, environment,%
 2025 erase, error, eventpassmode, exchange, exists, exit, exitframe,%
 2026 exitlock, exp, externalevent, externalparamcount, externalparamname,%
 2027 externalparamvalue, extractalpha, extrude3d, face, fadein, fadeout,%
 2028 fadeto, far, field, fieldofview, filename, fill, fillcolor, fillcycles,%
 2029 fillldirection, filled, fillmode, filloffset, fillscale, findempty,%
 2030 findlabel, findpos, findposnear, finishidleload, firstindent,%
 2031 fixedlinespace, fixedrate, fixstagesize, flashrect, flashtostage, flat,%
 2032 fliph, flipv, float, floatp, floatprecision, flush, flushinputevents,%
 2033 fog, folderchar, font, fontsize, fontstyle, forecolor, forget, frame,%
 2034 framecount, framelabel, framepalette, framerate, frameready,%
 2035 framescript, framesound1, framesound2, framestohms, frametempo,%
 2036 frametransition, freeblock, freebytes, fromcastmember, fromimageobject,%
 2037 front, frontwindow, generatenormals, getaprop, getat,%
 2038 getbehaviordescription, getbehaviortooltip, getboneid, geterror,%
 2039 geterrorstring, gethardwareinfo, gethotspotrect, getlast,%
 2040 getlatestnetid, getnetaddresscookie, getneterrorstring, getnetmessage,%
 2041 getnetoutgoingbytes, getnettext, getnormalized, getnthfilenameinfolder,%
 2042 getnumberwaitingnetmessages, getone, getpeerconnectionlist, getpixel,%
 2043 getplaylist, getpos, getpref, getprop, getpropat,%

2044 getpropertydescriptionlist, getrendererservices, getstreamstatus,%
 2045 gettemppath, getworldtransform, globals, glossmap, go, gotoframe,%
 2046 gotonetmovie, gotonetpage, gradienttype, gravity, group, handler,%
 2047 handlers, height, heightvertices, high, highlightpercentage,%
 2048 highlightstrength, hilite, hither, hittest, hmstoframes, hold, hotspot,%
 2049 html, hyperlink, hyperlinkclicked, hyperlinkrange, hyperlinks,%
 2050 hyperlinkstate, id3tags, identity, idle, idlehandlerperiod,%
 2051 idleloaddone, idleloadmode, idleloadperiod, idleloadtag,%
 2052 idlreadchunksize, ilk, image, imagecompression, imageenabled,%
 2053 imagequality, immovable, importfileinto, inflate, ink, inker,%
 2054 inlineimeenabled, insertbackdrop, insertframe, insertoverlay, inside,%
 2055 installmenu, instance, integer, integerp, interface, interpolate,%
 2056 interpolateto, intersect, index, interval, inverse, invert, invertmask,%
 2057 isbusy, isinworld, isoktoattach, ispastcuepoint, item, itemdelimiter,%
 2058 kerning, kerningthreshold, key, keyboardfocussprite, keycode, keydown,%
 2059 keydownscript, keyframeplayer, keypressed, keyup, keyupscript, label,%
 2060 labellist, last, lastchannel, lastclick, lastevent, lastframe, lastkey,%
 2061 lastroll, left, leftindent, length, lengthvertices, level, lifetime,%
 2062 light, line, linearlist, linecolor, linecount, linedirection,%
 2063 lineheight, lineoffset, linepostolocv, linesize, linkas, linked, list,%
 2064 listp, loaded, loadfile, loc, loch, locked, locktranslation,%
 2065 loctocharpos, locv, locvtolinepos, locz, lod, log, long, loop,%
 2066 loopcount, loopendtime, loopsremaining, loopstarttime, machinetype,%
 2067 magnitude, map, mapImageToStage, mapmembertostage, mapstagetomember,%
 2068 margin, marker, markerlist, mask, max, maxinteger, maxspeed, mci,%
 2069 media, mediaready, member, membernum, members, memorysize, menu, mesh,%
 2070 meshdeform, milliseconds, min, minspeed, modal, mode, model, modela,%
 2071 modelb, modelresource, modelsunderloc, modelsunderray, modelunderloc,%
 2072 modified, modifiedby, modifieddate, modifier, modifiers, month,%
 2073 mostrecentcuepoint, motion, mousechar, mousedown, mousedownscript,%
 2074 mouseenter, mouseh, mouseitem, mouseleave, mouselevel, mouseline,%
 2075 mouseloc, mousemember, mouseoverbutton, mouseup, mouseupoutside,%
 2076 mouseupscript, mousev, mousewithin, mouseword, move, moveablesprite,%
 2077 movetoback, movetofront, movevertex, movevertexhandle, movewindow,%
 2078 movie, movieaboutinfo, moviecopyrightinfo, moviefilefreesize,%
 2079 moviefilesize, moviefileversion, movieimagecompression,%
 2080 movieimagequality, moviename, moviepath, movierate, movietime,%
 2081 moviextralist, mpegplayer, multiply, multisound, name, near,%
 2082 nearfiltering, neighbor, netabort, netdone, neterror, netlastmoddate,%
 2083 netmime, netpresent, netstatus, nettextresult, netthrottleticks,%
 2084 newcamera, newcurve, newgroup, newlight, newmesh, newmodel,%
 2085 newmodelresource, newmotion, newshader, newtexture, next, none,%
 2086 normalize, normallist, normals, nothing, notify, nudge, number,%
 2087 numchannels, numparticles, numsegments, numtochar, objectp, offset,%
 2088 open, openresfile, openwindow, openxlib, optiondown, organizationname,%
 2089 originalfont, originh, originmode, originpoint, originv, orthoheight,%
 2090 overlay, pageheight, palette, palettemapping, paletteref, paletteindex,%
 2091 pan, paragraph, param, paramcount, parent, parsestring, particle,%
 2092 pasteclipboardinto, path, pathname, pathstrength, pattern, pause,%
 2093 pausedatstart, pausestate, percentplayed, percentstreamed, period,%

2094 perpendicularto, persistent, pi, picture, picturep, plane, platform,%
 2095 play, playbackmode, playfile, playing, playlist, playnext, playrate,%
 2096 point, pointat, pointatorientation, pointinhyperlink, pointofcontact,%
 2097 pointtochar, pointtoitem, pointtoline, pointtoparagraph, pointtoword,%
 2098 position, positionreset, posterframe, postnettext, power,%
 2099 preferred3drenderer, preload, preloadbuffer, preloadeventabort,%
 2100 preloadmember, preloadmode, preloadmovie, preloadnetthing, preloadram,%
 2101 preloadtime, premultiply, prepareframe, preparemovie, prerotate,%
 2102 prescale, pretranslate, previous, primitives, printfrom,%
 2103 productversion, projection, projectionangle, propList, proxyserver,%
 2104 pttohotspotid, puppet, puppetpalette, puppetsound, puppetsprite,%
 2105 puppettempo, puppettransition, purgepriority, qtregisteraccesskey,%
 2106 qtunregisteraccesskey, quad, quality, queue, quit, quote, radius,%
 2107 ramneeded, random, randomseed, randomvector, rateshift, rawnew, read,%
 2108 readvalue, recordfont, rect, ref, reflectionmap, reflectivity, region,%
 2109 registerforevent, registerscript, regpoint, regpointvertex,%
 2110 removebackdrop, removefromworld, removelast, removemodifier,%
 2111 removeoverlay, rename, renderer, rendererdevicelist, renderformat,%
 2112 renderstyle, resetworld, resizewindow, resolution, resolve, resolvea,%
 2113 resolveb, resource, restart, resume, reverttoworlddefaults, rewind,%
 2114 rgb, rgba4444, rgba5550, rgba5551, rgba5650, rgba8880, rgba8888, right,%
 2115 rightindent, rightmousedown, rightmouseup, rollover, romanlingo,%
 2116 rootlock, rootnode, rotate, rotation, rotationreset, rtf, runmode,%
 2117 runpropertydialog, safeplayer, samplecount, samplerate, samplesize,%
 2118 save, savedlocal, savemovie, scale, scalemode, score, scorecolor,%
 2119 scoreselection, script, scriptexecutionstyle, scriptinstancelist,%
 2120 scriptlist, scriptnum, scriptsenabled, scripttext, scripttype,%
 2121 scrollbyline, scrollbypage, scrolltop, sds, searchcurrentfolder,%
 2122 searchpath, searchpaths, seconds, selectedtext, selection, selend,%
 2123 selstart, sendallsprites, sendevent, sendnetmessage, sendsprite,%
 2124 serialnumber, setalpha, setaprop, setat, setcollisioncallback,%
 2125 setflashproperty, setnetbufferlimits, setnetmessagehandler, setpixel,%
 2126 setplaylist, setpref, setprop, setscriptlist, settrackenabled,%
 2127 setvariable, shader, shaderlist, shadowpercentage, shadowstrength,%
 2128 shapetype, shiftdown, shininess, shockwave3d, short, showglobals,%
 2129 showlocals, showprops, showresfile, showxlib, shutdown, silhouettes,%
 2130 sin, size, sizerange, skew, sleep, smoothness, sort, sound, soundbusy,%
 2131 soundchannel, sounddevice, sounddevicelist, soundenabled,%
 2132 soundkeepdevice, soundlevel, soundmixmedia, source, sourcerect, space,%
 2133 specular, specularcolor, specularlightmap, sphere, spotangle,%
 2134 spotdecay, sprite, spritenum, spritespacetoworldspace, sqrt, stage,%
 2135 stagebottom, stagecolor, stageleft, stageright, stagetoflash, stagetop,%
 2136 standard, startangle, startframe, startmovie, starttime, starttimer,%
 2137 state, static, status, stepframe, stilldown, stop, stopectevent,%
 2138 stopmovie, stoptime, stream, streammode, streamname, streamsize,%
 2139 streamstatus, string, stringp, strokecolor, strokewidth, style,%
 2140 subdivision, sweep, swing, switchcolordepth, symbol, symbolp,%
 2141 systemdate, tab, tabcount, tabs, tan, target, tellstreamstatus,%
 2142 tension, text, texture, texturecoordinatelist, texturecoordinates,%
 2143 texturelayer, texturelist, texturemember, texturemode, texturemodelist,%

```

2144   texturerenderformat, texturerepeat, texturerepeatlist,%
2145   texturetransform, texturetransformlist, texturetype, thumbnail, ticks,%
2146   tilt, time, timeout, timeouthandler, timeoutkeydown, timeoutlapsed,%
2147   timeoutlength, timeoutlist, timeoutmouse, timeoutplay, timeoutscript,%
2148   timer, timescale, title, titlevisible, toon, top, topcap, topradius,%
2149   topspacing, trace, traceload, tracelogfile, trackcount, trackenabled,%
2150   tracknextkeytime, tracknextsampletime, trackpreviouskeytime,%
2151   trackpreviousampletime, trackstarttime, trackstoptime, tracktext,%
2152   tracktype, trails, transform, transitiontype, translate,%
2153   triggercallback, trimwhitespace, tunneldepth, tweened, tweenmode, type,%
2154   [transparent], union, unload, unloadmember, unloadmovie,%
2155   unregisterallevents, update, updateframe, updatelock,%
2156   updatemovieenabled, updatestage, url, usealpha, usediffusewithtexture,%
2157   usefastquads, usehypertextstyles, uselineoffset, userdata, username,%
2158   value, vector, version, vertex, vertexlist, vertices, video,%
2159   videoforwindowspresent, viewh, viewpoint, viewscale, viewv, visibility,%
2160   visible, void, voidp, volume, volumeinfo, wait, waitfornetconnection,%
2161   warpmode, width, widthvertices, wind, window, windowlist,%
2162   windowpresent, windowtype, word, wordwrap, world, worldposition,%
2163   worldspacetospritespace, worldtransform, wraptransform,%
2164   wraptransformlist, write, writevalue, xaxis, xtra, xtralist, xtras,%
2165   yaxis, year, yon, zaxis, zoombox, zoomwindow, repeat, Conditional,%
2166   Boolean, TypeDef, Statement, Operator, String, Comment, Identifier,%
2167   Special, x, y, z},%
2168   sensitive=false,%
2169   morecomment=[l]{--},%
2170   morestring=[b]",%
2171 }[keywords,comments,strings]
2172 % \begin{macrocode}
2173 
```

2.38 Lisp, AutoLisp and Emacs Lisp (elisp)

Most data are from

- GUY STEELE: **Common Lisp**; Copyright 1990 by Digital Equipment Corporation; ISBN 1-55558-042-4.

Thanks to Aslak Raanes for the ‘single comment’ delimiters. The keywords are the ‘one-word’ functions and macros of Common Lisp, i.e. words not containing a minus. But I left out the `caaaaar`, ... functions. If anyone types them in, I’d like to get them. Hilmar Preuße informed about an issue mentioned at <https://bugs.debian.org/499422>, the issue got corrected.

```

2174 (*lang2)
2175 \lst@definelanguage{Lisp}%
2176 {morekeywords={abort,abs,acons,acos,acosh,adjoin,alphanumericp,alter,%
2177   append,apply,apropos,aref,arrayp,ash,asin,asinh,assoc,atan,atanh,%
2178   atom,bit,boole,boundp,break,butlast,byte,catenate,ceiling,cerror,%
2179   char,character,characterp,choose,chunk,cis,close,clrhash,coerce,%

```

```

2180 collect,commonp,compile,complement,complex,complexp,concatenate,%
2181 conjugate,cons,consp,constantp,continue,cos,cosh,cotruncate,%
2182 count,delete,denominator,describe,directory,disassemble,%
2183 documentation,dpb,dribble,ed,eighth,elt,enclose,endp,eq,eql,%
2184 equal,equalp,error,eval,evalhook,evenp,every,exp,expand,export,%
2185 expt,fboundp,fceiling,fdefinition,ffloor,fifth,fill,find,first,%
2186 float,floatp,floor,fmakunbound,format,fourth,fround,ftruncate,%
2187 funcall,functionp,gatherer,gcd,generator,gensym,gentemp,get,getf,%
2188 gethash,identity,imagpart,import,inspect,integerp,intern,%
2189 intersection,tively,isqrt,keywordp,last,latch,lcm,ldb,ldiff,%
2190 length,list,listen,listp,load,log,logand,logbitp,logcount,logeqv,%
2191 logior,lognand,lognor,lognot,logtest,logxor,macroexpand,%
2192 makunbound,map,mapc,mapcan,mapcar,mapcon,maphash,mapl,maplist,%
2193 mask,max,member,merge,min,mingle,minusp,mismatch,mod,namestring,%
2194 nbutlast,nconc,nintersection,ninth,not,notany,notevery,nreconc,%
2195 nreverse,nsublis,nsubst,nth,nthcdr,null,numberp,numerator,union,%
2196 oddp,open,packagep,pairlis,pathname,pathnamep,phase,plusp,%
2197 position,positions,pprint,previous,princ,print,proclaim,provide,%
2198 random,rassoc,rational,rationalize,rationalp,read,readtablep,%
2199 realp,realpart,reduce,rem,remhash,remove,remprop,replace,require,%
2200 rest,revappend,reverse,room,round,rplaca,rplacd,sbit,scan,schar,%
2201 search,second,series,set,seventh,shadow,signal,signum,sin,sinh,%
2202 sixth,sleep,some,sort,split,sqrt,streamp,string,stringp,sublis,%
2203 subseq,subseries,subsetp,subst,substitute,subtypep,svref,sxhash,%
2204 symbolp,tailp,tan,tanh,tenth,terpri,third,truename,truncate,%
2205 typep,unexport,unintern,union,until,values,vector,vectorp,warn,%
2206 write,zerop,and,assert,case,ccase,cond,ctypcase,decf,declaim,%
2207 defclass,defconstant,defgeneric,defmacro,defmethod,defpackage,%
2208 defparameter,defsetf,defstruct,deftype,defun,defvar,do,dolist,%
2209 dotimes,ecase,encapsulated,etypcase,flet,formatter,gathering,%
2210 incf,iterate,labels,let,locally,loop,macrolet,mapping,or,pop,%
2211 producing,prog,psetf,psetq,push,pushnew,remf,return,rotatef,%
2212 setf,shiftf,step,time,trace,typecase,unless,untrace,when},%
2213 sensitive=false,% ???
2214 alsodigit=-,%
2215 morecomment=[l];,%
2216 morecomment=[s]{\#|}{|\#},% 1997 Aslak Raanes
2217 morestring=[b]"%
2218 }[keywords,comments,strings]
2219 </lang2>
2220 <lang2>
Stefan Lagotzki warned me to define this as a lisp dialect ...
2221 %%
2222 %% AutoLISP/VisuallISP - Stefan Lagotzki, info@lagotzki.de
2223 %%
2224 \lst@definlanguage[Auto]{Lisp}%
2225 {morekeywords={abs,acad_colordlg,acad_helpdlg,acad_strlsort,%
2226 action_tile,add_list,alert,alloc,and,angle,angtof,angtos,append,%

```



```

2227 apply, arx, arxload, arxunload, ascii, assoc, atan, atof, atoi, atom, %
2228 atoms-family, autoarxload, autoload, Boole, boundp, caddr, cadr, car, %
2229 cdr, chr, client_data_tile, close, command, cond, cons, cos, cvunit, %
2230 defun, defun-q, defun-q-list-ref, defun-q-list-set, dictadd, dictnext, %
2231 dictremove, dictrename, dictsearch, dimx_tile, dimy_tile, distance, %
2232 distof, done_dialog, end_image, end_list, entdel, entget, entlast, %
2233 entmake, entmakex, entmod, entnext, entsel, entupd, eq, equal, *error*, %
2234 eval, exit, exp, expand, expt, fill_image, findfile, fix, float, foreach, %
2235 function, gc, gcd, get_attr, get_tile, getangle, getcfg, getcname, %
2236 getcorner, getdist, getenv, getfiled, getint, getkeyword, getorient, %
2237 getpoint, getreal, getstring, getvar, graphscr, grclear, grdraw, grread, %
2238 grtext, grvecs, handent, help, if, initdia, initget, inters, itoa, lambda, %
2239 last, layoutlist, length, list, listp, load, load_dialog, log, logand, %
2240 logior, lsh, mapcar, max, mem, member, menucmd, menugroup, min, minusp, %
2241 mode_tile, namedobjdict, nentsel, nentselp, new_dialog, not, nth, %
2242 null, numberp, open, or, osnap, polar, prin1, princ, print, progn, prompt, %
2243 quit, quote, read, read-char, read-line, redraw, regapp, rem, repeat, %
2244 reverse, rtos, set, set_tile, setcfg, setenv, setfunhelp, setq, %
2245 setvar, setview, sin, slide_image, snvalid, sqrt, ssadd, ssdel, ssget, %
2246 ssgetfirst, sslength, ssmemb, ssname, ssname, sssetfirst, startapp, %
2247 start_dialog, start_image, start_list, strcase, strcat, strlen, subst, %
2248 substr, tablet, tblnext, tblobjname, tblsearch, term_dialog, terpri, %
2249 textbox, textpage, textscr, trace, trans, type, unload_dialog, untrace, %
2250 vector_image, ver, vl-acad-defun, vl-acad-undefun, vl-arx-import, %
2251 vl-bb-ref, vl-bb-set, vl-catch-all-apply, %
2252 vl-catch-all-error-message, vl-catch-all-error-p, vl-cmdf, vl-consp, %
2253 vl-directory-files, vl-doc-export, vl-doc-import, vl-doc-ref, %
2254 vl-doc-set, vl-every, vl-exit-with-error, vl-exit-with-value, %
2255 vl-file-copy, vl-file-delete, vl-file-directory-p, vl-file-rename, %
2256 vl-file-size, vl-file-systime, vl-filename-base, %
2257 vl-filename-directory, vl-filename-extension, vl-filename-mktemp, %
2258 vl-get-resource, vl-list*, vl-list->string, %
2259 vl-list-exported-functions, vl-list-length, vl-list-loaded-vlx, %
2260 vl-load-all, vl-load-com, vl-load-reactors, vl-member-if, %
2261 vl-member-if-not, vl-position, vl-prin1-to-string, %
2262 vl-princ-to-string, vl-propagate, vl-registry-delete, %
2263 vl-registry-descendents, vl-registry-read, vl-registry-write, %
2264 vl-remove, vl-remove-if, vl-remove-if-not, vl-some, vl-sort, %
2265 vl-sort-i, vl-string->list, vl-string-elt, vl-string-left-trim, %
2266 vl-string-mismatch, vl-string-position, vl-string-right-trim, %
2267 vl-string-search, vl-string-subst, vl-string-translate, %
2268 vl-string-trim, vl-symbol-name, vl-symbol-value, vl-symbolp, %
2269 vl-unload-vlx, vl-vbaload, vl-vbarun, vl-vlx-loaded-p, vlax-3D-point, %
2270 vlax-add-cmd, vlax-create-object, vlax-curve-getArea, %
2271 vlax-curve-getDistAtParam, vlax-curve-getDistAtPoint, %
2272 vlax-curve-getEndParam, vlax-curve-getEndPoint, %
2273 vlax-curve-getParamAtDist, vlax-curve-getParamAtPoint, %
2274 vlax-curve-getPointAtDist, vlax-curve-getPointAtParam, %
2275 vlax-curve-getStartParam, vlax-curve-getStartPoint, %
2276 vlax-curve-isClosed, vlax-curve-isPeriodic, vlax-curve-isPlanar, %

```

```

2277     vlax-curve-getClosestPointTo,%
2278     vlax-curve-getClosestPointToProjection,vlax-curve-getFirstDeriv,%
2279     vlax-curve-getSecondDeriv,vlax-dump-object,%
2280     vlax-ename->vla-object,vlax-erased-p,vlax-for,%
2281     vlax-get-acad-object,vlax-get-object,vlax-get-or-create-object,%
2282     vlax-get-property,vlax-import-type-library,vlax-invoke-method,%
2283     vlax-ldata-delete,vlax-ldata-get,vlax-ldata-list,vlax-ldata-put,%
2284     vlax-ldata-test,vlax-make-safearray,vlax-make-variant,%
2285     vlax-map-collection,vlax-method-applicable-p,%
2286     vlax-object-released-p,vlax-product-key,%
2287     vlax-property-available-p,vlax-put-property,vlax-read-enabled-p,%
2288     vlax-release-object,vlax-remove-cmd,vlax-safearray-fill,%
2289     vlax-safearray-get-dim,vlax-safearray-get-element,%
2290     vlax-safearray-get-l-bound,vlax-safearray-get-u-bound,%
2291     vlax-safearray-put-element,vlax-safearray-type,%
2292     vlax-safearray->list,vlax-tmatrix,vlax-typeinfo-available-p,%
2293     vlax-variant-change-type,vlax-variant-type,vlax-variant-value,%
2294     vlax-vla-object->ename,vlax-write-enabled-p,vlisp-compile,%
2295     vlr-acdb-reactor,vlr-add,vlr-added-p,vlr-beep-reaction,%
2296     vlr-command-reactor,vlr-current-reaction-name,vlr-data,%
2297     vlr-data-set,vlr-deepclone-reactor,vlr-docmanager-reactor,%
2298     vlr-dwg-reactor,vlr-dxf-reactor,vlr-editor-reactor,%
2299     vlr-insert-reactor,vlr-linker-reactor,vlr-lisp-reactor,%
2300     vlr-miscellaneous-reactor,vlr-mouse-reactor,vlr-notification,%
2301     vlr-object-reactor,vlr-owner-add,vlr-owner-remove,vlr-owners,%
2302     vlr-pers,vlr-pers-list,vlr-pers-p,vlr-pers-release,%
2303     vlr-reaction-names,vlr-reaction-set,vlr-reactions,vlr-reactors,%
2304     vlr-remove,vlr-remove-all,vlr-set-notification,%
2305     vlr-sysvar-reactor,vlr-toolbar-reactor,vlr-trace-reaction,%
2306     vlr-type,vlr-types,vlr-undo-reactor,vlr-wblock-reactor,%
2307     vlr-window-reactor,vlr-xref-reactor,vports,wcmatch,while,%
2308     write-char,write-line,xdroom,xsize,zerop},%
2309     alsodigit=>,%
2310     otherkeywords={1+,1-},%
2311     sensitive=false,%
2312     morecomment=[1];,%
2313     morecomment=[1];;,%
2314     morestring=[b] "%
2315 }[keywords,comments,strings]
2316 </lang2>
2317 < *lang2>

```

A first approach to elisp by one of the maintainers (Jobst Hoffmann), it is far away from completeness, the list of keywords is defined according to the needs of the maintainer...

```

2318 \lstdefinlanguage{elisp}[]{\Lisp}{%
2319   morekeywords={begin, car, cdr, cons, define, display, drop, filter,%
2320     hash-ref, hash-set, if, load-file, lambda, length, map, message,%
2321     progn, quote, require, setq, string-append, take, vector,%

```

```

2322 },%
2323 sensitive,%
2324 alsodigit=->,%
2325 otherkeywords={1+,1-},%
2326 sensitive=true,%
2327 morecomment=[1];,%
2328 morecomment=[1];;,%
2329 morestring=[b]"%
2330 }[keywords,comments,strings]
2331 />lang2)

```

2.39 LLVM

LLVM provides a collection of modular and reusable compiler and toolchain technologies, all further information can be found at its home page <http://llvm.org/>. Scott Pakin provided a language definition for the LLVM intermediate presentation according to <http://llvm.org/docs/>.² The language provides

```

2332 (*lang3)
2333 \lst@definelanguage{LLVM}{%
2334   morekeywords={%

```

- Instructions

```

2335       ret,br,switch,indirectbr,invoke,resume,unreachable,%
2336       add,fadd,sub,fsub,mul,fmul,udiv,sdiv,fdiv,urem,srem,frem,%
2337       shl,lshr,ashr,and,or,xor,%
2338       extractelement,insertelement,shufflevector,%
2339       extractvalue,insertvalue,%
2340       alloca,load,store,fence,cmpxchg,atomicrmw,getelementptr,%
2341       trunc,zext,sext,fptrunc,fpext,fptoui,fptosi,uitofp,sitofp,ptrtoint,%
2342       inttoptr,bitcast,to,%
2343       icmp,fcmp,phi,select,call,va_arg,landingpad,%

```

- Atomic operations – some duplication with the above

```

2344       xchg,add,sub,and,nand,or,xor,max,min,umax,umin,%

```

- Comparisons

```

2345       eq,ne,ugt,uge,ult,uless,sgt,sge,slt,sle,%
2346       false,oeq,ogt,oge,olt,ole,one,ord,ueq,ugt,uge,ult,uless,uno,true,%

```

- Linkage types

```

2347       private,linker_private,linker_private_weak,linker_private_weak_def_auto,%
2348       internal,available_externally,linkonce,common,weak,Appending,extern_weak,%
2349       linkonce_odr,weak_odr,external,dllimport,dllexport,%

```

²In this section ‘I’ is Scott Pakin.

- Function headers

```
2350         define,declare,%
```

- Parameter attributes

```
2351         zeroext,signext,inreg,byval,sret,noalias,nocapture,next,%
```

- Garbage collector names

```
2352         gc,%
```

- Function attributes

```
2353         address_safety,alignstack,alwaysinline,nonlazybind,inlinehint,naked,%
2354         noimplicitfloat,noinline,noredzone,noreturn,nounwind,optsize,readnone,%
2355         readonly,returns_twice,ssp,sspreq,uwtable,%
```

- Module-level inline assembly

```
2356         module,asm,%
```

- Data layout

```
2357         target,datalayout,%
```

- Inline assembler expressions

```
2358         sideeffect,alignstack,%
```

- Other keywords – I’m probably missing some here.

```
2359         nuw,nsw,exact,inbounds,unnamed_addr},%
2360         morekeywords=[2]{%
```

- Types

```
2361         i1,i2,i4,i8,i16,i32,i64,i128,i256,i512,i1024,% <-- Most common integers
2362         half,float,double,x86_fp80,fp128,ppc_fp128,x86mmx,%
2363         void,label,metadata},%
2364         alsoletter=.,%
2365         sensitive=false,%
2366         morecomment=[1];,%
2367         morestring=[b]"%
2368     }
```

```
2369 </lang3>
```

2.40 Logo

I don't know where the keywords are from and what kind of Logo it is. Help me!

```
2370 (*lang3)
2371 \lst@definlanguage{Logo}%
2372 % ??? {end,unix} also keywords
2373 {morekeywords={and,atan,arctan,both,break,bf,bl,butfirst,butlast,%
2374   cbreak, close,co,continue,cos,count,clearscreen,cs,debutquit,%
2375   describe,diff,difference,ed,edit,either,empty,equalp,er,erase,%
2376   errpause,errquit,fifp,filefprint,fifty,fileftype,fip,fileprint,%
2377   fird,fileread,fity,filetype,fiwd,fileword,f,first,or,fp,fprint,%
2378   fput,fty,ftype,full,fullscreen,go,bye,goodbye,gprop,greaterp,%
2379   help,if,iff,iffalse,ift,iftrue,nth,item,keyp,llast,lessp,list,%
2380   local,lput,make,max,maximum,memberp,memtrace,min,minimum,namep,%
2381   not,numberp,oflush,openr,openread,openw,openwrite,op,output,%
2382   pause,plist,pots,pow,pprop,pps,pr,print,product,quotient,random,%
2383   rc,readchar,rl,readlist,remprop,repcount,repeat,request,rnd,run,%
2384   se,sentence,sentencep,setc,setcolor,setipause,setqpause,po,show,%
2385   sin,split,splitscreen,sqrt,stop,sum,test,text,textscreen,thing,%
2386   to,tone,top,toplevel,type,untrace,wait,word,wordp,yaccdebug,is,%
2387   mod,remainder,trace,zerop,back,bk,bto,btouch,fd,forward,fto,%
2388   ftouch,getpen,heading,hit,hitoot,ht,hideturtle,loff,lampoff,lon,%
2389   lampon,lt,left,lot,lotoot,lto,ltouch,penc,pencolor,pd,pendown,pe,%
2390   penerase,penmode,pu,penup,px,penreverse,rt,right,rto,rtouch,%
2391   scrunch,seth,setheading,setscrunch,setxy,shownp,st,%
2392   showturtle,towardsxy,clean,wipeclean,xcor,ycor,tur,turtle,%
2393   display,dpy},%
2394   sensitive=f% ???
2395 }[keywords]%
2396 (/lang3)
```

2.41 Lua

Stephan Hennig contributed the Lua keywords.

```
2397 (*lang2)
```

We begin with the keywords for Lua 5.0:

```
2398 %%
2399 %% Lua definitions (c) 2013 Stephan Hennig
2400 %%
2401 \lst@definlanguage[5.0]{Lua}{%
```

To enable highlighting of library keywords, the dot needs to be a letter.

```
2402   alsoletter={.},%
```

The language definition knows

- language keywords

```
2403   morekeywords=[1]{%
2404     and, break, do, else, elseif, end, false, for, function, if, in, %
```

```

2405         local, nil, not, or, repeat, return, then, true, until, while,%
2406     },%

    • the standard library identifiers

2407     morekeywords=[2]{%

        – coming from the base library

2408         _G, _LOADED, _REQUIREDNAME, _VERSION, LUA_PATH,%
2409         assert, collectgarbage, dofile, error, gcinfo, getfenv,%
2410         getmetatable, ipairs, loadfile, loadlib, loadstring, newproxy,%
2411         next, pairs, pcall, print, rawequal, rawget, rawset, require,%
2412         setfenv, setmetatable, tonumber, tostring, type, unpack, xpcall,%

        – coming from the coroutine library

2413         coroutine, coroutine.create, coroutine.resume,%
2414         coroutine.status, coroutine.wrap, coroutine.yield,%

        – the debug library

2415         _TRACEBACK, debug, debug.debug, debug.gethook, debug.getinfo,%
2416         debug.getlocal, debug.getupvalue, debug.sethook, debug.setlocal,%
2417         debug.setupvalue, debug.traceback,%

        – the io library

2418         io, io.close, io.flush, io.input, io.lines, io.open, io.output,%
2419         io.popen, io.read, io.stderr, io.stdin, io.stdout, io.tmpfile,%
2420         io.type, io.write,%

        – the mathematical library

2421         __pow, math, math.abs, math.acos, math.asin, math.atan, math.atan2,%
2422         math.ceil, math.cos, math.deg, math.exp, math.floor, math.frexp,%
2423         math.ldexp, math.log, math.log10, math.max, math.min, math.mod,%
2424         math.pi, math.pow, math.rad, math.random, math.randomseed, math.sin,%
2425         math.sqrt, math.tan,%

        – the os library

2426         os, os.clock, os.date, os.difftime, os.execute, os.exit, os.getenv,%
2427         os.remove, os.rename, os.setlocale, os.time, os.tmpname,%

        – the string library

2428         string, string.byte, string.char, string.dump, string.find,%
2429         string.format, string.gfind, string.gsub, string.len, string.lower,%
2430         string.rep, string.sub, string.upper,%

        – the table library

2431         table, table.concat, table.foreach, table.foreachi, table.getn,%
2432         table.insert, table.remove, table.setn, table.sort,%
2433     },%

```

and some additional identifiers

```
2434     morekeywords=[2]{%
2435         _PROMPT, _PROMPT2, arg,%
2436     },%
```

These are the common language settings

```
2437     sensitive=true,%
2438     % single line comments
2439     morecomment=[l]{--},%
2440     % multi line comments
2441     morecomment=[s]{--[{}{}]},%
2442     % backslash escaped strings
2443     morestring=[b]",%
2444     morestring=[b]',%
2445     % multi line strings
2446     morestring=[s]{[{}{}]},%
2447 }[keywords,comments,strings]
```

And here are the new definitions for Lua 5.1:

```
2448 \lst@definelanguage[5.1]{Lua}[5.0]{Lua}{%
```

There are some deletions

```
2449     deletekeywords=[2]{%
```

concerning

- the base library

```
2450         _LOADED, _REQUIREDNAME, LUA_PATH, gcinfo, loadlib,%
```

- the debug library

```
2451         _TRACEBACK,%
```

- the mathematical library

```
2452         __pow, math.mod,%
```

- the string library

```
2453         string.gfind,%
```

- the table library

```
2454         table.foreach, table.foreachi, table.getn, table.setn,%
2455     },%
```

and some new identifiers in standard libraries like

```
2456     morekeywords=[2]{%
```

- the base library

```
2457         load, select,%
```

- coroutine library

```

2458             coroutine.running,%

```

- debug library

```

2459             debug.getfenv, debug.getmetatable, debug.getregistry, debug.setfenv,%
2460             debug.setmetatable,%

```

- the mathematical library

```

2461             math.cosh, math.fmod, math.huge, math.modf, math.sinh, math.tanh,%

```

- the package library which itself is new in Lua 5.1

```

2462             module, package, package.config, package.cpath, package.loaded,%
2463             package.loaders, package.loadlib, package.path, package.preload,%
2464             package.seeall,%

```

- the string library and

```

2465             string.gmatch, string.match, string.reverse,%

```

- the table library

```

2466             table.maxn,%
2467             },%

```

In Lua 5.1 long bracket comments were introduced also

```

2468  morecomment=[s]{--[=[{}]=]},%
2469  morecomment=[s]{--[==[]{}==]},%
2470  morecomment=[s]{--[===[]{}===]},%
2471  morecomment=[s]{--[====[]{}====]},%
2472  morecomment=[s]{--[=====[]{}=====]},%
2473  morecomment=[s]{--[=====[{}]=]},%
2474  morecomment=[s]{--[=====[]{}=====]},%
2475  morecomment=[s]{--[=====[{}]=]},%
2476  morecomment=[s]{--[=====[]{}=====]},%
2477  morecomment=[s]{--[=====[{}]=]},%

```

as well as long bracket strings

```

2478  morestring=[s]{[=[{}]=]},%
2479  morestring=[s]{[==[]{}==]},%
2480  morestring=[s]{[===[]{}===]},%
2481  morestring=[s]{[====[]{}====]},%
2482  morestring=[s]{[=====[]{}=====]},%
2483  morestring=[s]{[=====[{}]=]},%
2484  morestring=[s]{[=====[]{}=====]},%
2485  morestring=[s]{[=====[{}]=]},%
2486  morestring=[s]{[=====[]{}=====]},%
2487  morestring=[s]{[=====[{}]=]},%
2488 }[keywords,comments,strings]

```


Lua 5.2 again has some changed features. These are

```
2489 \lst@definlanguage[5.2]{Lua}[5.1]{Lua}{%
```

- new language keywords

```
2490     morekeywords=[1]{%
2491         goto,%
2492     },%
```

- deleted identifiers from the standard libraries like

```
2493     deletekeywords=[2]{%
    - the base library
2494         getfenv, loadstring, module, newproxy, setfenv, unpack,%
    - the debug library
2495         debug.getfenv, debug.setfenv,%
    - the mathematical library
2496         math.log10,%
    - the package library and
2497         package.loaders, package.seeall,%
    - the table library
2498         table.maxn,%
2499     },%
```

Again there are some new identifiers in the standard libraries

```
2500     morekeywords=[2]{%
```

like

- the base library

```
2501         rawlen,%
```

- the bit library

```
2502         bit32, bit32.arshift, bit32.band, bit32.bnot, bit32.bor,%
2503         bit32.btest, bit32.bxor, bit32.extract, bit32.lrotate,%
2504         bit32.lshift, bit32.replace, bit32.rrotate, bit32.rshift,%
```

- the debug library

```
2505         debug.getuservalue, debug.setuservalue, debug.upvalueid,%
2506         debug.upvaluejoin,%
```

- the package library

```
2507         package.searchers, package.searchpath,%
```

- the table library

```
2508         table.pack, table.unpack,%
2509     },%
```

There is a new additional identifier

```
2510     morekeywords=[2]{%
2511         _ENV,%
2512     },%
```

and labels are also new in Lua 5.2

```
2513     moredelim=[s][keywordstyle3]{::}{::},%
2514 }[keywords,comments,strings]
```

In January 2015 Lua 5.3 was released, Stephan Hennig again contributed the Lua keywords.

```
2515 \lst@definlanguage[5.3]{Lua}[5.2]{Lua}{%
```

- some libraries are deprecated, so the following identifiers are deleted

```
2516         deletekeywords=[2]{%
```

– the bit32 library

```
2517             bit32, bit32.arshift, bit32.band, bit32.bnot, bit32.bor,%
2518             bit32.btest, bit32.bxor, bit32.extract, bit32.lrotate,%
2519             bit32.lshift, bit32.replace, bit32.rrotate, bit32.rshift,%
```

– the mathematical library

```
2520             math.atan2, math.cosh, math.frexp, math.ldexp, math.pow,%
2521             math.sinh, math.tanh,%
2522         },%
```

Again there are some new identifiers in the standard libraries

```
2523     morekeywords=[2]{%
```

like

- the coroutine library

```
2524         coroutine.isyieldable,%
```

- the mathematical library

```
2525         math.maxinteger, math.mininteger, math.tointeger, math.type,%
2526         math.ult,%
```

- the string library

```
2527         string.pack, string.packsize, string.unpack,%
```

- the table library

```
2528         table.move,%
```

- the utf-8 library

```

2529         utf8, utf8.char, utf8.charpattern, utf8.codepoint, utf8.codes,%
2530         utf8.len, utf8.offset,%
2531     },%
2532 }[keywords,comments,strings]

2533 </lang2>

```

Stephan Hennig also supplied a definition of a style for printing Lua code:

```

2534 <*lua-prf>

2535 \usepackage[rgb, x11names]{xcolor}
2536 \lstdefinestyle{Lua}{%
2537     language=[5.2]Lua,
2538     basicstyle=\ttfamily,
2539     columns=spaceflexible,
2540     keywordstyle=\bfseries\color{Blue4},% language keywords
2541     keywordstyle=[2]\bfseries\color{RoyalBlue3},% std. library identifiers
2542     keywordstyle=[3]\bfseries\color{Purple3},% labels
2543     stringstyle=\bfseries\color{Coral4},% strings
2544     commentstyle=\itshape\color{Green4},% comments
2545 }

```

This code is provided in the file `listings-lua.prf`, see section 2.4.1 (Preferences) of the listings documentation.

```

2546 </lua-prf>

```

2.42 Make

Rolf Niepraschk sent me the new definitions. Markus Pahlow found a missing comma and added some keywords, which improve the highlighting with `makemacrouse=true` (but I haven't tested this).

```

2547 <*lang2>

2548 %%
2549 %% Make definitions (c) 2000 Rolf Niepraschk
2550 %%
2551 \lst@definelanguage[gnu]{make}%
2552 {morekeywords={SHELL,MAKE,MAKEFLAGS,$@,$\,$<,$?,$^,$+,$*,%
2553     @,^,<,\%,+,{,},%, Markus Pahlow
2554     export,unexport,include,override,define,ifdef,ifneq,ifeq,else,%
2555     endif,vpath,subst,patsubst,strip,findstring,filter,filter-out,%
2556     sort,dir,notdir,suffix,basename,addsuffix,addprefix,join,word,%
2557     words,firstword,wildcard,shell,origin,foreach,%
2558     @D,@F,*D,*F,\%D,\%F,<D,<F,^D,^F,+D,+F,?D,?F,%
2559     AR,AS,CC,CXX,CO,CPP,FC,GET,LEX,PC,YACC,YACCR,MAKEINFO,TEXI2DVI,%
2560     WEAVE,CWEAVE,TANGLE,CTANGLE,RM,M2C,LINT,COMPILE,LINK,PREPROCESS,%
2561     CHECKOUT,%
2562     ARFLAGS,ASFLAGS,CFLAGS,CXXFLAGS,COFLAGS,CPPFLAGS,FFLAGS,GFLAGS,%
2563     LDFLAGS,LOADLIBES,LFLAGS,PFLAGS,RFLAGS,YFLAGS,M2FLAGS,MODFLAGS,%

```

```

2564     LINTFLAGS,MAKEINFO_FLAGS,TEXI2DVI_FLAGS,COFLAGS,GFLAGS,%
2565     OUTPUT_OPTION,SCCS_OUTPUT_OPTION,% missing comma: Markus Pahlow
2566     .PHONY,.SUFFIXES,.DEFAULT,.PRECIOUS,.INTERMEDIATE,.SECONDARY,%
2567     .IGNORE,.SILENT,.EXPORT_ALL_VARIABLES,MAKEFILES,VPATH,MAKESHELL,%
2568     MAKELEVEL,MAKECMDGOALS,SUFFIXES},%
2569     sensitive=true,
2570     morecomment=[1]\#,%
2571     morestring=[b] "%
2572 }[keywords,comments,strings,make]%

2573 \lst@definelanguage{make}
2574 {morekeywords={SHELL,MAKE,MAKEFLAGS,$@,$\%,$<,$?,$^,$+,$*},%
2575     sensitive=true,%
2576     morecomment=[1]\#,%
2577     morestring=[b] "%
2578 }[keywords,comments,strings,make]%

```

The two [b]-arguments have been added after a bug report by Dr. Jobst Hoffmann

2579 </lang2>

2.43 Matlab

I (C.H.?) took the keywords from <http://www.utexas.edu/math/Matlab/Manual>, but I removed the keywords i, j and tmp—the change was proposed by Kai Below.

2580 <*lang1>

From the revision history one can conclude that “Matlab’” means “Matlab 5.1’” which was released in 1997

```

2581 \lst@definelanguage[5.1]{Matlab}[] {Matlab}-{ }
2582 \lst@definelanguage{Matlab}%
2583 {morekeywords={gt,lt,gt,lt,amp,abs,acos,acosh,acot,acoth,acsc,acsch,%
2584     all,angle,ans,any,asec,asech,asin,asinh,atan,atan2,atanh,auread,%
2585     auwrite,axes,axis,balance,bar,bessel,besselk,bessely,beta,%
2586     betainc,betaln,blanks,bone,break,brighten,capture,car2pol,%
2587     cart2sph,caxis,cd,cdf2rdf,cedit,ceil,chol,cla,clabel,clc,clear,%
2588     clf,clock,close,colmmd,Colon,colorbar,colormap,ColorSpec,colperm,%
2589     comet,comet3,compan,compass,computer,cond,condest,conj,contour,%
2590     contour3,contourc,contrast,conv,conv2,cool,copper,corrcoef,cos,%
2591     cosh,cot,coth,cov,cplxpair,cputime,cross,csc,csch,csvread,%
2592     csvwrite,cumprod,cumsum,cylinder,date,dbclean,dbcont,dbdown,%
2593     dbquit,dbstack,dbstatus,dbstep,dbstop,dbtype,dbup,ddeadv,ddeexec,%
2594     ddeinit,ddepoke,ddereq,ddeterm,ddeunadv,deblank,dec2hex,deconv,%
2595     del2,delete,demo,det,diag,diary,diff,diffuse,dir,disp,dlmread,%
2596     dlmwrite,dmperm,dot,drawnow,echo,eig,ellipj,ellipke,else,elseif,%
2597     end,engClose,engEvalString,engGetFull,engGetMatrix,engOpen,%
2598     engOutputBuffer,engPutFull,engPutMatrix,engSetEvalCallback,%
2599     engSetEvalTimeout,engWinInit,eps,erf,erfc,erfcx,erfinv,error,%
2600     errorbar,etime,etree,eval,exist,exp,expint,expm,expo,eye,fclose,%
2601     feather,feof,ferror,feval,fft,fft2,fftshift,fgetl,fgets,figure,%
2602     fill,fill3,filter,filter2,find,findstr,finite,fix,flag,flipr,%

```

```

2603     flipud,floor,flops,fmin,fmins,fopen,for,format,fplot,fprintf,%
2604     fread,frewind,fscanf,fseek,ftell,full,function,funm,fwrite,fzero,%
2605     gallery,gamma,gammainc,gammainv,gca,gcd,gcf,gco,get,getenv,%
2606     getframe,ginput,global,gplot,gradient,gray,graymon,grid,griddata,%
2607     gtext,hadamard,hankel,help,hess,hex2dec,hex2num,hidden,hilb,hist,%
2608     hold,home,hostid,hot,hsv,hsv2rgb,if,ifft,ifft2,imag,image,%
2609     imagesc,Inf,info,input,int2str,interp1,interp2,interpft,inv,%
2610     invhilb,isempty,isglobal,ishold,isieee,isinf,isletter,isnan,%
2611     isreal,isspace,issparse,isstr,jet,keyboard,kron,lasterr,lcm,%
2612     legend,legendre,length,lin2mu,line,linspace,load,log,log10,log2,%
2613     loglog,logm,logspace,lookfor,lower,ls,lscov,lu,magic,matClose,%
2614     matDeleteMatrix,matGetDir,matGetFp,matGetFull,matGetMatrix,%
2615     matGetNextMatrix,matGetString,matlabrc,matlabroot,matOpen,%
2616     matPutFull,matPutMatrix,matPutString,max,mean,median,menu,mesh,%
2617     meshc,meshgrid,meshz,mexAtExit,mexCallMATLAB,mexdebug,%
2618     mexErrMsgTxt,mexEvalString,mexFunction,mexGetFull,mexGetMatrix,%
2619     mexGetMatrixPtr,mexPrintf,mexPutFull,mexPutMatrix,mexSetTrapFlag,%
2620     min,more,movie,moviein,mu2lin,mxMalloc,mxCopyCharacterToPtr,%
2621     mxCopyComplex16ToPtr,mxCopyInteger4ToPtr,mxCopyPtrToCharacter,%
2622     mxCopyPtrToComplex16,mxCopyPtrToInteger4,mxCopyPtrToReal8,%
2623     mxCopyReal8ToPtr,mxCreateFull,mxCreateSparse,mxCreateString,%
2624     mxFree,mxFreeMatrix,mxGetIr,mxGetJc,mxGetM,mxGetN,mxGetName,%
2625     mxGetNzmax,mxGetPi,mxGetPr,mxGetScalar,mxGetString,mxIsComplex,%
2626     mxIsFull,mxIsNumeric,mxIsSparse,mxIsString,mxIsTypeDouble,%
2627     mxSetIr,mxSetJc,mxSetM,mxSetN,mxSetName,mxSetNzmax,mxSetPi,%
2628     mxSetPr,NaN,nargchk,nargin,nargout,newplot,nextpow2,nnls,nnz,%
2629     nonzeros,norm,normest,null,num2str,nzmax,ode23,ode45,orient,orth,%
2630     pack,pascal,patch,path,pause,pcolor,pi,pink,pinv,plot,plot3,%
2631     pol2cart,polar,poly,polyder,polyeig,polyfit,polyval,polyvalm,%
2632     pow2,print,printopt,prism,prod,pwd,qr,qrdelete,qrinsert,quad,%
2633     quad8,quit,quiver,qz,rand,randn,randperm,rank,rat,rats,rbbox,%
2634     rcond,real,realmax,realmin,refresh,rem,reset,reshape,residue,%
2635     return,rgb2hsv,rgbplot,rootobject,roots,rose,rosser,rot90,rotate,%
2636     round,rref,rrefmovie,rsf2csf,save,saxis,schur,sec,sech,semilogx,%
2637     semilogy,set,setstr,shading,sign,sin,sinh,size,slice,sort,sound,%
2638     spalloc,sparse,spaugment,spconvert,spdiags,specular,speye,spfun,%
2639     sph2cart,sphere,spinmap,spline,spones,spparms,sprandn,sprandsym,%
2640     sprank,sprintf,spy,sqrt,sqrtm,sscanf,stair,stairs,startup,std,stem,%
2641     str2mat,str2num,strcmp,strings,strrep,strtok,subplot,subscribe,%
2642     subspace,sum,surf,surface,surfc,surfl,surfnorm,svd,symbfact,%
2643     symmmd,symrcm,tan,tanh,tempdir,tempname,terminal,text,tic,title,%
2644     toc,toeplitz,trace,trapz,tril,triu,type,uicontrol,uigetfile,%
2645     uimenu,uiputfile,unix,unwrap,upper,vander,ver,version,view,%
2646     viewmtx,waitforbuttonpress,waterfall,wavread,wavwrite,what,%
2647     whatsnew,which,while,white,whitebg,who,whos,wilkinson,wk1read,%
2648     wk1write,xlabel,xor,ylabel,zeros,zlabel,zoom},%
2649     sensitive,%
2650     morecomment=[1]\%,%
2651     morestring=[m] '%
2652 }[keywords,comments,strings]

```

2653 $\langle \text{/lang1} \rangle$

2.44 Mathematica

Michael Wiese typed in all the keywords for the 1.0 and 3.0 versions. Oliver Ruebenkoenig wrote a script to generate the lists for the 5.2 version. Simon Pearce provided the list of keywords for Mathematica 11.0.

2654 $\langle \text{*lang1} \rangle$

```
2655 \lst@definlanguage[11.0]{Mathematica}[5.2]{Mathematica}{%
2656   morekeywords={
2657     "AASTriangle", "AbelianGroup", "Abort", "AbortKernels",%
2658     "AbortProtect", "AbortScheduledTask", "Above", "Abs", "AbsArg",%
2659     "Absolute", "AbsoluteCorrelation", "AbsoluteCorrelationFunction",%
2660     "AbsoluteCurrentValue", "AbsoluteDashing", "AbsoluteFileName",%
2661     "AbsoluteOptions", "AbsolutePointSize", "AbsoluteThickness",%
2662     "AbsoluteTime", "AbsoluteTiming", "AccountingForm", "Accumulate",%
2663     "Accuracy", "AccuracyGoal", "ActionDelay", "ActionMenu",%
2664     "ActionMenuBox", "ActionMenuBoxOptions", "Activate", "Active",%
2665     "ActiveItem", "ActiveStyle", "AcyclicGraphQ", "AddOnHelpPath",%
2666     "AddTo", "AddUsers", "AdjacencyGraph", "AdjacencyList",%
2667     "AdjacencyMatrix", "AdjustmentBox", "AdjustmentBoxOptions",%
2668     "AdjustTimeSeriesForecast", "AdministrativeDivisionData",%
2669     "AffineHalfSpace", "AffineSpace", "AffineStateSpaceModel",%
2670     "AffineTransform", "After", "AircraftData", "AirportData",%
2671     "AirPressureData", "AirTemperatureData", "AiryAi", "AiryAiPrime",%
2672     "AiryAiZero", "AiryBi", "AiryBiPrime", "AiryBiZero",%
2673     "AlgebraicIntegerQ", "AlgebraicNumber", "AlgebraicNumberDenominator",%
2674     "AlgebraicNumberNorm", "AlgebraicNumberPolynomial",%
2675     "AlgebraicNumberTrace", "AlgebraicRules", "AlgebraicRulesData",%
2676     "Algebraics", "AlgebraicUnitQ", "Alignment", "AlignmentMarker",%
2677     "AlignmentPoint", "All", "AllowedDimensions", "AllowedHeads",%
2678     "AllowGroupClose", "AllowIncomplete", "AllowInlineCells",%
2679     "AllowKernelInitialization", "AllowLooseGrammar",%
2680     "AllowReverseGroupClose", "AllowScriptLevelChange", "AllTrue",%
2681     "Alphabet", "AlphabeticOrder", "AlphabeticSort", "AlphaChannel",%
2682     "AlternateImage", "AlternatingFactorial", "AlternatingGroup",%
2683     "AlternativeHypothesis", "Alternatives", "AltitudeMethod",%
2684     "AmbientLight", "AmbiguityFunction", "AmbiguityList", "Analytic",%
2685     "AnatomyData", "AnatomyForm", "AnatomyPlot3D", "AnchoredSearch",%
2686     "And", "AndersonDarlingTest", "AngerJ", "AngleBracket", "AnglePath",%
2687     "AngleVector", "AngularGauge", "Animate", "AnimationCycleOffset",%
2688     "AnimationCycleRepetitions", "AnimationDirection",%
2689     "AnimationDisplayTime", "AnimationRate", "AnimationRepetitions",%
2690     "AnimationRunning", "AnimationRunTime", "AnimationTimeIndex",%
2691     "Animator", "AnimatorBox", "AnimatorBoxOptions", "AnimatorElements",%
2692     "Annotation", "Annuity", "AnnuityDue", "Annulus", "Anonymous",%
2693     "Antialiasing", "AntihermitianMatrixQ", "Antisymmetric",%
2694     "AntisymmetricMatrixQ", "AnyOrder", "AnySubset", "AnyTrue", "Apart",%
2695     "ApartSquareFree", "APIFunction", "Appearance", "AppearanceElements",%
```

2696 "AppearanceRules", "AppellF1", "Append", "AppendTo", "Apply",%
 2697 "ArcCos", "ArcCosh", "ArcCot", "ArcCoth", "ArcCsc", "ArcCsch",%
 2698 "ArcCurvature", "ARCHProcess", "ArcLength", "ArcSec", "ArcSech",%
 2699 "ArcSin", "ArcSinDistribution", "ArcSinh", "ArcTan", "ArcTanh",%
 2700 "Area", "Arg", "ArgMax", "ArgMin", "ArgumentCountQ", "ARIMAProcess",%
 2701 "ArithmeticGeometricMean", "ARMAProcess", "ARProcess", "Array",%
 2702 "ArrayComponents", "ArrayDepth", "ArrayFilter", "ArrayFlatten",%
 2703 "ArrayMesh", "ArrayPad", "ArrayPlot", "ArrayQ", "ArrayResample",%
 2704 "ArrayReshape", "ArrayRules", "Arrays", "Arrow", "Arrow3DBox",%
 2705 "ArrowBox", "Arrowheads", "ASATriangle", "Ask", "AskAppend",%
 2706 "AskConfirm", "AskDisplay", "AskedQ", "AskedValue", "AskFunction",%
 2707 "AskTemplateDisplay", "AspectRatio", "AspectRatioFixed", "Assert",%
 2708 "AssociateTo", "Association", "AssociationFormat", "AssociationMap",%
 2709 "AssociationQ", "AssociationThread", "AssumeDeterministic",%
 2710 "Assuming", "Assumptions", "AstronomicalData",%
 2711 "AsymptoticOutputTracker", "Asynchronous", "AsynchronousTaskObject",%
 2712 "AsynchronousTasks", "AtomQ", "Attributes", "Audio", "AudioAmplify",%
 2713 "AudioBlockMap", "AudioChannelCombine", "AudioChannelMix",%
 2714 "AudioChannels", "AudioChannelSeparate", "AudioData", "AudioDelay",%
 2715 "AudioDelete", "AudioDevice", "AudioFade", "AudioFrequencyShift",%
 2716 "AudioGenerator", "AudioIntervals", "AudioJoin", "AudioLabel",%
 2717 "AudioLength", "AudioLocalMeasurements", "AudioMeasurements",%
 2718 "AudioNormalize", "AudioOverlay", "AudioPad", "AudioPan",%
 2719 "AudioPartition", "AudioPitchShift", "AudioPlot", "AudioQ",%
 2720 "AudioResample", "AudioReverb", "AudioSampleRate", "AudioSplit",%
 2721 "AudioTimeStretch", "AudioTrim", "AudioType",%
 2722 "AugmentedSymmetricPolynomial", "Authentication", "AutoAction",%
 2723 "Autocomplete", "AutocompletionFunction", "AutoCopy",%
 2724 "AutocorrelationTest", "AutoDelete", "AutoEvaluateEvents",%
 2725 "AutoGeneratedPackage", "AutoIndent", "AutoIndentSpacings",%
 2726 "AutoItalicWords", "AutoloadPath", "AutoMatch", "Automatic",%
 2727 "AutomaticImageSize", "AutoMultiplicationSymbol",%
 2728 "AutoNumberFormatting", "AutoOpenNotebooks", "AutoOpenPalettes",%
 2729 "AutoRefreshed", "AutoRemove", "AutorunSequencing", "AutoScaling",%
 2730 "AutoScroll", "AutoSpacing", "AutoStyleOptions", "AutoStyleWords",%
 2731 "AutoSubmitting", "Axes", "AxesEdge", "AxesLabel", "AxesOrigin",%
 2732 "AxesStyle", "Axis", "BabyMonsterGroupB", "Back", "Background",%
 2733 "BackgroundTasksSettings", "Backslash", "Backsubstitution",%
 2734 "Backward", "Ball", "Band", "BandpassFilter", "BandstopFilter",%
 2735 "BarabasiAlbertGraphDistribution", "BarChart", "BarChart3D",%
 2736 "BarcodeImage", "BarcodeRecognize", "BaringhausHenzeTest",%
 2737 "BarLegend", "BarlowProshanImportance", "BarnesG", "BarOrigin",%
 2738 "BarSpacing", "BartlettHannWindow", "BartlettWindow", "BaseForm",%
 2739 "Baseline", "BaselinePosition", "BaseStyle",%
 2740 "BatchNormalizationLayer", "BatchSize", "BatesDistribution",%
 2741 "BattleLemarieWavelet", "BayesianMaximization",%
 2742 "BayesianMaximizationObject", "BayesianMinimization",%
 2743 "BayesianMinimizationObject", "Because", "BeckmannDistribution",%
 2744 "Beep", "Before", "Begin", "BeginDialogPacket",%
 2745 "BeginFrontEndInteractionPacket", "BeginPackage", "BellB", "Belly",%

2746 "Below", "BenfordDistribution", "BeniniDistribution",%
 2747 "BenktanderGibratDistribution", "BenktanderWeibullDistribution",%
 2748 "BernoulliB", "BernoulliDistribution", "BernoulliGraphDistribution",%
 2749 "BernoulliProcess", "BernsteinBasis", "BesselFilterModel", "BesselI",%
 2750 "BesselJ", "BesselJZero", "BesselK", "BesselY", "BesselYZero",%
 2751 "Beta", "BetaBinomialDistribution", "BetaDistribution",%
 2752 "BetaNegativeBinomialDistribution", "BetaPrimeDistribution",%
 2753 "BetaRegularized", "Between", "BetweennessCentrality", "BezierCurve",%
 2754 "BezierCurve3DBox", "BezierCurve3DBoxOptions", "BezierCurveBox",%
 2755 "BezierCurveBoxOptions", "BezierFunction", "BilateralFilter",%
 2756 "Binarize", "BinaryDistance", "BinaryFormat", "BinaryImageQ",%
 2757 "BinaryRead", "BinaryReadList", "BinaryWrite", "BinCounts",%
 2758 "BinLists", "Binomial", "BinomialDistribution", "BinomialProcess",%
 2759 "BinormalDistribution", "BiorthogonalSplineWavelet",%
 2760 "BipartiteGraphQ", "BiquadraticFilterModel", "BirnbaumImportance",%
 2761 "BirnbaumSaundersDistribution", "BitAnd", "BitClear", "BitGet",%
 2762 "BitLength", "BitNot", "BitOr", "BitSet", "BitShiftLeft",%
 2763 "BitShiftRight", "BitXor", "Black", "BlackmanHarrisWindow",%
 2764 "BlackmanNuttallWindow", "BlackmanWindow", "Blank", "BlankForm",%
 2765 "BlankNullSequence", "BlankSequence", "Blend", "Block", "BlockMap",%
 2766 "BlockRandom", "BlomqvistBeta", "BlomqvistBetaTest", "Blue", "Blur",%
 2767 "BodePlot", "BohmanWindow", "Bold", "Bookmarks", "Boole",%
 2768 "BooleanConsecutiveFunction", "BooleanConvert",%
 2769 "BooleanCountingFunction", "BooleanFunction", "BooleanGraph",%
 2770 "BooleanMaxterms", "BooleanMinimize", "BooleanMinterms", "BooleanQ",%
 2771 "BooleanRegion", "Booleans", "BooleanStrings", "BooleanTable",%
 2772 "BooleanVariables", "BorderDimensions", "BorelTannerDistribution",%
 2773 "Bottom", "BottomHatTransform", "BoundaryDiscretizeGraphics",%
 2774 "BoundaryDiscretizeRegion", "BoundaryMesh", "BoundaryMeshRegion",%
 2775 "BoundaryMeshRegionQ", "BoundaryStyle", "BoundedRegionQ",%
 2776 "BoundingRegion", "Bounds", "Box", "BoxBaselineShift", "BoxData",%
 2777 "BoxDimensions", "Boxed", "Boxes", "BoxForm", "BoxFormFormatTypes",%
 2778 "BoxFrame", "BoxID", "BoxMargins", "BoxMatrix", "BoxObject",%
 2779 "BoxRatios", "BoxRotation", "BoxRotationPoint", "BoxStyle",%
 2780 "BoxWhiskerChart", "Bra", "BracketingBar", "BraKet",%
 2781 "BrayCurtisDistance", "BreadthFirstScan", "Break", "BridgeData",%
 2782 "BroadcastStationData", "Brown", "BrownForsytheTest",%
 2783 "BrownianBridgeProcess", "BrowserCategory", "BSplineBasis",%
 2784 "BSplineCurve", "BSplineCurve3DBox", "BSplineCurve3DBoxOptions",%
 2785 "BSplineCurveBox", "BSplineCurveBoxOptions", "BSplineFunction",%
 2786 "BSplineSurface", "BSplineSurface3DBox",%
 2787 "BSplineSurface3DBoxOptions", "BubbleChart", "BubbleChart3D",%
 2788 "BubbleScale", "BubbleSizes", "BuildingData", "BulletGauge",%
 2789 "BusinessDayQ", "ButterflyGraph", "ButterworthFilterModel", "Button",%
 2790 "ButtonBar", "ButtonBox", "ButtonBoxOptions", "ButtonCell",%
 2791 "ButtonContents", "ButtonData", "ButtonEvaluator",%
 2792 "ButtonExpandable", "ButtonFrame", "ButtonFunction", "ButtonMargins",%
 2793 "ButtonMinHeight", "ButtonNote", "ButtonNotebook", "ButtonSource",%
 2794 "ButtonStyle", "ButtonStyleMenuListing", "Byte", "ByteArray",%
 2795 "ByteArrayQ", "ByteCount", "ByteOrdering", "C", "CachedValue",%

2796 "CacheGraphics", "CachePersistence", "CalendarConvert",%
 2797 "CalendarData", "CalendarType", "Callout", "CalloutMarker",%
 2798 "CalloutStyle", "CallPacket", "CanberraDistance", "Cancel",%
 2799 "CancelButton", "CandlestickChart", "CanonicalGraph",%
 2800 "CanonicalName", "CanonicalWarpingCorrespondence",%
 2801 "CanonicalWarpingDistance", "CantorStaircase", "Cap", "CapForm",%
 2802 "CapitalDifferentialD", "Capitalize", "CapsuleShape",%
 2803 "CardinalBSplineBasis", "CarlemanLinearize", "CarmichaelLambda",%
 2804 "CaseOrdering", "Cases", "CaseSensitive", "Cashflow", "Casoratian",%
 2805 "Catalan", "CatalanNumber", "Catch", "Catenate", "CatenateLayer",%
 2806 "CauchyDistribution", "CauchyWindow", "CayleyGraph", "CDF",%
 2807 "CDFDeploy", "CDFInformation", "CDFWavelet", "Ceiling",%
 2808 "CelestialSystem", "Cell", "CellAutoOverwrite", "CellBaseline",%
 2809 "CellBoundingBox", "CellBracketOptions", "CellChangeTimes",%
 2810 "CellContents", "CellContext", "CellDingbat",%
 2811 "CellDynamicExpression", "CellEditDuplicate",%
 2812 "CellElementsBoundingBox", "CellElementSpacings", "CellEpilog",%
 2813 "CellEvaluationDuplicate", "CellEvaluationFunction",%
 2814 "CellEventActions", "CellFrame", "CellFrameColor",%
 2815 "CellFrameLabelMargins", "CellFrameLabels", "CellFrameMargins",%
 2816 "CellGroup", "CellGroupData", "CellGrouping", "CellGroupingRules",%
 2817 "CellHorizontalScrolling", "CellID", "CellLabel",%
 2818 "CellLabelAutoDelete", "CellLabelMargins", "CellLabelPositioning",%
 2819 "CellMargins", "CellObject", "CellOpen", "CellPrint", "CellProlog",%
 2820 "Cells", "CellSize", "CellStyle", "CellTags", "CellularAutomaton",%
 2821 "CensoredDistribution", "Censoring", "Center", "CenterArray",%
 2822 "CenterDot", "CentralMoment", "CentralMomentGeneratingFunction",%
 2823 "CForm", "ChampernowneNumber", "ChangeOptions", "ChannelBase",%
 2824 "ChannelDataBin", "ChannelHistoryLength", "ChannelListen",%
 2825 "ChannelListener", "ChannelListeners", "ChannelListenerWait",%
 2826 "ChannelObject", "ChannelPreSendFunction", "ChannelSend",%
 2827 "ChannelSubscribers", "ChanVeseBinarize", "Character",%
 2828 "CharacterCounts", "CharacterEncoding", "CharacterEncodingsPath",%
 2829 "CharacteristicFunction", "CharacteristicPolynomial",%
 2830 "CharacterName", "CharacterRange", "Characters", "ChartBaseStyle",%
 2831 "ChartElementData", "ChartElementDataFunction",%
 2832 "ChartElementFunction", "ChartElements", "ChartLabels",%
 2833 "ChartLayout", "ChartLegends", "ChartStyle", "Chebyshev1FilterModel",%
 2834 "Chebyshev2FilterModel", "ChebyshevDistance", "ChebyshevT",%
 2835 "ChebyshevU", "Check", "CheckAbort", "CheckAll", "Checkbox",%
 2836 "CheckboxBar", "CheckboxBox", "CheckboxBoxOptions", "ChemicalData",%
 2837 "ChessboardDistance", "ChiDistribution", "ChineseRemainder",%
 2838 "ChiSquareDistribution", "ChoiceButtons", "ChoiceDialog",%
 2839 "CholeskyDecomposition", "Chop", "ChromaticityPlot",%
 2840 "ChromaticityPlot3D", "ChromaticPolynomial", "Circle", "CircleBox",%
 2841 "CircleDot", "CircleMinus", "CirclePlus", "CirclePoints",%
 2842 "CircleTimes", "CirculantGraph",%
 2843 "CircularOrthogonalMatrixDistribution",%
 2844 "CircularQuaternionMatrixDistribution",%
 2845 "CircularRealMatrixDistribution",%

2846 "CircularSymplecticMatrixDistribution",%
 2847 "CircularUnitaryMatrixDistribution", "Circumsphere", "CityData",%
 2848 "ClassifierFunction", "ClassifierInformation",%
 2849 "ClassifierMeasurements", "ClassifierMeasurementsObject", "Classify",%
 2850 "ClassPriors", "Clear", "ClearAll", "ClearAttributes",%
 2851 "ClearCookies", "ClearPermissions", "ClearSystemCache",%
 2852 "ClebschGordan", "ClickPane", "Clip", "ClipboardNotebook",%
 2853 "ClipFill", "ClippingStyle", "ClipPlanes", "ClipPlanesStyle",%
 2854 "ClipRange", "Clock", "ClockGauge", "ClockwiseContourIntegral",%
 2855 "Close", "Closed", "CloseKernels", "ClosenessCentrality", "Closing",%
 2856 "ClosingAutoSave", "ClosingEvent", "CloudAccountData", "CloudBase",%
 2857 "CloudConnect", "CloudDeploy", "CloudDirectory", "CloudDisconnect",%
 2858 "CloudEvaluate", "CloudExport", "CloudExpression",%
 2859 "CloudExpressions", "CloudFunction", "CloudGet", "CloudImport",%
 2860 "CloudLoggingData", "CloudObject", "CloudObjectInformation",%
 2861 "CloudObjectInformationData", "CloudObjects", "CloudPublish",%
 2862 "CloudPut", "CloudSave", "CloudShare", "CloudSubmit", "CloudSymbol",%
 2863 "ClusterClassify", "ClusterDissimilarityFunction",%
 2864 "ClusteringComponents", "ClusteringTree", "CMYKColor", "Coarse",%
 2865 "CodeAssistOptions", "Coefficient", "CoefficientArrays",%
 2866 "CoefficientDomain", "CoefficientList", "CoefficientRules",%
 2867 "CoifletWavelet", "Collect", "Colon", "ColonForm", "ColorBalance",%
 2868 "ColorCombine", "ColorConvert", "ColorCoverage", "ColorData",%
 2869 "ColorDataFunction", "ColorDistance", "ColorFunction",%
 2870 "ColorFunctionScaling", "Colorize", "ColorNegate", "ColorOutput",%
 2871 "ColorProfileData", "ColorQ", "ColorQuantize", "ColorReplace",%
 2872 "ColorRules", "ColorSelectorSettings", "ColorSeparate",%
 2873 "ColorSetter", "ColorSetterBox", "ColorSetterBoxOptions",%
 2874 "ColorSlider", "ColorSpace", "ColorToneMapping", "Column",%
 2875 "ColumnAlignments", "ColumnBackgrounds", "ColumnForm", "ColumnLines",%
 2876 "ColumnsEqual", "ColumnSpacings", "ColumnWidths", "CombinerFunction",%
 2877 "CometData", "CommonDefaultFormatTypes", "Commonest",%
 2878 "CommonestFilter", "CommonName", "CommonUnits",%
 2879 "CommunityBoundaryStyle", "CommunityGraphPlot", "CommunityLabels",%
 2880 "CommunityRegionStyle", "CompanyData", "CompatibleUnitQ",%
 2881 "CompilationOptions", "CompilationTarget", "Compile", "Compiled",%
 2882 "CompiledFunction", "Complement", "CompleteGraph", "CompleteGraphQ",%
 2883 "CompleteKaryTree", "CompletionsListPacket", "Complex", "Complexes",%
 2884 "ComplexExpand", "ComplexInfinity", "ComplexityFunction",%
 2885 "ComponentMeasurements", "ComponentwiseContextMenu", "Compose",%
 2886 "ComposeList", "ComposeSeries", "CompositeQ", "Composition",%
 2887 "CompoundElement", "CompoundExpression",%
 2888 "CompoundPoissonDistribution", "CompoundPoissonProcess",%
 2889 "CompoundRenewalProcess", "Compress", "CompressedData", "Condition",%
 2890 "ConditionalExpression", "Conditioned", "Cone", "ConeBox",%
 2891 "ConfidenceLevel", "ConfidenceRange", "ConfidenceTransform",%
 2892 "ConfigurationPath", "ConformationRules", "ConformAudio",%
 2893 "ConformImages", "Congruent", "ConicHullRegion",%
 2894 "ConicHullRegion3DBox", "ConicHullRegionBox", "Conjugate",%
 2895 "ConjugateTranspose", "Conjunction", "Connect",%

2896 "ConnectedComponents", "ConnectedGraphComponents", "ConnectedGraphQ", %
 2897 "ConnectedMeshComponents", "ConnectLibraryCallbackFunction", %
 2898 "ConnesWindow", "ConoverTest", "ConsoleMessage", %
 2899 "ConsoleMessagePacket", "ConsolePrint", "Constant", "ConstantArray", %
 2900 "ConstantImage", "ConstantRegionQ", "Constants", "ConstellationData", %
 2901 "ConstrainedMax", "ConstrainedMin", "Containing", "ContainsAll", %
 2902 "ContainsAny", "ContainsExactly", "ContainsNone", "ContainsOnly", %
 2903 "ContentFieldOptions", "ContentLocationFunction", "ContentObject", %
 2904 "ContentPadding", "ContentsBoundingBox", "ContentSelectable", %
 2905 "ContentSize", "Context", "ContextMenu", "Contexts", %
 2906 "ContextToFileName", "Continuation", "Continue", "ContinuedFraction", %
 2907 "ContinuedFractionK", "ContinuousAction", "ContinuousMarkovProcess", %
 2908 "ContinuousTask", "ContinuousTimeModelQ", "ContinuousWaveletData", %
 2909 "ContinuousWaveletTransform", "ContourDetect", "ContourGraphics", %
 2910 "ContourIntegral", "ContourLabels", "ContourLines", "ContourPlot", %
 2911 "ContourPlot3D", "Contours", "ContourShading", "ContourSmoothing", %
 2912 "ContourStyle", "ContraHarmonicMean", "Control", "ControlActive", %
 2913 "ControlAlignment", "ControllabilityGramian", %
 2914 "ControllabilityMatrix", "ControllableDecomposition", %
 2915 "ControllableModelQ", "ControllerDuration", "ControllerInformation", %
 2916 "ControllerInformationData", "ControllerLinking", %
 2917 "ControllerManipulate", "ControllerMethod", "ControllerPath", %
 2918 "ControllerState", "ControlPlacement", "ControlsRendering", %
 2919 "ControlType", "Convergents", "ConversionOptions", "ConversionRules", %
 2920 "ConvertToBitmapPacket", "ConvertToPostScript", %
 2921 "ConvertToPostScriptPacket", "ConvexHullMesh", "ConvolutionLayer", %
 2922 "Convolve", "ConwayGroupCo1", "ConwayGroupCo2", "ConwayGroupCo3", %
 2923 "CookieFunction", "Cookies", "CoordinateBoundingBox", %
 2924 "CoordinateBoundingBoxArray", "CoordinateBounds", %
 2925 "CoordinateBoundsArray", "CoordinateChartData", %
 2926 "CoordinatesToolOptions", "CoordinateTransform", %
 2927 "CoordinateTransformData", "CoprimeQ", "Coproduct", %
 2928 "CopulaDistribution", "Copyable", "CopyDataBin", "CopyDirectory", %
 2929 "CopyFile", "CopyTag", "CopyToClipboard", "CornerFilter", %
 2930 "CornerNeighbors", "Correlation", "CorrelationDistance", %
 2931 "CorrelationFunction", "CorrelationTest", "Cos", "Cosh", %
 2932 "CoshIntegral", "CosineDistance", "CosineWindow", "CosIntegral", %
 2933 "Cot", "Coth", "Count", "CountDistinct", "CountDistinctBy", %
 2934 "CounterAssignments", "CounterBox", "CounterBoxOptions", %
 2935 "CounterClockwiseContourIntegral", "CounterEvaluator", %
 2936 "CounterFunction", "CounterIncrements", "CounterStyle", %
 2937 "CounterStyleMenuListing", "CountRoots", "CountryData", "Counts", %
 2938 "CountsBy", "Covariance", "CovarianceEstimatorFunction", %
 2939 "CovarianceFunction", "CoxianDistribution", %
 2940 "CoxIngersollRossProcess", "CoxModel", "CoxModelFit", %
 2941 "CramerVonMisesTest", "CreateArchive", "CreateCellID", %
 2942 "CreateChannel", "CreateCloudExpression", "CreateDataBin", %
 2943 "CreateDialog", "CreateDirectory", "CreateDocument", "CreateFile", %
 2944 "CreateIntermediateDirectories", "CreateManagedLibraryExpression", %
 2945 "CreateNotebook", "CreatePalette", "CreatePalettePacket", %

2946 "CreatePermissionsGroup", "CreateScheduledTask", "CreateSearchIndex",%
 2947 "CreateTemporary", "CreateUUID", "CreateWindow", "CriterionFunction",%
 2948 "CriticalityFailureImportance", "CriticalitySuccessImportance",%
 2949 "CriticalSection", "Cross", "CrossEntropyLossLayer",%
 2950 "CrossingDetect", "CrossMatrix", "Csc", "Csch", "CubeRoot", "Cubics",%
 2951 "Cuboid", "CuboidBox", "Cumulant", "CumulantGeneratingFunction",%
 2952 "Cup", "CupCap", "Curl", "CurlyDoubleQuote", "CurlyQuote",%
 2953 "CurrencyConvert", "CurrentImage", "CurrentlySpeakingPacket",%
 2954 "CurrentValue", "CurvatureFlowFilter", "CurveClosed", "Cyan",%
 2955 "CycleGraph", "CycleIndexPolynomial", "Cycles", "CyclicGroup",%
 2956 "Cyclotomic", "Cylinder", "CylinderBox", "CylindricalDecomposition",%
 2957 "D", "DagumDistribution", "DamData", "DamerauLevenshteinDistance",%
 2958 "DampingFactor", "Darker", "Dashed", "Dashing", "Databin",%
 2959 "DatabinAdd", "DatabinRemove", "Databins", "DatabinUpload",%
 2960 "DataCompression", "DataDistribution", "DataRange", "DataReversed",%
 2961 "Dataset", "Date", "DateBounds", "Dated", "DateDelimiters",%
 2962 "DateDifference", "DatedUnit", "DateFormat", "DateFunction",%
 2963 "DateHistogram", "DateList", "DateListLogPlot", "DateListPlot",%
 2964 "DateListStepPlot", "DateObject", "DateObjectQ", "DatePattern",%
 2965 "DatePlus", "DateRange", "DateReduction", "DateString",%
 2966 "DateTicksFormat", "DateValue", "DaubechiesWavelet",%
 2967 "DavisDistribution", "DawsonF", "DayCount", "DayCountConvention",%
 2968 "DayHemisphere", "DaylightQ", "DayMatchQ", "DayName",%
 2969 "DayNightTerminator", "DayPlus", "DayRange", "DayRound",%
 2970 "DeBruijnGraph", "Debug", "DebugTag", "Decapitalize", "Decimal",%
 2971 "DeclareKnownSymbols", "DeclarePackage", "Decompose",%
 2972 "DeconvolutionLayer", "Decrement", "Decrypt", "DedekindEta",%
 2973 "DeepSpaceProbeData", "Default", "DefaultAxesStyle",%
 2974 "DefaultBaseStyle", "DefaultBoxStyle", "DefaultButton",%
 2975 "DefaultColor", "DefaultControlPlacement",%
 2976 "DefaultDuplicateCellStyle", "DefaultDuration", "DefaultElement",%
 2977 "DefaultFaceGridsStyle", "DefaultFieldHintStyle", "DefaultFont",%
 2978 "DefaultFontProperties", "DefaultFormatType",%
 2979 "DefaultFormatTypeForStyle", "DefaultFrameStyle",%
 2980 "DefaultFrameTicksStyle", "DefaultGridLinesStyle",%
 2981 "DefaultInlineFormatType", "DefaultInputFormatType",%
 2982 "DefaultLabelStyle", "DefaultMenuStyle", "DefaultNaturalLanguage",%
 2983 "DefaultNewCellStyle", "DefaultNewInlineCellStyle",%
 2984 "DefaultNotebook", "DefaultOptions", "DefaultOutputFormatType",%
 2985 "DefaultStyle", "DefaultStyleDefinitions", "DefaultTextFormatType",%
 2986 "DefaultTextInlineFormatType", "DefaultTicksStyle",%
 2987 "DefaultTooltipStyle", "DefaultValue", "DefaultValues", "Defer",%
 2988 "DefineExternal", "DefineInputStreamMethod",%
 2989 "DefineOutputStreamMethod", "Definition", "Degree",%
 2990 "DegreeCentrality", "DegreeGraphDistribution", "DegreeLexicographic",%
 2991 "DegreeReverseLexicographic", "DEigensystem", "DEigenvalues",%
 2992 "Deinitialization", "Del", "DelaunayMesh", "Delayed", "Deletable",%
 2993 "Delete", "DeleteBorderComponents", "DeleteCases", "DeleteChannel",%
 2994 "DeleteCloudExpression", "DeleteContents", "DeleteDirectory",%
 2995 "DeleteDuplicates", "DeleteDuplicatesBy", "DeleteFile",%

2996 "DeleteMissing", "DeletePermissionsKey", "DeleteSearchIndex",%
 2997 "DeleteSmallComponents", "DeleteStopwords", "DeleteWithContents",%
 2998 "DeletionWarning", "DelimitedArray", "DelimitedSequence",%
 2999 "Delimiter", "DelimiterFlashTime", "DelimiterMatching", "Delimiters",%
 3000 "DeliveryFunction", "Dendrogram", "Denominator", "DensityGraphics",%
 3001 "DensityHistogram", "DensityPlot", "DensityPlot3D",%
 3002 "DependentVariables", "Deploy", "Deployed", "Depth",%
 3003 "DepthFirstScan", "Derivative", "DerivativeFilter",%
 3004 "DescriptorStateSpace", "DesignMatrix", "DestroyAfterEvaluation",%
 3005 "Det", "DeviceClose", "DeviceConfigure", "DeviceExecute",%
 3006 "DeviceExecuteAsynchronous", "DeviceObject", "DeviceOpen",%
 3007 "DeviceOpenQ", "DeviceRead", "DeviceReadBuffer", "DeviceReadLatest",%
 3008 "DeviceReadList", "DeviceReadTimeSeries", "Devices", "DeviceStreams",%
 3009 "DeviceWrite", "DeviceWriteBuffer", "DGaussianWavelet",%
 3010 "DiacriticalPositioning", "Diagonal", "DiagonalizableMatrixQ",%
 3011 "DiagonalMatrix", "Dialog", "DialogIndent", "DialogInput",%
 3012 "DialogLevel", "DialogNotebook", "DialogProlog", "DialogReturn",%
 3013 "DialogSymbols", "Diamond", "DiamondMatrix", "DiceDissimilarity",%
 3014 "DictionaryLookup", "DictionaryWordQ", "DifferenceDelta",%
 3015 "DifferenceOrder", "DifferenceQuotient", "DifferenceRoot",%
 3016 "DifferenceRootReduce", "Differences", "DifferentialD",%
 3017 "DifferentialRoot", "DifferentialRootReduce", "DifferentiatorFilter",%
 3018 "DigitBlock", "DigitBlockMinimum", "DigitCharacter", "DigitCount",%
 3019 "DigitQ", "DihedralGroup", "Dilation", "DimensionalCombinations",%
 3020 "DimensionalMeshComponents", "DimensionReduce",%
 3021 "DimensionReducerFunction", "DimensionReduction", "Dimensions",%
 3022 "DiracComb", "DiracDelta", "DirectedEdge", "DirectedEdges",%
 3023 "DirectedGraph", "DirectedGraphQ", "DirectedInfinity", "Direction",%
 3024 "Directive", "Directory", "DirectoryName", "DirectoryQ",%
 3025 "DirectoryStack", "DirichletBeta", "DirichletCharacter",%
 3026 "DirichletCondition", "DirichletConvolve", "DirichletDistribution",%
 3027 "DirichletEta", "DirichletL", "DirichletLambda",%
 3028 "DirichletTransform", "DirichletWindow", "DisableConsolePrintPacket",%
 3029 "DiscreteChirpZTransform", "DiscreteConvolve", "DiscreteDelta",%
 3030 "DiscreteHadamardTransform", "DiscreteIndicator",%
 3031 "DiscreteLQEstimatorGains", "DiscreteLQRegulatorGains",%
 3032 "DiscreteLyapunovSolve", "DiscreteMarkovProcess", "DiscretePlot",%
 3033 "DiscretePlot3D", "DiscreteRatio", "DiscreteRiccatiSolve",%
 3034 "DiscreteShift", "DiscreteTimeModelQ", "DiscreteUniformDistribution",%
 3035 "DiscreteVariables", "DiscreteWaveletData",%
 3036 "DiscreteWaveletPacketTransform", "DiscreteWaveletTransform",%
 3037 "DiscretizeGraphics", "DiscretizeRegion", "Discriminant",%
 3038 "DisjointQ", "Disjunction", "Disk", "DiskBox", "DiskMatrix",%
 3039 "DiskSegment", "Dispatch", "DispatchQ",%
 3040 "DispersionEstimatorFunction", "Display", "DisplayAllSteps",%
 3041 "DisplayEndPacket", "DisplayFlushImagePacket", "DisplayForm",%
 3042 "DisplayFunction", "DisplayPacket", "DisplayRules",%
 3043 "DisplaySetSizePacket", "DisplayString", "DisplayTemporary",%
 3044 "DisplayWith", "DisplayWithRef", "DisplayWithVariable",%
 3045 "DistanceFunction", "DistanceMatrix", "DistanceTransform",%

3046 "Distribute", "Distributed", "DistributedContexts",%
 3047 "DistributeDefinitions", "DistributionChart", "DistributionDomain",%
 3048 "DistributionFitTest", "DistributionParameterAssumptions",%
 3049 "DistributionParameterQ", "Dithering", "Div", "Divergence", "Divide",%
 3050 "DivideBy", "Dividers", "Divisible", "Divisors", "DivisorSigma",%
 3051 "DivisorSum", "DMSList", "DMSString", "Do", "DockedCells",%
 3052 "DocumentGenerator", "DocumentGeneratorInformation",%
 3053 "DocumentGeneratorInformationData", "DocumentGenerators",%
 3054 "DocumentNotebook", "DominantColors", "DOSTextFormat", "Dot",%
 3055 "DotDashed", "DotEqual", "DotPlusLayer", "Dotted",%
 3056 "DoubleBracketingBar", "DoubleContourIntegral", "DoubleDownArrow",%
 3057 "DoubleLeftArrow", "DoubleLeftRightArrow", "DoubleLeftTee",%
 3058 "DoubleLongLeftArrow", "DoubleLongLeftRightArrow",%
 3059 "DoubleLongRightArrow", "DoubleRightArrow", "DoubleRightTee",%
 3060 "DoubleUpArrow", "DoubleUpDownArrow", "DoubleVerticalBar",%
 3061 "DoublyInfinite", "Down", "DownArrow", "DownArrowBar",%
 3062 "DownArrowUpArrow", "DownLeftRightVector", "DownLeftTeeVector",%
 3063 "DownLeftVector", "DownLeftVectorBar", "DownRightTeeVector",%
 3064 "DownRightVector", "DownRightVectorBar", "Downsample", "DownTee",%
 3065 "DownTeeArrow", "DownValues", "DragAndDrop", "DrawEdges",%
 3066 "DrawFrontFaces", "DrawHighlighted", "Drop", "DropoutLayer",%
 3067 "DSolve", "DSolveValue", "Dt", "DualLinearProgramming",%
 3068 "DualSystemsModel", "DumpGet", "DumpSave", "DuplicateFreeQ",%
 3069 "Duration", "Dynamic", "DynamicBox", "DynamicBoxOptions",%
 3070 "DynamicEvaluationTimeout", "DynamicGeoGraphics", "DynamicImage",%
 3071 "DynamicLocation", "DynamicModule", "DynamicModuleBox",%
 3072 "DynamicModuleBoxOptions", "DynamicModuleParent",%
 3073 "DynamicModuleValues", "DynamicName", "DynamicNamespace",%
 3074 "DynamicReference", "DynamicSetting", "DynamicUpdating",%
 3075 "DynamicWrapper", "DynamicWrapperBox", "DynamicWrapperBoxOptions",%
 3076 "E", "EarthImpactData", "EarthquakeData", "EccentricityCentrality",%
 3077 "Echo", "EchoFunction", "EclipseType", "EdgeAdd",%
 3078 "EdgeBetweennessCentrality", "EdgeCapacity", "EdgeCapForm",%
 3079 "EdgeColor", "EdgeConnectivity", "EdgeContract", "EdgeCost",%
 3080 "EdgeCount", "EdgeCoverQ", "EdgeCycleMatrix", "EdgeDashing",%
 3081 "EdgeDelete", "EdgeDetect", "EdgeForm", "EdgeIndex", "EdgeJoinForm",%
 3082 "EdgeLabeling", "EdgeLabels", "EdgeLabelStyle", "EdgeList",%
 3083 "EdgeOpacity", "EdgeQ", "EdgeRenderingFunction", "EdgeRules",%
 3084 "EdgeShapeFunction", "EdgeStyle", "EdgeThickness", "EdgeWeight",%
 3085 "Editable", "EditButtonSettings", "EditCellTagsSettings",%
 3086 "EditDistance", "EffectiveInterest", "Eigensystem", "Eigenvalues",%
 3087 "EigenvectorCentrality", "Eigenvectors", "Element", "ElementData",%
 3088 "ElementwiseLayer", "ElidedForms", "Eliminate", "EliminationOrder",%
 3089 "Ellipsoid", "EllipticE", "EllipticExp", "EllipticExpPrime",%
 3090 "EllipticF", "EllipticFilterModel", "EllipticK", "EllipticLog",%
 3091 "EllipticNomeQ", "EllipticPi", "EllipticReducedHalfPeriods",%
 3092 "EllipticTheta", "EllipticThetaPrime", "EmbedCode", "EmbeddedHTML",%
 3093 "EmbeddedService", "EmbeddingLayer", "EmbeddingObject", "EmitSound",%
 3094 "EmphasizeSyntaxErrors", "EmpiricalDistribution", "Empty",%
 3095 "EmptyGraphQ", "EmptyRegion", "EnableConsolePrintPacket", "Enabled",%

3096 "Encode", "Encrypt", "EncryptedObject", "End", "EndAdd",%
 3097 "EndDialogPacket", "EndFrontEndInteractionPacket", "EndOfBuffer",%
 3098 "EndOfFile", "EndOfLine", "EndOfString", "EndPackage",%
 3099 "EngineEnvironment", "EngineeringForm", "Enter",%
 3100 "EnterExpressionPacket", "EnterTextPacket", "Entity", "EntityClass",%
 3101 "EntityClassList", "EntityCopies", "EntityGroup", "EntityInstance",%
 3102 "EntityList", "EntityProperties", "EntityProperty",%
 3103 "EntityPropertyClass", "EntityStore", "EntityType", "EntityName",%
 3104 "EntityValue", "Entropy", "EntropyFilter", "Environment", "Epilog",%
 3105 "EpilogFunction", "Equal", "EqualColumns", "EqualRows", "EqualTilde",%
 3106 "EqualTo", "EquatedTo", "Equilibrium", "EquirippleFilterKernel",%
 3107 "Equivalent", "Erf", "Erfc", "Erfi", "ErlangB", "ErlangC",%
 3108 "ErlangDistribution", "Erosion", "ErrorBox", "ErrorBoxOptions",%
 3109 "ErrorNorm", "ErrorPacket", "ErrorsDialogSettings", "EscapeRadius",%
 3110 "EstimatedBackground", "EstimatedDistribution", "EstimatedProcess",%
 3111 "EstimatorGains", "EstimatorRegulator", "EuclideanDistance",%
 3112 "EulerAngles", "EulerE", "EulerGamma", "EulerianGraphQ",%
 3113 "EulerMatrix", "EulerPhi", "Evaluable", "Evaluate", "Evaluated",%
 3114 "EvaluatePacket", "EvaluateScheduledTask", "EvaluationBox",%
 3115 "EvaluationCell", "EvaluationCompletionAction", "EvaluationData",%
 3116 "EvaluationElements", "EvaluationMode", "EvaluationMonitor",%
 3117 "EvaluationNotebook", "EvaluationObject", "EvaluationOrder",%
 3118 "Evaluator", "EvaluatorNames", "EvenQ", "EventData",%
 3119 "EventEvaluator", "EventHandler", "EventHandlerTag", "EventLabels",%
 3120 "EventSeries", "ExactBlackmanWindow", "ExactNumberQ",%
 3121 "ExactRootIsolation", "ExampleData", "Except", "ExcludedForms",%
 3122 "ExcludedLines", "ExcludedPhysicalQuantities", "ExcludePods",%
 3123 "Exclusions", "ExclusionsStyle", "Exists", "Exit", "ExitDialog",%
 3124 "ExoplanetData", "Exp", "Expand", "ExpandAll", "ExpandDenominator",%
 3125 "ExpandFileName", "ExpandNumerator", "Expectation", "ExpectationE",%
 3126 "ExpectedValue", "ExpGammaDistribution", "ExpIntegralE",%
 3127 "ExpIntegralEi", "Exponent", "ExponentFunction",%
 3128 "ExponentialDistribution", "ExponentialFamily",%
 3129 "ExponentialGeneratingFunction", "ExponentialMovingAverage",%
 3130 "ExponentialPowerDistribution", "ExponentPosition", "ExponentStep",%
 3131 "Export", "ExportAutoReplacements", "ExportForm", "ExportPacket",%
 3132 "ExportString", "Expression", "ExpressionCell", "ExpressionPacket",%
 3133 "ExpressionUUID", "ExpToTrig", "ExtendedGCD", "ExtensibleParameters",%
 3134 "Extension", "ExtentElementFunction", "ExtentMarkers", "ExtentSize",%
 3135 "ExternalBundle", "ExternalCall", "ExternalDataCharacterEncoding",%
 3136 "ExternalFunctionName", "ExternalOptions", "ExternalTypeSignature",%
 3137 "Extract", "ExtractArchive", "ExtremeValueDistribution", "FaceForm",%
 3138 "FaceGrids", "FaceGridsStyle", "Factor", "FactorComplete",%
 3139 "Factorial", "Factorial2", "FactorialMoment",%
 3140 "FactorialMomentGeneratingFunction", "FactorialPower",%
 3141 "FactorInteger", "FactorList", "FactorSquareFree",%
 3142 "FactorSquareFreeList", "FactorTerms", "FactorTermsList", "Fail",%
 3143 "Failure", "FailureAction", "FailureDistribution", "FailureQ",%
 3144 "False", "FareySequence", "FARIMAProcess", "FeatureDistance",%
 3145 "FeatureExtract", "FeatureExtraction", "FeatureExtractor",%

3146 "FeatureExtractorFunction", "FeatureNames", "FeatureTypes",%
 3147 "FEDisableConsolePrintPacket", "FeedbackLinearize", "FeedbackSector",%
 3148 "FeedbackSectorStyle", "FeedbackType", "FEEnableConsolePrintPacket",%
 3149 "FetalGrowthData", "Fibonacci", "Fibonorial", "FieldHint",%
 3150 "FieldHintStyle", "FieldMasked", "FieldSize", "File", "FileName",%
 3151 "FileByteCount", "FileDate", "FileExistsQ", "FileExtension",%
 3152 "FileFormat", "FileHash", "FileInformation", "FileName",%
 3153 "FileNameDepth", "FileNameDialogSettings", "FileNameDrop",%
 3154 "FileNameForms", "FileNameJoin", "FileNames", "FileNameSetter",%
 3155 "FileNameSplit", "FileNameTake", "FilePrint", "FileSystemMap",%
 3156 "FileSystemScan", "FileTemplate", "FileTemplateApply", "FileType",%
 3157 "FilledCurve", "FilledCurveBox", "FilledCurveBoxOptions", "Filling",%
 3158 "FillingStyle", "FillingTransform", "FilterRules", "FinancialBond",%
 3159 "FinancialData", "FinancialDerivative", "FinancialIndicator", "Find",%
 3160 "FindArgMax", "FindArgMin", "FindChannels", "FindCliques",%
 3161 "FindClusters", "FindCookies", "FindCurvePath", "FindCycle",%
 3162 "FindDevices", "FindDistribution", "FindDistributionParameters",%
 3163 "FindDivisions", "FindEdgeCover", "FindEdgeCut",%
 3164 "FindEdgeIndependentPaths", "FindEulerianCycle", "FindFaces",%
 3165 "FindFile", "FindFit", "FindFormula", "FindFundamentalCycles",%
 3166 "FindGeneratingFunction", "FindGeoLocation",%
 3167 "FindGeometricTransform", "FindGraphCommunities",%
 3168 "FindGraphIsomorphism", "FindGraphPartition", "FindHamiltonianCycle",%
 3169 "FindHamiltonianPath", "FindHiddenMarkovStates",%
 3170 "FindIndependentEdgeSet", "FindIndependentVertexSet", "FindInstance",%
 3171 "FindIntegerNullVector", "FindKClan", "FindKClique", "FindKClub",%
 3172 "FindKPlex", "FindLibrary", "FindLinearRecurrence", "FindList",%
 3173 "FindMaximum", "FindMaximumFlow", "FindMaxValue", "FindMeshDefects",%
 3174 "FindMinimum", "FindMinimumCostFlow", "FindMinimumCut",%
 3175 "FindMinValue", "FindPath", "FindPeaks", "FindPermutation",%
 3176 "FindPostmanTour", "FindProcessParameters", "FindRoot",%
 3177 "FindSequenceFunction", "FindSettings", "FindShortestPath",%
 3178 "FindShortestTour", "FindSpanningTree", "FindThreshold",%
 3179 "FindTransientRepeat", "FindVertexCover", "FindVertexCut",%
 3180 "FindVertexIndependentPaths", "Fine", "FinishDynamic",%
 3181 "FiniteAbelianGroupCount", "FiniteGroupCount", "FiniteGroupData",%
 3182 "First", "FirstCase", "FirstPassageTimeDistribution",%
 3183 "FirstPosition", "FischerGroupFi22", "FischerGroupFi23",%
 3184 "FischerGroupFi24Prime", "FisherHypergeometricDistribution",%
 3185 "FisherRatioTest", "FisherZDistribution", "Fit", "FitAll",%
 3186 "FittedModel", "FixedOrder", "FixedPoint", "FixedPointList",%
 3187 "FlashSelection", "Flat", "Flatten", "FlattenAt", "FlattenLayer",%
 3188 "FlatTopWindow", "FlipView", "Floor", "FlowPolynomial",%
 3189 "FlushPrintOutputPacket", "Fold", "FoldList", "FoldPair",%
 3190 "FoldPairList", "FollowRedirects", "Font", "FontColor", "FontFamily",%
 3191 "FontForm", "FontName", "FontOpacity", "FontPostScriptName",%
 3192 "FontProperties", "FontReencoding", "FontSize", "FontSlant",%
 3193 "FontSubstitutions", "FontTracking", "FontVariations", "FontWeight",%
 3194 "For", "ForAll", "Format", "FormatRules", "FormatType",%
 3195 "FormatTypeAutoConvert", "FormatValues", "FormBox", "FormBoxOptions",%

3196 "FormControl", "FormFunction", "FormLayoutFunction", "FormObject",%
 3197 "FormPage", "FormTheme", "FormulaData", "FormulaLookup",%
 3198 "FortranForm", "Forward", "ForwardBackward", "Fourier",%
 3199 "FourierCoefficient", "FourierCosCoefficient", "FourierCosSeries",%
 3200 "FourierCosTransform", "FourierDCT", "FourierDCTFilter",%
 3201 "FourierDCTMatrix", "FourierDST", "FourierDSTMatrix",%
 3202 "FourierMatrix", "FourierParameters", "FourierSequenceTransform",%
 3203 "FourierSeries", "FourierSinCoefficient", "FourierSinSeries",%
 3204 "FourierSinTransform", "FourierTransform", "FourierTrigSeries",%
 3205 "FractionalBrownianMotionProcess", "FractionalGaussianNoiseProcess",%
 3206 "FractionalPart", "FractionBox", "FractionBoxOptions",%
 3207 "FractionLine", "Frame", "FrameBox", "FrameBoxOptions", "Framed",%
 3208 "FrameInset", "FrameLabel", "Frameless", "FrameMargins",%
 3209 "FrameStyle", "FrameTicks", "FrameTicksStyle", "FRatioDistribution",%
 3210 "FrechetDistribution", "FreeQ", "FrenetSerretSystem",%
 3211 "FrequencySamplingFilterKernel", "FresnelC", "FresnelF", "FresnelG",%
 3212 "FresnelS", "Friday", "FrobeniusNumber", "FrobeniusSolve",%
 3213 "FromCharacterCode", "FromCoefficientRules", "FromContinuedFraction",%
 3214 "FromDate", "FromDigits", "FromDMS", "FromEntity", "FromJulianDate",%
 3215 "FromLetterNumber", "FromPolarCoordinates", "FromRomanNumeral",%
 3216 "FromSphericalCoordinates", "FromUnixTime", "Front",%
 3217 "FrontEndDynamicExpression", "FrontEndEventActions",%
 3218 "FrontEndExecute", "FrontEndObject", "FrontEndResource",%
 3219 "FrontEndResourceString", "FrontEndStackSize", "FrontEndToken",%
 3220 "FrontEndTokenExecute", "FrontEndValueCache", "FrontEndVersion",%
 3221 "FrontFaceColor", "FrontFaceOpacity", "Full", "FullAxes",%
 3222 "FullDefinition", "FullForm", "FullGraphics",%
 3223 "FullInformationOutputRegulator", "FullOptions", "FullRegion",%
 3224 "FullSimplify", "Function", "FunctionDomain", "FunctionExpand",%
 3225 "FunctionInterpolation", "FunctionPeriod", "FunctionRange",%
 3226 "FunctionSpace", "FussellVeselyImportance", "GaborFilter",%
 3227 "GaborMatrix", "GaborWavelet", "GainMargins", "GainPhaseMargins",%
 3228 "GalaxyData", "GalleryView", "Gamma", "GammaDistribution",%
 3229 "GammaRegularized", "GapPenalty", "GARCHProcess", "Gather",%
 3230 "GatherBy", "GaugeFaceElementFunction", "GaugeFaceStyle",%
 3231 "GaugeFrameElementFunction", "GaugeFrameSize", "GaugeFrameStyle",%
 3232 "GaugeLabels", "GaugeMarkers", "GaugeStyle", "GaussianFilter",%
 3233 "GaussianIntegers", "GaussianMatrix",%
 3234 "GaussianOrthogonalMatrixDistribution",%
 3235 "GaussianSymplecticMatrixDistribution",%
 3236 "GaussianUnitaryMatrixDistribution", "GaussianWindow", "GCD",%
 3237 "GegenbauerC", "General", "GeneralizedLinearModelFit",%
 3238 "GenerateAsymmetricKeyPair", "GenerateConditions", "GeneratedCell",%
 3239 "GeneratedDocumentBinding", "GenerateDocument",%
 3240 "GeneratedParameters", "GenerateHTTPResponse",%
 3241 "GenerateSymmetricKey", "GeneratingFunction", "GeneratorDescription",%
 3242 "GeneratorHistoryLength", "GeneratorOutputType", "Generic",%
 3243 "GenericCylindricalDecomposition", "GenomeData", "GenomeLookup",%
 3244 "GeoArea", "GeoBackground", "GeoBoundingBox", "GeoBounds",%
 3245 "GeoBoundsRegion", "GeoCenter", "GeoCircle", "GeodesicClosing",%

3246 "GeodesicDilation", "GeodesicErosion", "GeodesicOpening",%
 3247 "GeoDestination", "GeodesyData", "GeoDirection", "GeoDisk",%
 3248 "GeoDisplacement", "GeoDistance", "GeoDistanceList",%
 3249 "GeoElevationData", "GeoEntities", "GeoGraphics",%
 3250 "GeogravityModelData", "GeoGridLines", "GeoGridLinesStyle",%
 3251 "GeoGridPosition", "GeoGroup", "GeoHemisphere",%
 3252 "GeoHemisphereBoundary", "GeoHistogram", "GeoIdentify", "GeoLabels",%
 3253 "GeoLength", "GeoListPlot", "GeoLocation", "GeologicalPeriodData",%
 3254 "GeomagneticModelData", "GeoMarker",%
 3255 "GeometricBrownianMotionProcess", "GeometricDistribution",%
 3256 "GeometricMean", "GeometricMeanFilter", "GeometricTransformation",%
 3257 "GeometricTransformation3DBox",%
 3258 "GeometricTransformation3DBoxOptions", "GeometricTransformationBox",%
 3259 "GeometricTransformationBoxOptions", "GeoModel", "GeoNearest",%
 3260 "GeoPath", "GeoPosition", "GeoPositionENU", "GeoPositionXYZ",%
 3261 "GeoProjection", "GeoProjectionData", "GeoRange", "GeoRangePadding",%
 3262 "GeoRegionValuePlot", "GeoScaleBar", "GeoServer", "GeoStyling",%
 3263 "GeoStylingImageFunction", "GeoVariant", "GeoVisibleRegion",%
 3264 "GeoVisibleRegionBoundary", "GeoWithinQ", "GeoZoomLevel",%
 3265 "GestureHandler", "GestureHandlerTag", "Get",%
 3266 "GetBoundingBoxSizePacket", "GetContext", "GetEnvironment",%
 3267 "GetFileName", "GetFrontEndOptionsDataPacket",%
 3268 "GetLinebreakInformationPacket", "GetMenusPacket",%
 3269 "GetPageBreakInformationPacket", "Glaisher",%
 3270 "GlobalClusteringCoefficient", "GlobalPreferences", "GlobalSession",%
 3271 "Glow", "GoldenAngle", "GoldenRatio", "GompertzMakehamDistribution",%
 3272 "GoodmanKruskalGamma", "GoodmanKruskalGammaTest", "Goto", "Grad",%
 3273 "Gradient", "GradientFilter", "GradientOrientationFilter",%
 3274 "GrammarApply", "GrammarRules", "GrammarToken", "Graph", "Graph3D",%
 3275 "GraphAssortativity", "GraphAutomorphismGroup", "GraphCenter",%
 3276 "GraphComplement", "GraphData", "GraphDensity", "GraphDiameter",%
 3277 "GraphDifference", "GraphDisjointUnion", "GraphDistance",%
 3278 "GraphDistanceMatrix", "GraphElementData", "GraphEmbedding",%
 3279 "GraphHighlight", "GraphHighlightStyle", "GraphHub", "Graphics",%
 3280 "Graphics3D", "Graphics3DBox", "Graphics3DBoxOptions",%
 3281 "GraphicsArray", "GraphicsBaseline", "GraphicsBox",%
 3282 "GraphicsBoxOptions", "GraphicsColor", "GraphicsColumn",%
 3283 "GraphicsComplex", "GraphicsComplex3DBox",%
 3284 "GraphicsComplex3DBoxOptions", "GraphicsComplexBox",%
 3285 "GraphicsComplexBoxOptions", "GraphicsContents", "GraphicsData",%
 3286 "GraphicsGrid", "GraphicsGridBox", "GraphicsGroup",%
 3287 "GraphicsGroup3DBox", "GraphicsGroup3DBoxOptions",%
 3288 "GraphicsGroupBox", "GraphicsGroupBoxOptions", "GraphicsGrouping",%
 3289 "GraphicsHighlightColor", "GraphicsRow", "GraphicsSpacing",%
 3290 "GraphicsStyle", "GraphIntersection", "GraphLayout",%
 3291 "GraphLinkEfficiency", "GraphPeriphery", "GraphPlot", "GraphPlot3D",%
 3292 "GraphPower", "GraphPropertyDistribution", "GraphQ", "GraphRadius",%
 3293 "GraphReciprocity", "GraphRoot", "GraphStyle", "GraphUnion", "Gray",%
 3294 "GrayLevel", "Greater", "GreaterEqual", "GreaterEqualLess",%
 3295 "GreaterEqualThan", "GreaterFullEqual", "GreaterGreater",%

3296 "GreaterLess", "GreaterSlantEqual", "GreaterThan", "GreaterTilde", %
 3297 "Green", "GreenFunction", "Grid", "GridBaseline", "GridBox", %
 3298 "GridBoxAlignment", "GridBoxBackground", "GridBoxDividers", %
 3299 "GridBoxFrame", "GridBoxItemSize", "GridBoxItemStyle", %
 3300 "GridBoxOptions", "GridBoxSpacings", "GridCreationSettings", %
 3301 "GridDefaultElement", "GridElementStyleOptions", "GridFrame", %
 3302 "GridFrameMargins", "GridGraph", "GridLines", "GridLinesStyle", %
 3303 "GroebnerBasis", "GroupActionBase", "GroupBy", "GroupCentralizer", %
 3304 "GroupElementFromWord", "GroupElementPosition", "GroupElementQ", %
 3305 "GroupElements", "GroupElementToWord", "GroupGenerators", %
 3306 "Groupings", "GroupMultiplicationTable", "GroupOrbits", "GroupOrder", %
 3307 "GroupPageBreakWithin", "GroupSetwiseStabilizer", "GroupStabilizer", %
 3308 "GroupStabilizerChain", "GroupTogetherGrouping", %
 3309 "GroupTogetherNestedGrouping", "GrowCutComponents", "Gudermannian", %
 3310 "GuidedFilter", "GumbelDistribution", "HaarWavelet", %
 3311 "HadamardMatrix", "HalfLine", "HalfNormalDistribution", "HalfPlane", %
 3312 "HalfSpace", "HamiltonianGraphQ", "HammingDistance", "HammingWindow", %
 3313 "HandlerFunctions", "HandlerFunctionsKeys", "HankelH1", "HankelH2", %
 3314 "HankelMatrix", "HannPoissonWindow", "HannWindow", %
 3315 "HaradaNortonGroupHN", "HararyGraph", "HarmonicMean", %
 3316 "HarmonicMeanFilter", "HarmonicNumber", "Hash", "Haversine", %
 3317 "HazardFunction", "Head", "HeadCompose", "HeaderLines", "Heads", %
 3318 "HeavisideLambda", "HeavisidePi", "HeavisideTheta", "HeldGroupHe", %
 3319 "HeldPart", "HelpBrowserLookup", "HelpBrowserNotebook", %
 3320 "HelpBrowserSettings", "Here", "HermiteDecomposition", "HermiteH", %
 3321 "HermitianMatrixQ", "HessenbergDecomposition", "Hessian", %
 3322 "HexadecimalCharacter", "Hexahedron", "HexahedronBox", %
 3323 "HexahedronBoxOptions", "HiddenMarkovProcess", "HiddenSurface", %
 3324 "Highlighted", "HighlightGraph", "HighlightImage", "HighlightMesh", %
 3325 "HighpassFilter", "HigmanSimsGroupHS", "HilbertFilter", %
 3326 "HilbertMatrix", "Histogram", "Histogram3D", "HistogramDistribution", %
 3327 "HistogramList", "HistogramTransform", %
 3328 "HistogramTransformInterpolation", "HistoricalPeriodData", %
 3329 "HitMissTransform", "HITSCentrality", "HodgeDual", "HoeffdingD", %
 3330 "HoeffdingDTest", "Hold", "HoldAll", "HoldAllComplete", %
 3331 "HoldComplete", "HoldFirst", "HoldForm", "HoldPattern", "HoldRest", %
 3332 "HolidayCalendar", "HomeDirectory", "HomePage", "Horizontal", %
 3333 "HorizontalForm", "HorizontalGauge", "HorizontalScrollPosition", %
 3334 "HornerForm", "HostLookup", "HotellingTSquareDistribution", %
 3335 "HoytDistribution", "HTMLSave", "HTTPErrorResponse", "HTTPRedirect", %
 3336 "HTTPRequest", "HTTPRequestData", "HTTPResponse", "Hue", %
 3337 "HumanGrowthData", "HumpDownHump", "HumpEqual", "HurwitzLerchPhi", %
 3338 "HurwitzZeta", "HyperbolicDistribution", "HypercubeGraph", %
 3339 "HyperexponentialDistribution", "Hyperfactorial", %
 3340 "HypergeometricOF1", "HypergeometricOF1Regularized", %
 3341 "Hypergeometric1F1", "Hypergeometric1F1Regularized", %
 3342 "Hypergeometric2F1", "Hypergeometric2F1Regularized", %
 3343 "HypergeometricDistribution", "HypergeometricPFQ", %
 3344 "HypergeometricPFQRegularized", "HypergeometricU", "Hyperlink", %
 3345 "HyperlinkCreationSettings", "Hyperplane", "Hyphenation", %

3346 "HyphenationOptions", "HypoexponentialDistribution",%
 3347 "HypothesisTestData", "I", "IconData", "IconRules", "Identity",%
 3348 "IdentityMatrix", "If", "IgnoreCase", "IgnoreDiacritics",%
 3349 "IgnorePunctuation", "IgnoringInactive", "Im", "Image", "Image3D",%
 3350 "Image3DSlices", "ImageAccumulate", "ImageAdd", "ImageAdjust",%
 3351 "ImageAlign", "ImageApply", "ImageApplyIndexed", "ImageAspectRatio",%
 3352 "ImageAssemble", "ImageCache", "ImageCacheValid", "ImageCapture",%
 3353 "ImageChannels", "ImageClip", "ImageCollage", "ImageColorSpace",%
 3354 "ImageCompose", "ImageConvolve", "ImageCooccurrence", "ImageCorners",%
 3355 "ImageCorrelate", "ImageCorrespondingPoints", "ImageCrop",%
 3356 "ImageData", "ImageDeconvolve", "ImageDemosaic", "ImageDifference",%
 3357 "ImageDimensions", "ImageDisplacements", "ImageDistance",%
 3358 "ImageEffect", "ImageExposureCombine", "ImageFeatureTrack",%
 3359 "ImageFileApply", "ImageFileFilter", "ImageFileScan", "ImageFilter",%
 3360 "ImageFocusCombine", "ImageForecastingComponents",%
 3361 "ImageFormattingWidth", "ImageForwardTransformation",%
 3362 "ImageHistogram", "ImageIdentify", "ImageInstanceQ",%
 3363 "ImageKeypoints", "ImageLevels", "ImageLines", "ImageMargins",%
 3364 "ImageMarker", "ImageMarkers", "ImageMeasurements", "ImageMesh",%
 3365 "ImageMultiply", "ImageOffset", "ImagePad", "ImagePadding",%
 3366 "ImagePartition", "ImagePeriodogram",%
 3367 "ImagePerspectiveTransformation", "ImageQ", "ImageRangeCache",%
 3368 "ImageReflect", "ImageRegion", "ImageResize", "ImageResolution",%
 3369 "ImageRotate", "ImageRotated", "ImageSaliencyFilter", "ImageScaled",%
 3370 "ImageScan", "ImageSize", "ImageSizeAction", "ImageSizeCache",%
 3371 "ImageSizeMultipliers", "ImageSizeRaw", "ImageSubtract", "ImageTake",%
 3372 "ImageTransformation", "ImageTrim", "ImageType", "ImageValue",%
 3373 "ImageValuePositions", "ImagingDevice", "ImplicitRegion", "Implies",%
 3374 "Import", "ImportAutoReplacements", "ImportOptions", "ImportString",%
 3375 "ImprovementImportance", "In", "Inactivate", "Inactive",%
 3376 "IncidenceGraph", "IncidenceList", "IncidenceMatrix",%
 3377 "IncludeConstantBasis", "IncludeFileExtension",%
 3378 "IncludeGeneratorTasks", "IncludeInflections",%
 3379 "IncludeMetaInformation", "IncludePods", "IncludeQuantities",%
 3380 "IncludeSingularTerm", "IncludeWindowTimes", "Increment",%
 3381 "IndefiniteMatrixQ", "Indent", "IndentingNewlineSpacings",%
 3382 "IndentMaxFraction", "IndependenceTest", "IndependentEdgeSetQ",%
 3383 "IndependentUnit", "IndependentVertexSetQ", "Indeterminate",%
 3384 "IndeterminateThreshold", "IndexCreationOptions", "Indexed",%
 3385 "IndexGraph", "IndexTag", "Inequality", "InexactNumberQ",%
 3386 "InexactNumbers", "InfiniteLine", "InfinitePlane", "Infinity",%
 3387 "Infix", "InflationAdjust", "InflationMethod", "Information",%
 3388 "Inherited", "InheritScope", "InhomogeneousPoissonProcess",%
 3389 "InitialEvaluationHistory", "Initialization", "InitializationCell",%
 3390 "InitializationCellEvaluation", "InitializationCellWarning",%
 3391 "InlineCounterAssignments", "InlineCounterIncrements", "InlinePart",%
 3392 "InlineRules", "Inner", "Inpaint", "Input", "InputAliases",%
 3393 "InputAssumptions", "InputAutoReplacements", "InputField",%
 3394 "InputFieldBox", "InputFieldBoxOptions", "InputForm",%
 3395 "InputGrouping", "InputNamePacket", "InputNotebook", "InputPacket",%

3396 "InputSettings", "InputStream", "InputString", "InputStringPacket", %
 3397 "InputToBoxFormPacket", "Insert", "InsertionFunction", %
 3398 "InsertionPointObject", "InsertLinebreaks", "InsertResults", "Inset", %
 3399 "Inset3DBox", "Inset3DBoxOptions", "InsetBox", "InsetBoxOptions", %
 3400 "Insphere", "Install", "InstallService", "InString", "Integer", %
 3401 "IntegerDigits", "IntegerExponent", "IntegerLength", "IntegerName", %
 3402 "IntegerPart", "IntegerPartitions", "IntegerQ", "IntegerReverse", %
 3403 "Integers", "IntegerString", "Integral", "Integrate", "Interactive", %
 3404 "InteractiveTradingChart", "Interlaced", "Interleaving", %
 3405 "InternallyBalancedDecomposition", "InterpolatingFunction", %
 3406 "InterpolatingPolynomial", "Interpolation", "InterpolationOrder", %
 3407 "InterpolationPoints", "InterpolationPrecision", "Interpretation", %
 3408 "InterpretationBox", "InterpretationBoxOptions", %
 3409 "InterpretationFunction", "Interpreter", "InterpretTemplate", %
 3410 "InterquartileRange", "Interrupt", "InterruptSettings", %
 3411 "IntersectingQ", "Intersection", "Interval", "IntervalIntersection", %
 3412 "IntervalMemberQ", "IntervalSlider", "IntervalUnion", "Into", %
 3413 "Inverse", "InverseBetaRegularized", "InverseCDF", %
 3414 "InverseChiSquareDistribution", "InverseContinuousWaveletTransform", %
 3415 "InverseDistanceTransform", "InverseEllipticNomeQ", "InverseErf", %
 3416 "InverseErfc", "InverseFourier", "InverseFourierCosTransform", %
 3417 "InverseFourierSequenceTransform", "InverseFourierSinTransform", %
 3418 "InverseFourierTransform", "InverseFunction", "InverseFunctions", %
 3419 "InverseGammaDistribution", "InverseGammaRegularized", %
 3420 "InverseGaussianDistribution", "InverseGudermannian", %
 3421 "InverseHaversine", "InverseJacobiCD", "InverseJacobiCN", %
 3422 "InverseJacobiCS", "InverseJacobiDC", "InverseJacobiDN", %
 3423 "InverseJacobiDS", "InverseJacobiNC", "InverseJacobiND", %
 3424 "InverseJacobiNS", "InverseJacobiSC", "InverseJacobiSD", %
 3425 "InverseJacobiSN", "InverseLaplaceTransform", %
 3426 "InverseMellinTransform", "InversePermutation", "InverseRadon", %
 3427 "InverseSeries", "InverseSurvivalFunction", %
 3428 "InverseTransformedRegion", "InverseWaveletTransform", %
 3429 "InverseWeierstrassP", "InverseWishartMatrixDistribution", %
 3430 "InverseZTransform", "Invisible", "InvisibleApplication", %
 3431 "InvisibleTimes", "IPAddress", "IrreduciblePolynomialQ", %
 3432 "IslandData", "IsolatingInterval", "IsomorphicGraphQ", "IsotopeData", %
 3433 "Italic", "Item", "ItemAspectRatio", "ItemBox", "ItemBoxOptions", %
 3434 "ItemSize", "ItemStyle", "ItoProcess", "JaccardDissimilarity", %
 3435 "JacobiAmplitude", "Jacobian", "JacobiCD", "JacobiCN", "JacobiCS", %
 3436 "JacobiDC", "JacobiDN", "JacobiDS", "JacobiNC", "JacobiND", %
 3437 "JacobiNS", "JacobiP", "JacobiSC", "JacobiSD", "JacobiSN", %
 3438 "JacobiSymbol", "JacobiZeta", "JankoGroupJ1", "JankoGroupJ2", %
 3439 "JankoGroupJ3", "JankoGroupJ4", "JarqueBeraALMTest", %
 3440 "JohnsonDistribution", "Join", "JoinAcross", "Joined", "JoinedCurve", %
 3441 "JoinedCurveBox", "JoinedCurveBoxOptions", "JoinForm", %
 3442 "JordanDecomposition", "JordanModelDecomposition", "JulianDate", %
 3443 "JuliaSetBoettcher", "JuliaSetIterationCount", "JuliaSetPlot", %
 3444 "JuliaSetPoints", "K", "KagiChart", "KaiserBesselWindow", %
 3445 "KaiserWindow", "KalmanEstimator", "KalmanFilter", %

3446 "KarhunenLoeveDecomposition", "KaryTree", "KatzCentrality",%
 3447 "KCoreComponents", "KDistribution", "KEdgeConnectedComponents",%
 3448 "KEdgeConnectedGraphQ", "KelvinBei", "KelvinBer", "KelvinKei",%
 3449 "KelvinKer", "KendallTau", "KendallTauTest", "KernelExecute",%
 3450 "KernelMixtureDistribution", "Kernels", "Ket", "Key",%
 3451 "KeyCollisionFunction", "KeyComplement", "KeyDrop", "KeyDropFrom",%
 3452 "KeyExistsQ", "KeyFreeQ", "KeyIntersection", "KeyMap", "KeyMemberQ",%
 3453 "KeypointStrength", "Keys", "KeySelect", "KeySort", "KeySortBy",%
 3454 "KeyTake", "KeyUnion", "KeyValueMap", "KeyValuePattern", "Khinchin",%
 3455 "KillProcess", "KirchhoffGraph", "KirchhoffMatrix",%
 3456 "KleinInvariantJ", "KnapsackSolve", "KnightTourGraph", "KnotData",%
 3457 "KnownUnitQ", "KolmogorovSmirnovTest", "KroneckerDelta",%
 3458 "KroneckerModelDecomposition", "KroneckerProduct", "KroneckerSymbol",%
 3459 "KuiperTest", "KumaraswamyDistribution", "Kurtosis",%
 3460 "KuwaharaFilter", "KVertexConnectedComponents",%
 3461 "KVertexConnectedGraphQ", "LABColor", "Label", "Labeled",%
 3462 "LabeledSlider", "LabelingFunction", "LabelStyle", "LaguerreL",%
 3463 "LakeData", "LambdaComponents", "LambertW", "LaminaData",%
 3464 "LanczosWindow", "LandauDistribution", "Language",%
 3465 "LanguageCategory", "LanguageData", "LanguageIdentify",%
 3466 "LaplaceDistribution", "LaplaceTransform", "Laplacian",%
 3467 "LaplacianFilter", "LaplacianGaussianFilter", "Large", "Larger",%
 3468 "Last", "Latitude", "LatitudeLongitude", "LatticeData",%
 3469 "LatticeReduce", "Launch", "LaunchKernels", "LayeredGraphPlot",%
 3470 "LayerSizeFunction", "LayoutInformation", "LCHColor", "LCM",%
 3471 "LeaderSize", "LeafCount", "LeapYearQ", "LeastSquares",%
 3472 "LeastSquaresFilterKernel", "Left", "LeftArrow", "LeftArrowBar",%
 3473 "LeftArrowRightArrow", "LeftDownTeeVector", "LeftDownVector",%
 3474 "LeftDownVectorBar", "LeftRightArrow", "LeftRightVector", "LeftTee",%
 3475 "LeftTeeArrow", "LeftTeeVector", "LeftTriangle", "LeftTriangleBar",%
 3476 "LeftTriangleEqual", "LeftUpDownVector", "LeftUpTeeVector",%
 3477 "LeftUpVector", "LeftUpVectorBar", "LeftVector", "LeftVectorBar",%
 3478 "LegendAppearance", "Legended", "LegendFunction", "LegendLabel",%
 3479 "LegendLayout", "LegendMargins", "LegendMarkers", "LegendMarkerSize",%
 3480 "LegendreP", "LegendreQ", "LegendreType", "Length", "LengthWhile",%
 3481 "LerchPhi", "Less", "LessEqual", "LessEqualGreater", "LessEqualThan",%
 3482 "LessFullEqual", "LessGreater", "LessLess", "LessSlantEqual",%
 3483 "LessThan", "LessTilde", "LetterCharacter", "LetterCounts",%
 3484 "LetterNumber", "LetterQ", "Level", "LeveneTest", "LeviCivitaTensor",%
 3485 "LevyDistribution", "Lexicographic", "LibraryDataType",%
 3486 "LibraryFunction", "LibraryFunctionError",%
 3487 "LibraryFunctionInformation", "LibraryFunctionLoad",%
 3488 "LibraryFunctionUnload", "LibraryLoad", "LibraryUnload", "LicenseID",%
 3489 "LiftingFilterData", "LiftingWaveletTransform", "LightBlue",%
 3490 "LightBrown", "LightCyan", "Lighter", "LightGray", "LightGreen",%
 3491 "Lighting", "LightingAngle", "LightMagenta", "LightOrange",%
 3492 "LightPink", "LightPurple", "LightRed", "LightSources",%
 3493 "LightYellow", "Likelihood", "Limit", "LimitsPositioning",%
 3494 "LimitsPositioningTokens", "LindleyDistribution", "Line",%
 3495 "Line3DBox", "Line3DBoxOptions", "LinearFilter",%

3496 "LinearFractionalTransform", "LinearGradientImage",%
 3497 "LinearizingTransformationData", "LinearModelFit",%
 3498 "LinearOffsetFunction", "LinearProgramming", "LinearRecurrence",%
 3499 "LinearSolve", "LinearSolveFunction", "LineBox", "LineBoxOptions",%
 3500 "LineBreak", "LinebreakAdjustments", "LineBreakChart",%
 3501 "LinebreakSemicolonWeighting", "LineBreakWithin", "LineColor",%
 3502 "LineGraph", "LineIndent", "LineIndentMaxFraction",%
 3503 "LineIntegralConvolutionPlot", "LineIntegralConvolutionScale",%
 3504 "LineLegend", "LineOpacity", "LineSpacing", "LineWrapParts",%
 3505 "LinkActivate", "LinkClose", "LinkConnect", "LinkConnectedQ",%
 3506 "LinkCreate", "LinkError", "LinkFlush", "LinkFunction", "LinkHost",%
 3507 "LinkInterrupt", "LinkLaunch", "LinkMode", "LinkObject", "LinkOpen",%
 3508 "LinkOptions", "LinkPatterns", "LinkProtocol", "LinkRankCentrality",%
 3509 "LinkRead", "LinkReadHeld", "LinkReadyQ", "Links", "LinkService",%
 3510 "LinkWrite", "LinkWriteHeld", "LiouvilleLambda", "List", "Listable",%
 3511 "ListAnimate", "ListContourPlot", "ListContourPlot3D",%
 3512 "ListConvolve", "ListCorrelate", "ListCurvePathPlot",%
 3513 "ListDeconvolve", "ListDensityPlot", "ListDensityPlot3D", "Listen",%
 3514 "ListFormat", "ListFourierSequenceTransform", "ListInterpolation",%
 3515 "ListLineIntegralConvolutionPlot", "ListLinePlot",%
 3516 "ListLogLinearPlot", "ListLogLogPlot", "ListLogPlot", "ListPicker",%
 3517 "ListPickerBox", "ListPickerBoxBackground", "ListPickerBoxOptions",%
 3518 "ListPlay", "ListPlot", "ListPlot3D", "ListPointPlot3D",%
 3519 "ListPolarPlot", "ListQ", "ListSliceContourPlot3D",%
 3520 "ListSliceDensityPlot3D", "ListSliceVectorPlot3D", "ListStepPlot",%
 3521 "ListStreamDensityPlot", "ListStreamPlot", "ListSurfacePlot3D",%
 3522 "ListVectorDensityPlot", "ListVectorPlot", "ListVectorPlot3D",%
 3523 "ListZTransform", "Literal", "LiteralSearch",%
 3524 "LocalAdaptiveBinarize", "LocalCache", "LocalClusteringCoefficient",%
 3525 "LocalizeDefinitions", "LocalizeVariables", "LocalObject",%
 3526 "LocalObjects", "LocalSymbol", "LocalTime", "LocalTimeZone",%
 3527 "LocationEquivalenceTest", "LocationTest", "Locator",%
 3528 "LocatorAutoCreate", "LocatorBox", "LocatorBoxOptions",%
 3529 "LocatorCentering", "LocatorPane", "LocatorPaneBox",%
 3530 "LocatorPaneBoxOptions", "LocatorRegion", "Locked", "Log", "Log10",%
 3531 "Log2", "LogBarnesG", "LogGamma", "LogGammaDistribution",%
 3532 "LogicalExpand", "LogIntegral", "LogisticDistribution",%
 3533 "LogisticSigmoid", "LogitModelFit", "LogLikelihood", "LogLinearPlot",%
 3534 "LogLogisticDistribution", "LogLogPlot",%
 3535 "LogMultinormalDistribution", "LogNormalDistribution", "LogPlot",%
 3536 "LogRankTest", "LogSeriesDistribution", "LongEqual", "Longest",%
 3537 "LongestCommonSequence", "LongestCommonSequencePositions",%
 3538 "LongestCommonSubsequence", "LongestCommonSubsequencePositions",%
 3539 "LongestMatch", "LongestOrderedSequence", "LongForm", "Longitude",%
 3540 "LongLeftArrow", "LongLeftRightArrow", "LongRightArrow", "Lookup",%
 3541 "Loopback", "LoopFreeGraphQ", "LowerCaseQ", "LowerLeftArrow",%
 3542 "LowerRightArrow", "LowerTriangularize", "LowpassFilter",%
 3543 "LQEstimatorGains", "LQGRegulator", "LQOutputRegulatorGains",%
 3544 "LQRegulatorGains", "LUBackSubstitution", "LucasL",%
 3545 "LuccioSamiComponents", "LUDecomposition", "LunarEclipse",%

3546 "LUVColor", "LyapunovSolve", "LyonsGroupLy", "MachineID",%
 3547 "MachineName", "MachineNumberQ", "MachinePrecision",%
 3548 "MacintoshSystemPageSetup", "Magenta", "Magnification", "Magnify",%
 3549 "MailReceiverFunction", "MailResponseFunction", "MainSolve",%
 3550 "MaintainDynamicCaches", "Majority", "MakeBoxes", "MakeExpression",%
 3551 "MakeRules", "ManagedLibraryExpressionID",%
 3552 "ManagedLibraryExpressionQ", "MandelbrotSetBoettcher",%
 3553 "MandelbrotSetDistance", "MandelbrotSetIterationCount",%
 3554 "MandelbrotSetMemberQ", "MandelbrotSetPlot", "MangoldtLambda",%
 3555 "ManhattanDistance", "Manipulate", "Manipulator",%
 3556 "MannedSpaceMissionData", "MannWhitneyTest", "MantissaExponent",%
 3557 "Manual", "Map", "MapAll", "MapAt", "MapIndexed", "MAPProcess",%
 3558 "MapThread", "MarchenkoPasturDistribution", "MarcumQ",%
 3559 "MardiaCombinedTest", "MardiaKurtosisTest", "MardiaSkewnessTest",%
 3560 "MarginalDistribution", "MarkovProcessProperties", "Masking",%
 3561 "MatchingDissimilarity", "MatchLocalNameQ", "MatchLocalNames",%
 3562 "MatchQ", "Material", "MathematicalFunctionData",%
 3563 "MathematicaNotation", "MathieuC", "MathieuCharacteristicA",%
 3564 "MathieuCharacteristicB", "MathieuCharacteristicExponent",%
 3565 "MathieuCPrime", "MathieuGroupM11", "MathieuGroupM12",%
 3566 "MathieuGroupM22", "MathieuGroupM23", "MathieuGroupM24", "MathieuS",%
 3567 "MathieuSPrime", "MathMLForm", "MathMLText", "Matrices", "MatrixExp",%
 3568 "MatrixForm", "MatrixFunction", "MatrixLog",%
 3569 "MatrixNormalDistribution", "MatrixPlot", "MatrixPower",%
 3570 "MatrixPropertyDistribution", "MatrixQ", "MatrixRank",%
 3571 "MatrixTDistribution", "Max", "MaxBend", "MaxCellMeasure",%
 3572 "MaxDetect", "MaxExtraBandwidths", "MaxExtraConditions",%
 3573 "MaxFeatureDisplacement", "MaxFeatures", "MaxFilter", "MaximalBy",%
 3574 "Maximize", "MaxItems", "MaxIterations", "MaxMemoryUsed",%
 3575 "MaxMixtureKernels", "MaxPlotPoints", "MaxPoints", "MaxRecursion",%
 3576 "MaxStableDistribution", "MaxStepFraction", "MaxSteps",%
 3577 "MaxStepSize", "MaxTrainingRounds", "MaxValue",%
 3578 "MaxwellDistribution", "MaxWordGap", "McLaughlinGroupMcL", "Mean",%
 3579 "MeanAbsoluteLossLayer", "MeanClusteringCoefficient",%
 3580 "MeanDegreeConnectivity", "MeanDeviation", "MeanFilter",%
 3581 "MeanGraphDistance", "MeanNeighborDegree", "MeanShift",%
 3582 "MeanShiftFilter", "MeanSquaredLossLayer", "Median",%
 3583 "MedianDeviation", "MedianFilter", "MedicalTestData", "Medium",%
 3584 "MeijerG", "MeijerGReduce", "MeixnerDistribution", "MellinConvolve",%
 3585 "MellinTransform", "MemberQ", "MemoryConstrained",%
 3586 "MemoryConstraint", "MemoryInUse", "Menu", "MenuAppearance",%
 3587 "MenuCommandKey", "MenuEvaluator", "MenuItem", "MenuPacket",%
 3588 "MenuSortingValue", "MenuStyle", "MenuView", "Merge",%
 3589 "MergeDifferences", "MersennePrimeExponent",%
 3590 "MersennePrimeExponentQ", "Mesh", "MeshCellCentroid",%
 3591 "MeshCellCount", "MeshCellHighlight", "MeshCellIndex",%
 3592 "MeshCellLabel", "MeshCellMarker", "MeshCellMeasure",%
 3593 "MeshCellQuality", "MeshCells", "MeshCellShapeFunction",%
 3594 "MeshCellStyle", "MeshCoordinates", "MeshFunctions",%
 3595 "MeshPrimitives", "MeshQualityGoal", "MeshRange",%

3596 "MeshRefinementFunction", "MeshRegion", "MeshRegionQ", "MeshShading",%
 3597 "MeshStyle", "Message", "MessageDialog", "MessageList",%
 3598 "MessageName", "MessageOptions", "MessagePacket", "Messages",%
 3599 "MessagesNotebook", "MetaCharacters", "MetaInformation",%
 3600 "MetaParameters", "MeteorShowerData", "Method", "MethodOptions",%
 3601 "MexicanHatWavelet", "MeyerWavelet", "Min", "MinColorDistance",%
 3602 "MinDetect", "MineralData", "MinFilter", "MinimalBy",%
 3603 "MinimalPolynomial", "MinimalStateSpaceModel", "Minimize",%
 3604 "MinimumTimeIncrement", "MinIntervalSize", "MinkowskiQuestionMark",%
 3605 "MinMax", "MinorPlanetData", "Minors", "MinRecursion", "MinSize",%
 3606 "MinStableDistribution", "Minus", "MinusPlus", "MinValue", "Missing",%
 3607 "MissingBehavior", "MissingDataMethod", "MissingDataRules",%
 3608 "MissingQ", "MissingString", "MissingStyle", "MittagLefflerE",%
 3609 "MixedGraphQ", "MixedMagnitude", "MixedRadix", "MixedRadixQuantity",%
 3610 "MixedUnit", "MixtureDistribution", "Mod", "Modal", "Mode",%
 3611 "Modular", "ModularLambda", "Module", "Modulus", "MoebiusMu",%
 3612 "Moment", "Momentary", "MomentConvert", "MomentEvaluate",%
 3613 "MomentGeneratingFunction", "MomentOfInertia", "Monday", "Monitor",%
 3614 "MonomialList", "MonomialOrder", "MonsterGroupM", "MoonPhase",%
 3615 "MoonPosition", "MorletWavelet", "MorphologicalBinarize",%
 3616 "MorphologicalBranchPoints", "MorphologicalComponents",%
 3617 "MorphologicalEulerNumber", "MorphologicalGraph",%
 3618 "MorphologicalPerimeter", "MorphologicalTransform", "MortalityData",%
 3619 "Most", "MountainData", "MouseAnnotation", "MouseAppearance",%
 3620 "MouseAppearanceTag", "MouseButtons", "Mouseover",%
 3621 "MousePointerNote", "MousePosition", "MovieData", "MovingAverage",%
 3622 "MovingMap", "MovingMedian", "MoyalDistribution", "Multicolumn",%
 3623 "MultiedgeStyle", "MultigraphQ", "MultilaunchWarning",%
 3624 "MultiLetterItalics", "MultiLetterStyle", "MultilineFunction",%
 3625 "Multinomial", "MultinomialDistribution", "MultinormalDistribution",%
 3626 "MultiplicativeOrder", "Multiplicity", "Multiselection",%
 3627 "MultivariateHypergeometricDistribution",%
 3628 "MultivariatePoissonDistribution", "MultivariateTDistribution", "N",%
 3629 "NakagamiDistribution", "NameQ", "Names", "NamespaceBox", "Nand",%
 3630 "NArgMax", "NArgMin", "NBernoulliB", "NCache", "NDEigensystem",%
 3631 "NDEigenvalues", "NDSolve", "NDSolveValue", "Nearest",%
 3632 "NearestFunction", "NearestNeighborGraph", "NebulaData",%
 3633 "NeedCurrentFrontEndPackagePacket",%
 3634 "NeedCurrentFrontEndSymbolsPacket", "NeedlemanWunschSimilarity",%
 3635 "Needs", "Negative", "NegativeBinomialDistribution",%
 3636 "NegativeDefiniteMatrixQ", "NegativeMultinomialDistribution",%
 3637 "NegativeSemidefiniteMatrixQ", "NeighborhoodData",%
 3638 "NeighborhoodGraph", "Nest", "NestedGreaterGreater",%
 3639 "NestedLessLess", "NestedScriptRules", "NestGraph", "NestList",%
 3640 "NestWhile", "NestWhileList", "NetChain", "NetDecoder", "NetEncoder",%
 3641 "NetExtract", "NetGraph", "NetInitialize", "NetPort", "NetTrain",%
 3642 "NeumannValue", "NevilleThetaC", "NevilleThetaD", "NevilleThetaN",%
 3643 "NevilleThetaS", "NewPrimitiveStyle", "NExpectation", "Next",%
 3644 "NextCell", "NextPrime", "NextScheduledTaskTime", "NHoldAll",%
 3645 "NHoldFirst", "NHoldRest", "NicholsGridLines", "NicholsPlot",%

3646 "NightHemisphere", "NIntegrate", "NMaximize", "NMaxValue", %
 3647 "NMinimize", "NMinValue", "NominalVariables", "NonAssociative", %
 3648 "NoncentralBetaDistribution", "NoncentralChiSquareDistribution", %
 3649 "NoncentralFRatioDistribution", "NoncentralStudentTDistribution", %
 3650 "NonCommutativeMultiply", "NonConstants", "None", "NoneTrue", %
 3651 "NonlinearModelFit", "NonlinearStateSpaceModel", %
 3652 "NonlocalMeansFilter", "NonNegative", "NonPositive", "Nor", %
 3653 "NorlundB", "Norm", "Normal", "NormalDistribution", "NormalGrouping", %
 3654 "Normalize", "Normalized", "NormalizedSquaredEuclideanDistance", %
 3655 "NormalMatrixQ", "NormalsFunction", "NormFunction", "Not", %
 3656 "NotCongruent", "NotCupCap", "NotDoubleVerticalBar", "Notebook", %
 3657 "NotebookApply", "NotebookAutoSave", "NotebookClose", %
 3658 "NotebookConvertSettings", "NotebookCreate", %
 3659 "NotebookCreateReturnObject", "NotebookDefault", "NotebookDelete", %
 3660 "NotebookDirectory", "NotebookDynamicExpression", "NotebookEvaluate", %
 3661 "NotebookEventActions", "NotebookFileName", "NotebookFind", %
 3662 "NotebookFindReturnObject", "NotebookGet", %
 3663 "NotebookGetLayoutInformationPacket", %
 3664 "NotebookGetMisspellingsPacket", "NotebookImport", %
 3665 "NotebookInformation", "NotebookInterfaceObject", "NotebookLocate", %
 3666 "NotebookObject", "NotebookOpen", "NotebookOpenReturnObject", %
 3667 "NotebookPath", "NotebookPrint", "NotebookPut", %
 3668 "NotebookPutReturnObject", "NotebookRead", %
 3669 "NotebookResetGeneratedCells", "Notebooks", "NotebookSave", %
 3670 "NotebookSaveAs", "NotebookSelection", %
 3671 "NotebookSetupLayoutInformationPacket", "NotebooksMenu", %
 3672 "NotebookTemplate", "NotebookWrite", "NotElement", "NotEqualTilde", %
 3673 "NotExists", "NotGreater", "NotGreaterEqual", "NotGreaterFullEqual", %
 3674 "NotGreaterGreater", "NotGreaterLess", "NotGreaterSlantEqual", %
 3675 "NotGreaterTilde", "Nothing", "NotHumpDownHump", "NotHumpEqual", %
 3676 "NotificationFunction", "NotLeftTriangle", "NotLeftTriangleBar", %
 3677 "NotLeftTriangleEqual", "NotLess", "NotLessEqual", %
 3678 "NotLessFullEqual", "NotLessGreater", "NotLessLess", %
 3679 "NotLessSlantEqual", "NotLessTilde", "NotNestedGreaterGreater", %
 3680 "NotNestedLessLess", "NotPrecedes", "NotPrecedesEqual", %
 3681 "NotPrecedesSlantEqual", "NotPrecedesTilde", "NotReverseElement", %
 3682 "NotRightTriangle", "NotRightTriangleBar", "NotRightTriangleEqual", %
 3683 "NotSquareSubset", "NotSquareSubsetEqual", "NotSquareSuperset", %
 3684 "NotSquareSupersetEqual", "NotSubset", "NotSubsetEqual", %
 3685 "NotSucceeds", "NotSucceedsEqual", "NotSucceedsSlantEqual", %
 3686 "NotSucceedsTilde", "NotSuperset", "NotSupersetEqual", "NotTilde", %
 3687 "NotTildeEqual", "NotTildeFullEqual", "NotTildeTilde", %
 3688 "NotVerticalBar", "Now", "NoWhitespace", "NProbability", "NProduct", %
 3689 "NProductFactors", "NRoots", "NSolve", "NSum", "NSumTerms", %
 3690 "NuclearExplosionData", "NuclearReactorData", "Null", "NullRecords", %
 3691 "NullSpace", "NullWords", "Number", "NumberCompose", %
 3692 "NumberDecompose", "NumberExpand", "NumberFieldClassNumber", %
 3693 "NumberFieldDiscriminant", "NumberFieldFundamentalUnits", %
 3694 "NumberFieldIntegralBasis", "NumberFieldNormRepresentatives", %
 3695 "NumberFieldRegulator", "NumberFieldRootsOfUnity", %

3696 "NumberFieldSignature", "NumberForm", "NumberFormat", %
 3697 "NumberLinePlot", "NumberMarks", "NumberMultiplier", "NumberPadding", %
 3698 "NumberPoint", "NumberQ", "NumberSeparator", "NumberSigns", %
 3699 "NumberString", "Numerator", "NumericFunction", "NumericQ", %
 3700 "NuttallWindow", "NValues", "NyquistGridLines", "NyquistPlot", "O", %
 3701 "ObservabilityGramian", "ObservabilityMatrix", %
 3702 "ObservableDecomposition", "ObservableModelQ", "OceanData", "OddQ", %
 3703 "Off", "Offset", "OLEData", "On", "ONanGroupON", "Once", %
 3704 "OneIdentity", "Opacity", "OpacityFunction", %
 3705 "OpacityFunctionScaling", "Open", "OpenAppend", "Opener", %
 3706 "OpenerBox", "OpenerBoxOptions", "OpenerView", %
 3707 "OpenFunctionInspectorPacket", "Opening", "OpenRead", %
 3708 "OpenSpecialOptions", "OpenTemporary", "OpenWrite", "Operate", %
 3709 "OperatingSystem", "OptimumFlowData", "Optional", "OptionalElement", %
 3710 "OptionInspectorSettings", "OptionQ", "Options", "OptionsPacket", %
 3711 "OptionsPattern", "OptionValue", "OptionValueBox", %
 3712 "OptionValueBoxOptions", "Or", "Orange", "Order", %
 3713 "OrderDistribution", "OrderedQ", "Ordering", "Orderless", %
 3714 "OrderlessPatternSequence", "OrnsteinUhlenbeckProcess", %
 3715 "Orthogonalize", "OrthogonalMatrixQ", "Out", "Outer", %
 3716 "OutputAutoOverwrite", "OutputControllabilityMatrix", %
 3717 "OutputControllableModelQ", "OutputForm", "OutputFormData", %
 3718 "OutputGrouping", "OutputMathEditExpression", "OutputNamePacket", %
 3719 "OutputResponse", "OutputSizeLimit", "OutputStream", "Over", %
 3720 "OverBar", "OverDot", "Overflow", "OverHat", "Overlaps", "Overlay", %
 3721 "OverlayBox", "OverlayBoxOptions", "Overscript", "OverscriptBox", %
 3722 "OverscriptBoxOptions", "OverTilde", "OverVector", "OverwriteTarget", %
 3723 "OwenT", "OwnValues", "Package", "PackingMethod", "PaddedForm", %
 3724 "Padding", "PaddingSize", "PadeApproximant", "PadLeft", "PadRight", %
 3725 "PageBreakAbove", "PageBreakBelow", "PageBreakWithin", %
 3726 "PageFooterLines", "PageFooters", "PageHeaderLines", "PageHeaders", %
 3727 "PageHeight", "PageRankCentrality", "PageTheme", "PageWidth", %
 3728 "Pagination", "PairedBarChart", "PairedHistogram", %
 3729 "PairedSmoothHistogram", "PairedTTest", "PairedZTest", %
 3730 "PaletteNotebook", "PalettePath", "PalindromeQ", "Pane", "PaneBox", %
 3731 "PaneBoxOptions", "Panel", "PanelBox", "PanelBoxOptions", "Paneled", %
 3732 "PaneSelector", "PaneSelectorBox", "PaneSelectorBoxOptions", %
 3733 "PaperWidth", "ParabolicCylinderD", "ParagraphIndent", %
 3734 "ParagraphSpacing", "ParallelArray", "ParallelCombine", "ParallelDo", %
 3735 "Parallelepiped", "ParallelEvaluate", "Parallelization", %
 3736 "Parallelize", "ParallelMap", "ParallelNeeds", "Parallelogram", %
 3737 "ParallelProduct", "ParallelSubmit", "ParallelSum", "ParallelTable", %
 3738 "ParallelTry", "Parameter", "ParameterEstimator", %
 3739 "ParameterMixtureDistribution", "ParameterVariables", %
 3740 "ParametricFunction", "ParametricNDSolve", "ParametricNDSolveValue", %
 3741 "ParametricPlot", "ParametricPlot3D", "ParametricRegion", %
 3742 "ParentBox", "ParentCell", "ParentConnect", "ParentDirectory", %
 3743 "ParentForm", "Parentthesize", "ParentList", "ParentNotebook", %
 3744 "ParetoDistribution", "ParkData", "Part", "PartBehavior", %
 3745 "PartialCorrelationFunction", "PartialD", "ParticleAcceleratorData", %

3746 "ParticleData", "Partition", "PartitionGranularity", "PartitionsP",%
 3747 "PartitionsQ", "PartOfSpeech", "PartProtection", "ParzenWindow",%
 3748 "PascalDistribution", "PassEventsDown", "PassEventsUp", "Paste",%
 3749 "PasteBoxFormInlineCells", "PasteButton", "Path", "PathGraph",%
 3750 "PathGraphQ", "Pattern", "PatternSequence", "PatternTest",%
 3751 "PauliMatrix", "PaulWavelet", "Pause", "PausedTime", "PDF",%
 3752 "PeakDetect", "PearsonChiSquareTest", "PearsonCorrelationTest",%
 3753 "PearsonDistribution", "PerfectNumber", "PerfectNumberQ",%
 3754 "PerformanceGoal", "PeriodicBoundaryCondition",%
 3755 "PeriodicInterpolation", "Periodogram", "PeriodogramArray",%
 3756 "Permanent", "Permissions", "PermissionsGroup", "PermissionsGroups",%
 3757 "PermissionsKey", "PermissionsKeys", "PermutationCycles",%
 3758 "PermutationCyclesQ", "PermutationGroup", "PermutationLength",%
 3759 "PermutationList", "PermutationListQ", "PermutationMax",%
 3760 "PermutationMin", "PermutationOrder", "PermutationPower",%
 3761 "PermutationProduct", "PermutationReplace", "Permutations",%
 3762 "PermutationSupport", "Permute", "PeronaMalikFilter",%
 3763 "Perpendicular", "PersonData", "PERTDistribution", "PetersenGraph",%
 3764 "PhaseMargins", "PhaseRange", "PhysicalSystemData", "Pi", "Pick",%
 3765 "PIDData", "PIDDerivativeFilter", "PIDFeedforward", "PIDTune",%
 3766 "Piecewise", "PiecewiseExpand", "PieChart", "PieChart3D",%
 3767 "PillaiTrace", "PillaiTraceTest", "PingTime", "Pink", "Pivoting",%
 3768 "PixelConstrained", "PixelValue", "PixelValuePositions", "Placed",%
 3769 "Placeholder", "PlaceholderReplace", "Plain", "PlanarGraph",%
 3770 "PlanarGraphQ", "PlanckRadiationLaw", "PlaneCurveData",%
 3771 "PlanetaryMoonData", "PlanetData", "PlantData", "Play", "PlayRange",%
 3772 "Plot", "Plot3D", "Plot3Matrix", "PlotDivision", "PlotJoined",%
 3773 "PlotLabel", "PlotLabels", "PlotLayout", "PlotLegends",%
 3774 "PlotMarkers", "PlotPoints", "PlotRange", "PlotRangeClipping",%
 3775 "PlotRangeClipPlanesStyle", "PlotRangePadding", "PlotRegion",%
 3776 "PlotStyle", "PlotTheme", "Pluralize", "Plus", "PlusMinus",%
 3777 "Pochhammer", "PodStates", "PodWidth", "Point", "Point3DBox",%
 3778 "Point3DBoxOptions", "PointBox", "PointBoxOptions",%
 3779 "PointFigureChart", "PointLegend", "PointSize",%
 3780 "PoissonConsulDistribution", "PoissonDistribution", "PoissonProcess",%
 3781 "PoissonWindow", "PolarAxes", "PolarAxesOrigin", "PolarGridLines",%
 3782 "PolarPlot", "PolarTicks", "PoleZeroMarkers",%
 3783 "PolyaAeppliDistribution", "PolyGamma", "Polygon", "Polygon3DBox",%
 3784 "Polygon3DBoxOptions", "PolygonalNumber", "PolygonBox",%
 3785 "PolygonBoxOptions", "PolygonHoleScale", "PolygonIntersections",%
 3786 "PolygonScale", "PolyhedronData", "PolyLog", "PolynomialExtendedGCD",%
 3787 "PolynomialForm", "PolynomialGCD", "PolynomialLCM", "PolynomialMod",%
 3788 "PolynomialQ", "PolynomialQuotient", "PolynomialQuotientRemainder",%
 3789 "PolynomialReduce", "PolynomialRemainder", "Polynomials",%
 3790 "PoolingLayer", "PopupMenu", "PopupMenuBox", "PopupMenuBoxOptions",%
 3791 "PopupView", "PopupWindow", "Position", "PositionIndex", "Positive",%
 3792 "PositiveDefiniteMatrixQ", "PositiveSemidefiniteMatrixQ",%
 3793 "PossibleZeroQ", "Postfix", "PostScript", "Power",%
 3794 "PowerDistribution", "PowerExpand", "PowerMod", "PowerModList",%
 3795 "PowerRange", "PowerSpectralDensity", "PowersRepresentations",%

3796 "PowerSymmetricPolynomial", "Precedence", "PrecedenceForm", %
 3797 "Precedes", "PrecedesEqual", "PrecedesSlantEqual", "PrecedesTilde", %
 3798 "Precision", "PrecisionGoal", "PreDecrement", "Predict", %
 3799 "PredictionRoot", "PredictorFunction", "PredictorInformation", %
 3800 "PredictorMeasurements", "PredictorMeasurementsObject", %
 3801 "PreemptProtect", "PreferencesPath", "Prefix", "PreIncrement", %
 3802 "Prepend", "PrependTo", "PreserveImageOptions", "Previous", %
 3803 "PreviousCell", "PriceGraphDistribution", "PrimaryPlaceholder", %
 3804 "Prime", "PrimeNu", "PrimeOmega", "PrimePi", "PrimePowerQ", "PrimeQ", %
 3805 "Primes", "PrimeZetaP", "PrimitiveRoot", "PrimitiveRootList", %
 3806 "PrincipalComponents", "PrincipalValue", "Print", "PrintableASCIIQ", %
 3807 "PrintAction", "PrintForm", "PrintingCopies", "PrintingOptions", %
 3808 "PrintingPageRange", "PrintingStartingPageNumber", %
 3809 "PrintingStyleEnvironment", "Printout3D", "Printout3DPreviewer", %
 3810 "PrintPrecision", "PrintTemporary", "Prism", "PrismBox", %
 3811 "PrismBoxOptions", "PrivateCellOptions", "PrivateEvaluationOptions", %
 3812 "PrivateFontOptions", "PrivateFrontEndOptions", "PrivateKey", %
 3813 "PrivateNotebookOptions", "PrivatePaths", "Probability", %
 3814 "ProbabilityDistribution", "ProbabilityPlot", "ProbabilityPr", %
 3815 "ProbabilityScalePlot", "ProbitModelFit", "ProcessConnection", %
 3816 "ProcessDirectory", "ProcessEnvironment", "Processes", %
 3817 "ProcessEstimator", "ProcessInformation", "ProcessObject", %
 3818 "ProcessParameterAssumptions", "ProcessParameterQ", %
 3819 "ProcessStateDomain", "ProcessStatus", "ProcessTimeDomain", %
 3820 "Product", "ProductDistribution", "ProductLog", "ProgressIndicator", %
 3821 "ProgressIndicatorBox", "ProgressIndicatorBoxOptions", "Projection", %
 3822 "Prolog", "PromptForm", "Properties", "Property", "PropertyList", %
 3823 "PropertyValue", "Proportion", "Proportional", "Protect", %
 3824 "Protected", "ProteinData", "Pruning", "PseudoInverse", "PublicKey", %
 3825 "PulsarData", "PunctuationCharacter", "Purple", "Put", "PutAppend", %
 3826 "Pyramid", "PyramidBox", "PyramidBoxOptions", "QBinomial", %
 3827 "QFactorial", "QGamma", "QHypergeometricPFQ", "QPochhammer", %
 3828 "QPolyGamma", "QRDecomposition", "QuadraticIrrationalQ", "Quantile", %
 3829 "QuantilePlot", "Quantity", "QuantityArray", "QuantityDistribution", %
 3830 "QuantityForm", "QuantityMagnitude", "QuantityQ", "QuantityThread", %
 3831 "QuantityUnit", "QuantityVariable", "QuantityVariableCanonicalUnit", %
 3832 "QuantityVariableDimensions", "QuantityVariableIdentifier", %
 3833 "QuantityVariablePhysicalQuantity", "Quartics", "QuartileDeviation", %
 3834 "Quartiles", "QuartileSkewness", "Query", "QueueingNetworkProcess", %
 3835 "QueueingProcess", "QueueProperties", "Quiet", "Quit", "Quotient", %
 3836 "QuotientRemainder", "RadialGradientImage", "RadialityCentrality", %
 3837 "RadicalBox", "RadicalBoxOptions", "RadioButton", "RadioButtonBar", %
 3838 "RadioButtonBox", "RadioButtonBoxOptions", "Radon", "RamanujanTau", %
 3839 "RamanujanTauL", "RamanujanTauTheta", "RamanujanTauZ", "Ramp", %
 3840 "Random", "RandomChoice", "RandomColor", "RandomComplex", %
 3841 "RandomEntity", "RandomFunction", "RandomGraph", "RandomImage", %
 3842 "RandomInteger", "RandomPermutation", "RandomPoint", "RandomPrime", %
 3843 "RandomReal", "RandomSample", "RandomSeed", "RandomVariate", %
 3844 "RandomWalkProcess", "RandomWord", "Range", "RangeFilter", %
 3845 "RangeSpecification", "RankedMax", "RankedMin", "Raster", "Raster3D", %

3846 "Raster3DBox", "Raster3DBoxOptions", "RasterArray", "RasterBox",%
 3847 "RasterBoxOptions", "Rasterize", "RasterSize", "Rational",%
 3848 "RationalFunctions", "Rationalize", "Rationals", "Ratios", "Raw",%
 3849 "RawArray", "RawBoxes", "RawData", "RawMedium",%
 3850 "RayleighDistribution", "Re", "Read", "ReadLine", "ReadList",%
 3851 "ReadProtected", "ReadString", "Real", "RealBlockDiagonalForm",%
 3852 "RealDigits", "RealExponent", "Reals", "Reap", "RecognitionPrior",%
 3853 "RecognitionThreshold", "Record", "RecordLists", "RecordSeparators",%
 3854 "Rectangle", "RectangleBox", "RectangleBoxOptions", "RectangleChart",%
 3855 "RectangleChart3D", "RecurrenceFilter", "RecurrenceTable",%
 3856 "RecurringDigitsForm", "Red", "Reduce", "RefBox",%
 3857 "ReferenceLineStyle", "ReferenceMarkers", "ReferenceMarkerStyle",%
 3858 "Refine", "ReflectionMatrix", "ReflectionTransform", "Refresh",%
 3859 "RefreshRate", "RegionBinarize", "RegionBoundary", "RegionBounds",%
 3860 "RegionCentroid", "RegionDifference", "RegionDimension",%
 3861 "RegionDistance", "RegionDistanceFunction",%
 3862 "RegionEmbeddingDimension", "RegionFunction", "RegionIntersection",%
 3863 "RegionMeasure", "RegionMember", "RegionMemberFunction",%
 3864 "RegionMoment", "RegionNearest", "RegionNearestFunction",%
 3865 "RegionPlot", "RegionPlot3D", "RegionProduct", "RegionQ",%
 3866 "RegionResize", "RegionSize", "RegionSymmetricDifference",%
 3867 "RegionUnion", "RegularExpression", "Regularization",%
 3868 "RegularlySampledQ", "RegularPolygon", "ReIm", "Reinstall",%
 3869 "RelationGraph", "Release", "ReleaseHold", "ReliabilityDistribution",%
 3870 "ReliefImage", "ReliefPlot", "Remove", "RemoveAlphaChannel",%
 3871 "RemoveAsynchronousTask", "RemoveBackground",%
 3872 "RemoveChannelListener", "Removed", "RemoveDiacritics",%
 3873 "RemoveInputStreamMethod", "RemoveOutputStreamMethod",%
 3874 "RemoveProperty", "RemoveScheduledTask", "RemoveUsers",%
 3875 "RenameDirectory", "RenameFile", "RenderAll", "RenderingOptions",%
 3876 "RenewalProcess", "RenkoChart", "RepairMesh", "Repeated",%
 3877 "RepeatedNull", "RepeatedString", "RepeatedTiming",%
 3878 "RepeatingElement", "Replace", "ReplaceAll", "ReplaceHeldPart",%
 3879 "ReplaceImageValue", "ReplaceList", "ReplacePart",%
 3880 "ReplacePixelValue", "ReplaceRepeated", "RequiredPhysicalQuantities",%
 3881 "Resampling", "ResamplingAlgorithmData", "ResamplingMethod",%
 3882 "Rescale", "RescalingTransform", "ResetDirectory",%
 3883 "ResetMenusPacket", "ResetScheduledTask", "ReshapeLayer", "Residue",%
 3884 "Resolve", "ResourceAcquire", "ResourceData", "ResourceObject",%
 3885 "ResourceRemove", "ResourceSearch", "ResourceSubmissionObject",%
 3886 "ResourceSubmit", "ResponseForm", "Rest", "RestartInterval",%
 3887 "Restricted", "Resultant", "ResumePacket", "Return",%
 3888 "ReturnExpressionPacket", "ReturnInputFormPacket", "ReturnPacket",%
 3889 "ReturnReceiptFunction", "ReturnTextPacket", "Reverse",%
 3890 "ReverseBiorthogonalSplineWavelet", "ReverseElement",%
 3891 "ReverseEquilibrium", "ReverseGraph", "ReverseUpEquilibrium",%
 3892 "RevolutionAxis", "RevolutionPlot3D", "RGBColor", "RiccatiSolve",%
 3893 "RiceDistribution", "RidgeFilter", "RiemannR", "RiemannSiegelTheta",%
 3894 "RiemannSiegelZ", "RiemannXi", "Riffle", "Right", "RightArrow",%
 3895 "RightArrowBar", "RightArrowLeftArrow", "RightComposition",%

3896 "RightCosetRepresentative", "RightDownTeeVector", "RightDownVector",%
 3897 "RightDownVectorBar", "RightTee", "RightTeeArrow", "RightTeeVector",%
 3898 "RightTriangle", "RightTriangleBar", "RightTriangleEqual",%
 3899 "RightUpDownVector", "RightUpTeeVector", "RightUpVector",%
 3900 "RightUpVectorBar", "RightVector", "RightVectorBar",%
 3901 "RiskAchievementImportance", "RiskReductionImportance",%
 3902 "RogersTanimotoDissimilarity", "RollPitchYawAngles",%
 3903 "RollPitchYawMatrix", "RomanNumeral", "Root", "RootApproximant",%
 3904 "RootIntervals", "RootLocusPlot", "RootMeanSquare", "RootOfUnityQ",%
 3905 "RootReduce", "Roots", "RootSum", "Rotate", "RotateLabel",%
 3906 "RotateLeft", "RotateRight", "RotationAction", "RotationBox",%
 3907 "RotationBoxOptions", "RotationMatrix", "RotationTransform", "Round",%
 3908 "RoundImplies", "RoundingRadius", "Row", "RowAlignments",%
 3909 "RowBackgrounds", "RowBox", "RowHeights", "RowLines", "RowMinHeight",%
 3910 "RowReduce", "RowsEqual", "RowSpacings", "RSolve", "RSolveValue",%
 3911 "RudinShapiro", "RudvalisGroupRu", "Rule", "RuleCondition",%
 3912 "RuleDelayed", "RuleForm", "RulePlot", "RulerUnits", "Run",%
 3913 "RunProcess", "RunScheduledTask", "RunThrough", "RuntimeAttributes",%
 3914 "RuntimeOptions", "RussellRaoDissimilarity", "SameQ", "SameTest",%
 3915 "SampleDepth", "SampledSoundFunction", "SampledSoundList",%
 3916 "SampleRate", "SamplingPeriod", "SARIMAProcess", "SARMAProcess",%
 3917 "SASTriangle", "SatelliteData", "SatisfiabilityCount",%
 3918 "SatisfiabilityInstances", "SatisfiableQ", "Saturday", "Save",%
 3919 "Saveable", "SaveAutoDelete", "SaveDefinitions",%
 3920 "SavitzkyGolayMatrix", "SawtoothWave", "Scale", "Scaled",%
 3921 "ScaleDivisions", "ScaledMousePosition", "ScaleOrigin",%
 3922 "ScalePadding", "ScaleRanges", "ScaleRangeStyle", "ScalingFunctions",%
 3923 "ScalingMatrix", "ScalingTransform", "Scan", "ScheduledTask",%
 3924 "ScheduledTaskActiveQ", "ScheduledTaskInformation",%
 3925 "ScheduledTaskInformationData", "ScheduledTaskObject",%
 3926 "ScheduledTasks", "SchurDecomposition", "ScientificForm", "ScorerGi",%
 3927 "ScorerGiPrime", "ScorerHi", "ScorerHiPrime", "ScreenRectangle",%
 3928 "ScreenStyleEnvironment", "ScriptBaselineShifts", "ScriptForm",%
 3929 "ScriptLevel", "ScriptMinSize", "ScriptRules",%
 3930 "ScriptSizeMultipliers", "Scrollbars", "ScrollingOptions",%
 3931 "ScrollPosition", "SearchAdjustment", "SearchBoost",%
 3932 "SearchIndexObject", "SearchIndices", "SearchQueryString",%
 3933 "SearchResultObject", "SearchSynonyms", "Sec", "Sech",%
 3934 "SechDistribution", "SectionGrouping", "SectorChart",%
 3935 "SectorChart3D", "SectorOrigin", "SectorSpacing", "SeedRandom",%
 3936 "Select", "Selectable", "SelectComponents", "SelectedCells",%
 3937 "SelectedNotebook", "SelectFirst", "Selection", "SelectionAnimate",%
 3938 "SelectionCell", "SelectionCellCreateCell",%
 3939 "SelectionCellDefaultStyle", "SelectionCellParentStyle",%
 3940 "SelectionCreateCell", "SelectionDebuggerTag",%
 3941 "SelectionDuplicateCell", "SelectionEvaluate",%
 3942 "SelectionEvaluateCreateCell", "SelectionMove",%
 3943 "SelectionPlaceholder", "SelectionSetStyle", "SelectWithContents",%
 3944 "SelfLoops", "SelfLoopStyle", "SemanticImport",%
 3945 "SemanticImportString", "SemanticInterpretation",%

3946 "SemialgebraicComponentInstances", "SendMail", "SendMessage",%
 3947 "Sequence", "SequenceAlignment", "SequenceCases", "SequenceCount",%
 3948 "SequenceFold", "SequenceFoldList", "SequenceForm", "SequenceHold",%
 3949 "SequenceLimit", "SequencePosition", "Series", "SeriesCoefficient",%
 3950 "SeriesData", "ServiceConnect", "ServiceDisconnect",%
 3951 "ServiceExecute", "ServiceObject", "SessionTime", "Set",%
 3952 "SetAccuracy", "SetAlphaChannel", "SetAttributes", "Setbacks",%
 3953 "SetBoxFormNamesPacket", "SetCloudDirectory", "SetCookies",%
 3954 "SetDelayed", "SetDirectory", "SetEnvironment",%
 3955 "SetEvaluationNotebook", "SetFileDate", "SetFileLoadingContext",%
 3956 "SetNotebookStatusLine", "SetOptions", "SetOptionsPacket",%
 3957 "SetPermissions", "SetPrecision", "SetProperty",%
 3958 "SetSelectedNotebook", "SetSharedFunction", "SetSharedVariable",%
 3959 "SetSpeechParametersPacket", "SetStreamPosition", "SetSystemOptions",%
 3960 "Setter", "SetterBar", "SetterBox", "SetterBoxOptions", "Setting",%
 3961 "SetUsers", "SetValue", "Shading", "Shallow", "ShannonWavelet",%
 3962 "ShapiroWilkTest", "Share", "SharingList", "Sharpen",%
 3963 "ShearingMatrix", "ShearingTransform", "ShellRegion",%
 3964 "ShenCastanMatrix", "ShiftedGompertzDistribution",%
 3965 "ShiftRegisterSequence", "Short", "ShortDownArrow", "Shortest",%
 3966 "ShortestMatch", "ShortestPathFunction", "ShortLeftArrow",%
 3967 "ShortRightArrow", "ShortUpArrow", "Show", "ShowAutoSpellCheck",%
 3968 "ShowAutoStyles", "ShowCellBracket", "ShowCellLabel", "ShowCellTags",%
 3969 "ShowClosedCellArea", "ShowContents", "ShowControls",%
 3970 "ShowCursorTracker", "ShowGroupOpenCloseIcon", "ShowGroupOpener",%
 3971 "ShowInvisibleCharacters", "ShowPageBreaks",%
 3972 "ShowPredictiveInterface", "ShowSelection", "ShowShortBoxForm",%
 3973 "ShowSpecialCharacters", "ShowStringCharacters", "ShowSyntaxStyles",%
 3974 "ShrinkingDelay", "ShrinkWrapBoundingBox", "SiderealTime",%
 3975 "SiegelTheta", "SiegelTukeyTest", "Sign", "Signature",%
 3976 "SignedRankTest", "SignedRegionDistance", "SignificanceLevel",%
 3977 "SignPadding", "SignTest", "SimilarityRules", "SimpleGraph",%
 3978 "SimpleGraphQ", "Simplex", "Simplify", "Sin", "Sinc",%
 3979 "SinghMaddalaDistribution", "SingleEvaluation",%
 3980 "SingleLetterItalics", "SingleLetterStyle",%
 3981 "SingularValueDecomposition", "SingularValueList",%
 3982 "SingularValuePlot", "SingularValues", "Sinh", "SinhIntegral",%
 3983 "SinIntegral", "SixJSymbol", "Skeleton", "SkeletonTransform",%
 3984 "SkellamDistribution", "Skewness", "SkewNormalDistribution",%
 3985 "SkinStyle", "Skip", "SliceContourPlot3D", "SliceDensityPlot3D",%
 3986 "SliceDistribution", "SliceVectorPlot3D", "Slider", "Slider2D",%
 3987 "Slider2DBox", "Slider2DBoxOptions", "SliderBox", "SliderBoxOptions",%
 3988 "SlideView", "Slot", "SlotSequence", "Small", "SmallCircle",%
 3989 "Smaller", "SmithDecomposition", "SmithDelayCompensator",%
 3990 "SmithWatermanSimilarity", "SmoothDensityHistogram",%
 3991 "SmoothHistogram", "SmoothHistogram3D", "SmoothKernelDistribution",%
 3992 "Snippet", "SocialMediaData", "Socket", "SocketConnect",%
 3993 "SocketObject", "SoftmaxLayer", "SokalSneathDissimilarity",%
 3994 "SolarEclipse", "SolarSystemFeatureData", "SolidData",%
 3995 "SolidRegionQ", "Solve", "SolveAlways", "SolveDelayed", "Sort",%

3996 "SortBy", "Sound", "SoundAndGraphics", "SoundNote", "SoundVolume",%
 3997 "SourceLink", "Sow", "Space", "SpaceCurveData", "SpaceForm",%
 3998 "Spacer", "Spacings", "Span", "SpanAdjustments",%
 3999 "SpanCharacterRounding", "SpanFromAbove", "SpanFromBoth",%
 4000 "SpanFromLeft", "SpanLineThickness", "SpanMaxSize", "SpanMinSize",%
 4001 "SpanningCharacters", "SpanSymmetric", "SparseArray",%
 4002 "SpatialGraphDistribution", "Speak", "SpeakTextPacket",%
 4003 "SpearmanRankTest", "SpearmanRho", "SpeciesData", "SpecificityGoal",%
 4004 "Spectrogram", "SpectrogramArray", "Specularity",%
 4005 "SpellingCorrection", "SpellingCorrectionList",%
 4006 "SpellingDictionaries", "SpellingDictionariesPath",%
 4007 "SpellingOptions", "SpellingSuggestionsPacket", "Sphere",%
 4008 "SphereBox", "SphericalBesselJ", "SphericalBesselY",%
 4009 "SphericalHankelH1", "SphericalHankelH2", "SphericalHarmonicY",%
 4010 "SphericalPlot3D", "SphericalRegion", "SphericalShell",%
 4011 "SpheroidalEigenvalue", "SpheroidalJoiningFactor", "SpheroidalPS",%
 4012 "SpheroidalPSPrime", "SpheroidalQS", "SpheroidalQSPrime",%
 4013 "SpheroidalRadialFactor", "SpheroidalS1", "SpheroidalS1Prime",%
 4014 "SpheroidalS2", "SpheroidalS2Prime", "Splice", "SplicedDistribution",%
 4015 "SplineClosed", "SplineDegree", "SplineKnots", "SplineWeights",%
 4016 "Split", "SplitBy", "SpokenString", "Sqrt", "SqrtBox",%
 4017 "SqrtBoxOptions", "Square", "SquaredEuclideanDistance",%
 4018 "SquareFreeQ", "SquareIntersection", "SquareMatrixQ", "SquaresR",%
 4019 "SquareSubset", "SquareSubsetEqual", "SquareSuperset",%
 4020 "SquareSupersetEqual", "SquareUnion", "SquareWave", "SSSTriangle",%
 4021 "StabilityMargins", "StabilityMarginsStyle", "StableDistribution",%
 4022 "Stack", "StackBegin", "StackComplete", "StackInhibit",%
 4023 "StadiumShape", "StandardAtmosphereData", "StandardDeviation",%
 4024 "StandardDeviationFilter", "StandardForm", "Standardize",%
 4025 "Standardized", "StandardOceanData", "StandbyDistribution", "Star",%
 4026 "StarClusterData", "StarData", "StarGraph", "StartAsynchronousTask",%
 4027 "StartingStepSize", "StartOfLine", "StartOfString", "StartProcess",%
 4028 "StartScheduledTask", "StartupSound", "StateDimensions",%
 4029 "StateFeedbackGains", "StateOutputEstimator", "StateResponse",%
 4030 "StateSpaceModel", "StateSpaceRealization", "StateSpaceTransform",%
 4031 "StateTransformationLinearize", "StationaryDistribution",%
 4032 "StationaryWaveletPacketTransform", "StationaryWaveletTransform",%
 4033 "StatusArea", "StatusCentrality", "StepMonitor", "StieltjesGamma",%
 4034 "StirlingS1", "StirlingS2", "StopAsynchronousTask",%
 4035 "StoppingPowerData", "StopScheduledTask", "StrataVariables",%
 4036 "StratonovichProcess", "StreamColorFunction",%
 4037 "StreamColorFunctionScaling", "StreamDensityPlot", "StreamPlot",%
 4038 "StreamPoints", "StreamPosition", "Streams", "StreamScale",%
 4039 "StreamStyle", "String", "StringBreak", "StringByteCount",%
 4040 "StringCases", "StringContainsQ", "StringCount", "StringDelete",%
 4041 "StringDrop", "StringEndsQ", "StringExpression", "StringExtract",%
 4042 "StringForm", "StringFormat", "StringFreeQ", "StringInsert",%
 4043 "StringJoin", "StringLength", "StringMatchQ", "StringPadLeft",%
 4044 "StringPadRight", "StringPart", "StringPartition", "StringPosition",%
 4045 "StringQ", "StringRepeat", "StringReplace", "StringReplaceList",%

4046 "StringReplacePart", "StringReverse", "StringRiffle", %
 4047 "StringRotateLeft", "StringRotateRight", "StringSkeleton", %
 4048 "StringSplit", "StringStartsQ", "StringTake", "StringTemplate", %
 4049 "StringToStream", "StringTrim", "StripBoxes", "StripOnInput", %
 4050 "StripWrapperBoxes", "StrokeForm", "StructuralImportance", %
 4051 "StructuredArray", "StructuredSelection", "StruveH", "StruveL", %
 4052 "Stub", "StudentTDistribution", "Style", "StyleBox", %
 4053 "StyleBoxAutoDelete", "StyleData", "StyleDefinitions", "StyleForm", %
 4054 "StyleHints", "StyleKeyMapping", "StyleMenuListing", %
 4055 "StyleNameDialogSettings", "StyleNames", "StylePrint", %
 4056 "StyleSheetPath", "Subdivide", "Subfactorial", "Subgraph", %
 4057 "SubMinus", "SubPlus", "SubresultantPolynomialRemainders", %
 4058 "SubresultantPolynomials", "Subresultants", "Subscript", %
 4059 "SubscriptBox", "SubscriptBoxOptions", "Subscripted", "Subsequences", %
 4060 "Subset", "SubsetEqual", "SubsetQ", "Subsets", "SubStar", %
 4061 "SubstitutionSystem", "Subsuperscript", "SubsuperscriptBox", %
 4062 "SubsuperscriptBoxOptions", "Subtract", "SubtractFrom", "SubValues", %
 4063 "Succeeds", "SucceedsEqual", "SucceedsSlantEqual", "SucceedsTilde", %
 4064 "SuchThat", "Sum", "SumConvergence", "SummationLayer", "Sunday", %
 4065 "SunPosition", "Sunrise", "Sunset", "SuperDagger", "SuperMinus", %
 4066 "SupernovaData", "SuperPlus", "Superscript", "SuperscriptBox", %
 4067 "SuperscriptBoxOptions", "Superset", "SupersetEqual", "SuperStar", %
 4068 "Surd", "SurdForm", "SurfaceColor", "SurfaceData", "SurfaceGraphics", %
 4069 "SurvivalDistribution", "SurvivalFunction", "SurvivalModel", %
 4070 "SurvivalModelFit", "SuspendPacket", "SuzukiDistribution", %
 4071 "SuzukiGroupSuz", "SwatchLegend", "Switch", "Symbol", "SymbolName", %
 4072 "SymletWavelet", "Symmetric", "SymmetricGroup", "SymmetricKey", %
 4073 "SymmetricMatrixQ", "SymmetricPolynomial", "SymmetricReduction", %
 4074 "Symmetrize", "SymmetrizedArray", "SymmetrizedArrayRules", %
 4075 "SymmetrizedDependentComponents", "SymmetrizedIndependentComponents", %
 4076 "SymmetrizedReplacePart", "SynchronousInitialization", %
 4077 "SynchronousUpdating", "Syntax", "SyntaxForm", "SyntaxInformation", %
 4078 "SyntaxLength", "SyntaxPacket", "SyntaxQ", "SystemDialogInput", %
 4079 "SystemException", "SystemGet", "SystemHelpPath", %
 4080 "SystemInformation", "SystemInformationData", "SystemOpen", %
 4081 "SystemOptions", "SystemsModelDelay", "SystemsModelDelayApproximate", %
 4082 "SystemsModelDelete", "SystemsModelDimensions", %
 4083 "SystemsModelExtract", "SystemsModelFeedbackConnect", %
 4084 "SystemsModelLabels", "SystemsModelLinearity", "SystemsModelMerge", %
 4085 "SystemsModelOrder", "SystemsModelParallelConnect", %
 4086 "SystemsModelSeriesConnect", "SystemsModelStateFeedbackConnect", %
 4087 "SystemsModelVectorRelativeOrders", "SystemStub", "Tab", %
 4088 "TabFilling", "Table", "TableAlignments", "TableDepth", %
 4089 "TableDirections", "TableForm", "TableHeadings", "TableSpacing", %
 4090 "TableView", "TableViewBox", "TabSpacings", "TabView", "TabViewBox", %
 4091 "TabViewBoxOptions", "TagBox", "TagBoxNote", "TagBoxOptions", %
 4092 "TaggingRules", "TagSet", "TagSetDelayed", "TagStyle", "TagUnset", %
 4093 "Take", "TakeDrop", "TakeLargest", "TakeLargestBy", "TakeSmallest", %
 4094 "TakeSmallestBy", "TakeWhile", "Tally", "Tan", "Tanh", %
 4095 "TargetDevice", "TargetFunctions", "TargetUnits", "TautologyQ", %

4096 "TelegraphProcess", "TemplateApply", "TemplateArgBox", "TemplateBox",%
 4097 "TemplateBoxOptions", "TemplateEvaluate", "TemplateExpression",%
 4098 "TemplateIf", "TemplateObject", "TemplateSequence", "TemplateSlot",%
 4099 "TemplateSlotSequence", "TemplateUnevaluated", "TemplateVerbatim",%
 4100 "TemplateWith", "TemporalData", "TemporalRegularity", "Temporary",%
 4101 "TemporaryVariable", "TensorContract", "TensorDimensions",%
 4102 "TensorExpand", "TensorProduct", "TensorQ", "TensorRank",%
 4103 "TensorReduce", "TensorSymmetry", "TensorTranspose", "TensorWedge",%
 4104 "TestID", "TestReport", "TestReportObject", "TestResultObject",%
 4105 "Tetrahedron", "TetrahedronBox", "TetrahedronBoxOptions", "TeXForm",%
 4106 "TeXSave", "Text", "Text3DBox", "Text3DBoxOptions", "TextAlignment",%
 4107 "TextBand", "TextBoundingBox", "TextBox", "TextCases", "TextCell",%
 4108 "TextClipboardType", "TextData", "TextElement", "TextForm",%
 4109 "TextGrid", "TextJustification", "TextLine", "TextPacket",%
 4110 "TextParagraph", "TextPosition", "TextRecognize", "TextSearch",%
 4111 "TextSearchPage", "TextSearchReport", "TextSentences", "TextString",%
 4112 "TextStructure", "TextStyle", "Texture", "TextureCoordinateFunction",%
 4113 "TextureCoordinateScaling", "TextWords", "Therefore",%
 4114 "ThermodynamicData", "ThermometerGauge", "Thick", "Thickness",%
 4115 "Thin", "Thinning", "ThisLink", "ThompsonGroupTh", "Thread",%
 4116 "ThreadDepth", "ThreeJSymbol", "Threshold", "Through", "Throw",%
 4117 "ThueMorse", "Thumbnail", "Thursday", "Ticks", "TicksStyle", "Tilde",%
 4118 "TildeEqual", "TildeFullEqual", "TildeTilde", "TimeConstrained",%
 4119 "TimeConstraint", "TimeDirection", "TimeFormat", "TimelinePlot",%
 4120 "TimeObject", "TimeObjectQ", "Times", "TimesBy", "TimeSeries",%
 4121 "TimeSeriesAggregate", "TimeSeriesForecast", "TimeSeriesInsert",%
 4122 "TimeSeriesInvertibility", "TimeSeriesMap", "TimeSeriesMapThread",%
 4123 "TimeSeriesModel", "TimeSeriesModelFit", "TimeSeriesResample",%
 4124 "TimeSeriesRescale", "TimeSeriesShift", "TimeSeriesThread",%
 4125 "TimeSeriesWindow", "TimeUsed", "TimeValue",%
 4126 "TimeWarpingCorrespondence", "TimeWarpingDistance", "TimeZone",%
 4127 "TimeZoneConvert", "TimeZoneOffset", "Timing", "Tiny",%
 4128 "TitleGrouping", "TitsGroupT", "ToBoxes", "ToCharacterCode",%
 4129 "ToColor", "ToContinuousTimeModel", "ToDate", "Today",%
 4130 "ToDiscreteTimeModel", "ToEntity", "ToeplitzMatrix", "ToExpression",%
 4131 "ToFileName", "Together", "Toggle", "ToggleFalse", "Toggler",%
 4132 "TogglerBar", "TogglerBox", "TogglerBoxOptions", "ToHeldExpression",%
 4133 "ToInvertibleTimeSeries", "TokenWords", "Tolerance", "ToLowerCase",%
 4134 "Tomorrow", "ToNumberField", "TooBig", "Tooltip", "TooltipBox",%
 4135 "TooltipBoxOptions", "TooltipDelay", "TooltipStyle", "Top",%
 4136 "TopHatTransform", "ToPolarCoordinates", "TopologicalSort",%
 4137 "ToRadicals", "ToRules", "ToSphericalCoordinates", "ToString",%
 4138 "Total", "TotalHeight", "TotalLayer", "TotalVariationFilter",%
 4139 "TotalWidth", "TouchPosition", "TouchscreenAutoZoom",%
 4140 "TouchscreenControlPlacement", "ToUpperCase", "Tr", "Trace",%
 4141 "TraceAbove", "TraceAction", "TraceBackward", "TraceDepth",%
 4142 "TraceDialog", "TraceForward", "TraceInternal", "TraceLevel",%
 4143 "TraceOff", "TraceOn", "TraceOriginal", "TracePrint", "TraceScan",%
 4144 "TrackedSymbols", "TrackingFunction", "TracyWidomDistribution",%
 4145 "TradingChart", "TraditionalForm", "TraditionalFunctionNotation",%

4146 "TraditionalNotation", "TraditionalOrder", "TransferFunctionCancel", %
 4147 "TransferFunctionExpand", "TransferFunctionFactor", %
 4148 "TransferFunctionModel", "TransferFunctionPoles", %
 4149 "TransferFunctionTransform", "TransferFunctionZeros", %
 4150 "TransformationClass", "TransformationFunction", %
 4151 "TransformationFunctions", "TransformationMatrix", %
 4152 "TransformedDistribution", "TransformedField", "TransformedProcess", %
 4153 "TransformedRegion", "TransitionDirection", "TransitionDuration", %
 4154 "TransitionEffect", "TransitiveClosureGraph", %
 4155 "TransitiveReductionGraph", "Translate", "TranslationOptions", %
 4156 "TranslationTransform", "Transliterate", "Transparent", %
 4157 "TransparentColor", "Transpose", "TrapSelection", "TravelDirections", %
 4158 "TravelDirectionsData", "TravelDistance", "TravelDistanceList", %
 4159 "TravelMethod", "TravelTime", "TreeForm", "TreeGraph", "TreeGraphQ", %
 4160 "TreePlot", "TrendStyle", "Triangle", "TriangleWave", %
 4161 "TriangularDistribution", "TriangulateMesh", "Trig", "TrigExpand", %
 4162 "TrigFactor", "TrigFactorList", "Trigger", "TrigReduce", "TrigToExp", %
 4163 "TrimmedMean", "TropicalStormData", "True", "TrueQ", %
 4164 "TruncatedDistribution", "TsallisQExponentialDistribution", %
 4165 "TsallisQGaussianDistribution", "TTest", "Tube", %
 4166 "TubeBezierCurveBox", "TubeBezierCurveBoxOptions", "TubeBox", %
 4167 "TubeBoxOptions", "TubeBSplineCurveBox", %
 4168 "TubeBSplineCurveBoxOptions", "Tuesday", "TukeyLambdaDistribution", %
 4169 "TukeyWindow", "TunnelData", "Tuples", "TuranGraph", "TuringMachine", %
 4170 "TuttePolynomial", "UnateQ", "Uncompress", "Undefined", "UnderBar", %
 4171 "Underflow", "Underlined", "Underoverscript", "UnderoverscriptBox", %
 4172 "UnderoverscriptBoxOptions", "Underscript", "UnderscriptBox", %
 4173 "UnderscriptBoxOptions", "UnderseaFeatureData", "UndirectedEdge", %
 4174 "UndirectedGraph", "UndirectedGraphQ", "UndoOptions", %
 4175 "UndoTrackedVariables", "Unequal", "UnequalTo", "Unevaluated", %
 4176 "UniformDistribution", "UniformGraphDistribution", %
 4177 "UniformSumDistribution", "Uninstall", "Union", "UnionPlus", %
 4178 "Unique", "UnitaryMatrixQ", "UnitBox", "UnitConvert", %
 4179 "UnitDimensions", "Unitize", "UnitRootTest", "UnitSimplify", %
 4180 "UnitStep", "UnitSystem", "UnitTriangle", "UnitVector", %
 4181 "UnityDimensions", "UniverseModelData", "UniversityData", "UnixTime", %
 4182 "Unprotect", "UnsameQ", "UnsavedVariables", "Unset", "UnsetShared", %
 4183 "UntrackedVariables", "Up", "UpArrow", "UpArrowBar", %
 4184 "UpArrowDownArrow", "Update", "UpdateDynamicObjects", %
 4185 "UpdateDynamicObjectsSynchronous", "UpdateInterval", %
 4186 "UpdateSearchIndex", "UpDownArrow", "UpEquilibrium", "UpperCaseQ", %
 4187 "UpperLeftArrow", "UpperRightArrow", "UpperTriangularize", %
 4188 "Upsample", "UpSet", "UpSetDelayed", "UpTee", "UpTeeArrow", "UpTo", %
 4189 "UpValues", "URL", "URLBuild", "URLDecode", "URLDispatcher", %
 4190 "URLDownload", "URLEncode", "URLExecute", "URLExistsQ", "URLExpand", %
 4191 "URLFetch", "URLFetchAsynchronous", "URLParse", "URLQueryDecode", %
 4192 "URLQueryEncode", "URLRead", "URLSave", "URLSaveAsynchronous", %
 4193 "URLShorten", "URLSubmit", "UseGraphicsRange", "UserDefinedWavelet", %
 4194 "Using", "UsingFrontEnd", "UtilityFunction", "V2Get", %
 4195 "ValidationLength", "ValidationSet", "Value", "ValueBox", %

4196 "ValueBoxOptions", "ValueDimensions", "ValueForm", "ValueQ",%
 4197 "Values", "ValuesData", "Variables", "Variance",%
 4198 "VarianceEquivalenceTest", "VarianceEstimatorFunction",%
 4199 "VarianceGammaDistribution", "VarianceTest", "VectorAngle",%
 4200 "VectorColorFunction", "VectorColorFunctionScaling",%
 4201 "VectorDensityPlot", "VectorGlyphData", "VectorPlot", "VectorPlot3D",%
 4202 "VectorPoints", "VectorQ", "Vectors", "VectorScale", "VectorStyle",%
 4203 "Vee", "Verbatim", "Verbose", "VerboseConvertToPostScriptPacket",%
 4204 "VerificationTest", "VerifyConvergence",%
 4205 "VerifySecurityCertificates", "VerifySolutions",%
 4206 "VerifyTestAssumptions", "Version", "VersionNumber", "VertexAdd",%
 4207 "VertexCapacity", "VertexColors", "VertexComponent",%
 4208 "VertexConnectivity", "VertexContract", "VertexCoordinateRules",%
 4209 "VertexCoordinates", "VertexCorrelationSimilarity",%
 4210 "VertexCosineSimilarity", "VertexCount", "VertexCoverQ",%
 4211 "VertexDataCoordinates", "VertexDegree", "VertexDelete",%
 4212 "VertexDiceSimilarity", "VertexEccentricity", "VertexInComponent",%
 4213 "VertexInDegree", "VertexIndex", "VertexJaccardSimilarity",%
 4214 "VertexLabeling", "VertexLabels", "VertexLabelStyle", "VertexList",%
 4215 "VertexNormals", "VertexOutComponent", "VertexOutDegree", "VertexQ",%
 4216 "VertexRenderingFunction", "VertexReplace", "VertexShape",%
 4217 "VertexShapeFunction", "VertexSize", "VertexStyle",%
 4218 "VertexTextureCoordinates", "VertexWeight", "Vertical",%
 4219 "VerticalBar", "VerticalForm", "VerticalGauge", "VerticalSeparator",%
 4220 "VerticalSlider", "VerticalTilde", "ViewAngle", "ViewCenter",%
 4221 "ViewMatrix", "ViewPoint", "ViewPointSelectorSettings", "ViewPort",%
 4222 "ViewRange", "ViewVector", "ViewVertical", "VirtualGroupData",%
 4223 "Visible", "VisibleCell", "VoigtDistribution", "VolcanoData",%
 4224 "Volume", "VonMisesDistribution", "VoronoiMesh", "WaitAll",%
 4225 "WaitAsynchronousTask", "WaitNext", "WaitUntil",%
 4226 "WakebyDistribution", "WalleniusHypergeometricDistribution",%
 4227 "WaringYuleDistribution", "WarpingCorrespondence", "WarpingDistance",%
 4228 "WatershedComponents", "WatsonUSquareTest",%
 4229 "WattsStrogatzGraphDistribution", "WaveletBestBasis",%
 4230 "WaveletFilterCoefficients", "WaveletImagePlot", "WaveletListPlot",%
 4231 "WaveletMapIndexed", "WaveletMatrixPlot", "WaveletPhi", "WaveletPsi",%
 4232 "WaveletScale", "WaveletScalogram", "WaveletThreshold",%
 4233 "WeaklyConnectedComponents", "WeaklyConnectedGraphComponents",%
 4234 "WeaklyConnectedGraphQ", "WeakStationarity", "WeatherData",%
 4235 "WeatherForecastData", "WeberE", "Wedge", "Wednesday",%
 4236 "WeibullDistribution", "WeierstrassHalfPeriods",%
 4237 "WeierstrassInvariants", "WeierstrassP", "WeierstrassPPrime",%
 4238 "WeierstrassSigma", "WeierstrassZeta", "WeightedAdjacencyGraph",%
 4239 "WeightedAdjacencyMatrix", "WeightedData", "WeightedGraphQ",%
 4240 "Weights", "WelchWindow", "WheelGraph", "WhenEvent", "Which",%
 4241 "While", "White", "WhiteNoiseProcess", "WhitePoint", "Whitespace",%
 4242 "WhitespaceCharacter", "WhittakerM", "WhittakerW", "WienerFilter",%
 4243 "WienerProcess", "WignerD", "WignerSemicircleDistribution",%
 4244 "WikipediaData", "WikipediaSearch", "WilksW", "WilksWTest",%
 4245 "WindDirectionData", "WindowClickSelect", "WindowElements",%

```

4246 "WindowFloating", "WindowFrame", "WindowFrameElements",%
4247 "WindowMargins", "WindowMovable", "WindowOpacity", "WindowSelected",%
4248 "WindowSize", "WindowStatusArea", "WindowTitle", "WindowToolbars",%
4249 "WindowWidth", "WindSpeedData", "WindVectorData",%
4250 "WishartMatrixDistribution", "With", "WolframAlpha",%
4251 "WolframAlphaDate", "WolframAlphaQuantity", "WolframAlphaResult",%
4252 "WolframLanguageData", "Word", "WordBoundary", "WordCharacter",%
4253 "WordCloud", "WordCount", "WordCounts", "WordData", "WordDefinition",%
4254 "WordFrequency", "WordFrequencyData", "WordList", "WordOrientation",%
4255 "WordSearch", "WordSeparators", "WordSpacings", "WordStem",%
4256 "WordTranslation", "WorkingPrecision", "WrapAround", "Write",%
4257 "WriteLine", "WriteString", "Wronskian", "XMLElement", "XMLObject",%
4258 "XMLTemplate", "Xnor", "Xor", "XYZColor", "Yellow", "Yesterday",%
4259 "YuleDissimilarity", "ZernikeR", "ZeroSymmetric", "ZeroTest",%
4260 "ZeroWidthTimes", "Zeta", "ZetaZero", "ZIPCodeData",%
4261 "ZipfDistribution", "ZoomCenter", "ZoomFactor", "ZTest",%
4262 "ZTransform"%
4263 }%
4264 moreendkeywords={%
4265 "$Aborted", "$ActivationGroupID", "$ActivationKey",%
4266 "$ActivationUserRegistered", "$AddOnsDirectory",%
4267 "$AllowExternalChannelFunctions", "$AssertFunction", "$Assumptions",%
4268 "$AsynchronousTask", "$AudioOutputDevices", "$BaseDirectory",%
4269 "$BatchInput", "$BatchOutput", "$BoxForms", "$ByteOrdering",%
4270 "$CacheBaseDirectory", "$Canceled", "$ChannelBase",%
4271 "$CharacterEncoding", "$CharacterEncodings", "$CloudBase",%
4272 "$CloudConnected", "$CloudCreditsAvailable", "$CloudEvaluation",%
4273 "$CloudExpressionBase", "$CloudRootDirectory", "$CloudSymbolBase",%
4274 "$CloudVersion", "$CloudVersionNumber", "$CommandLine",%
4275 "$CompilationTarget", "$ConditionHold", "$ConfiguredKernels",%
4276 "$Context", "$ContextPath", "$ControlActiveSetting", "$Cookies",%
4277 "$CookieStore", "$CreationDate", "$CurrentLink", "$DateStringFormat",%
4278 "$DefaultAudioOutputDevice", "$DefaultFont", "$DefaultFrontEnd",%
4279 "$DefaultImagingDevice", "$DefaultLocalBase", "$DefaultPath",%
4280 "$Display", "$DisplayFunction", "$DistributedContexts",%
4281 "$DynamicEvaluation", "$Echo", "$EmbedCodeEnvironments",%
4282 "$EmbeddableServices", "$EntityStores", "$Epilog",%
4283 "$EvaluationCloudObject", "$EvaluationEnvironment", "$ExportFormats",%
4284 "$Failed", "$FinancialDataSource", "$FontFamilies", "$FormatType",%
4285 "$FrontEnd", "$FrontEndSession", "$GeoEntityTypes", "$GeoLocation",%
4286 "$GeoLocationCity", "$GeoLocationCountry", "$GeoLocationPrecision",%
4287 "$GeoLocationSource", "$HistoryLength", "$HomeDirectory",%
4288 "$HTMLExportRules", "$HTTPCookies", "$HTTPRequest", "$IgnoreEOF",%
4289 "$ImageFormattingWidth", "$ImagingDevice", "$ImagingDevices",%
4290 "$ImportFormats", "$InitialDirectory", "$Input", "$InputFileName",%
4291 "$InputStreamMethods", "$Inspector", "$InstallationDate",%
4292 "$InstallationDirectory", "$InterfaceEnvironment",%
4293 "$InterpreterTypes", "$IterationLimit", "$KernelCount", "$KernelID",%
4294 "$Language", "$LaunchDirectory", "$LibraryPath",%
4295 "$LicenseExpirationDate", "$LicenseID", "$LicenseProcesses",%

```

```

4296 "$LicenseServer", "$LicenseSubprocesses", "$LicenseType", "$Line",%
4297 "$Linked", "$LinkSupported", "$LoadedFiles", "$LocalBase",%
4298 "$LocalSymbolBase", "$MachineAddresses", "$MachineDomain",%
4299 "$MachineDomains", "$MachineEpsilon", "$MachineID", "$MachineName",%
4300 "$MachinePrecision", "$MachineType", "$MaxExtraPrecision",%
4301 "$MaxLicenseProcesses", "$MaxLicenseSubprocesses",%
4302 "$MaxMachineNumber", "$MaxNumber", "$MaxPiecewiseCases",%
4303 "$MaxPrecision", "$MaxRootDegree", "$MessageGroups", "$MessageList",%
4304 "$MessagePrePrint", "$Messages", "$MinMachineNumber", "$MinNumber",%
4305 "$MinorReleaseNumber", "$MinPrecision", "$ModuleNumber",%
4306 "$NetworkLicense", "$NewMessage", "$NewSymbol", "$Notebooks",%
4307 "$NumberMarks", "$Off", "$OperatingSystem", "$Output",%
4308 "$OutputForms", "$OutputSizeLimit", "$OutputStreamMethods",%
4309 "$Packages", "$ParentLink", "$ParentProcessID", "$PasswordFile",%
4310 "$PatchLevelID", "$Path", "$PathnameSeparator", "$PerformanceGoal",%
4311 "$Permissions", "$PermissionsGroupBase", "$PhoneNumber",%
4312 "$PipeSupported", "$PlotTheme", "$Post", "$Pre",%
4313 "$PreferencesDirectory", "$PrePrint", "$PreRead", "$PrintForms",%
4314 "$PrintLiteral", "$Printout3DPreviewer", "$ProcessID",%
4315 "$ProcessorCount", "$ProcessorType", "$ProductInformation",%
4316 "$ProgramName", "$RandomState", "$RecursionLimit",%
4317 "$RegisteredDeviceClasses", "$RegisteredUserName", "$ReleaseNumber",%
4318 "$RequesterAddress", "$RequesterWolframID", "$RequesterWolframUUID",%
4319 "$RootDirectory", "$ScheduledTask", "$ScriptCommandLine",%
4320 "$ScriptInputString", "$Services", "$SessionID", "$SetParentLink",%
4321 "$SharedFunctions", "$SharedVariables", "$SMSDestination",%
4322 "$SoundDisplay", "$SoundDisplayFunction", "$SourceLink",%
4323 "$SuppressInputFormHeads", "$SynchronousEvaluation",%
4324 "$SyntaxHandler", "$System", "$SystemCharacterEncoding", "$SystemID",%
4325 "$SystemMemory", "$SystemShell", "$SystemTimeZone",%
4326 "$SystemWordLength", "$TemplatePath", "$TemporaryDirectory",%
4327 "$TemporaryPrefix", "$TextStyle", "$TimedOut", "$TimeUnit",%
4328 "$TimeZone", "$TimeZoneEntity", "$TopDirectory", "$TraceOff",%
4329 "$TraceOn", "$TracePattern", "$TracePostAction", "$TracePreAction",%
4330 "$UnitSystem", "$Urgent", "$UserAddOnsDirectory",%
4331 "$UserAgentLanguages", "$UserAgentMachine", "$UserAgentName",%
4332 "$UserAgentOperatingSystem", "$UserAgentString", "$UserAgentVersion",%
4333 "$UserBaseDirectory", "$UserDocumentsDirectory", "$UserName",%
4334 "$Version", "$VersionNumber", "$WolframID", "$WolframUUID"%
4335 }%
4336 }

4337 \lstdefinlanguage[5.2]{Mathematica}[3.0]{Mathematica}{%
4338   morekeywords={Above, AbsoluteOptions, AbsoluteTiming, AccountingForm,%
4339     AccuracyGoal, Active, ActiveItem, AddOnHelpPath, AdjustmentBox,%
4340     AdjustmentBoxOptions, After, AiryAiPrime, AlgebraicRulesData,%
4341     Algebraics, Alias, AlignmentMarker, AllowInlineCells,%
4342     AllowScriptLevelChange, Analytic, AnimationCycleOffset,%
4343     AnimationCycleRepetitions, AnimationDirection, AnimationDisplayTime,%
4344     ApartSquareFree, AppellF1, ArgumentCountQ, ArrayDepth, ArrayPlot,%

```

4345 ArrayQ, ArrayRules, AspectRatioFixed, Assuming, Assumptions,%
 4346 AutoDelete, AutoEvaluateEvents, AutoGeneratedPackage, AutoIndent,%
 4347 AutoIndentSpacings, AutoItalicWords, AutoloadPath, AutoOpenNotebooks,%
 4348 AutoOpenPalettes, AutoScroll, AutoSpacing, AutoStyleOptions, Axis,%
 4349 BackgroundTasksSettings, Backsubstitution, Backward, Baseline, Before,%
 4350 BeginDialogPacket, BeginFrontEndInteractionPacket, Below, BezoutMatrix,%
 4351 BinaryFormat, BinaryGet, BinaryRead, BinaryReadList, BinaryWrite,%
 4352 BitAnd, BitNot, BitOr, BitXor, Black, BlankForm, Blue, Boole, Booleans,%
 4353 Bottom, Bounds, Box, BoxBaselineShift, BoxData, BoxDimensions,%
 4354 BoxFormFormatTypes, BoxFrame, BoxMargins, BoxRegion, Brown, Buchberger,%
 4355 Button, ButtonBox, ButtonBoxOptions, ButtonCell, ButtonContents,%
 4356 ButtonData, ButtonEvaluator, ButtonExpandable, ButtonFrame,%
 4357 ButtonFunction, ButtonMargins, ButtonMinHeight, ButtonNote,%
 4358 ButtonNotebook, ButtonSource, ButtonStyle, ButtonStyleMenuListing,%
 4359 ByteOrdering, CallPacket, CarmichaelLambda, Cell, CellAutoOverwrite,%
 4360 CellBaseline, CellBoundingBox, CellBracketOptions, CellContents,%
 4361 CellDingbat, CellEditDuplicate, CellElementsBoundingBox,%
 4362 CellElementSpacings, CellEvaluationDuplicate, CellFrame,%
 4363 CellFrameColor, CellFrameLabelMargins, CellFrameLabels,%
 4364 CellFrameMargins, CellGroup, CellGroupData, CellGrouping,%
 4365 CellGroupingRules, CellHorizontalScrolling, CellLabel,%
 4366 CellLabelAutoDelete, CellLabelMargins, CellLabelPositioning,%
 4367 CellMargins, CellObject, CellOpen, CellPasswords, CellPrint, CellSize,%
 4368 CellStyle, CellTags, CellularAutomaton, Center, CharacterEncoding,%
 4369 CharacterEncodingsPath, CharacteristicPolynomial, CharacterRange,%
 4370 CheckAll, CholeskyDecomposition, Clip, ClipboardNotebook, Closed,%
 4371 ClosingAutoSave, CoefficientArrays, CoefficientDomain,%
 4372 CofactorExpansion, ColonForm, ColorFunctionScaling, ColorRules,%
 4373 ColorSelectorSettings, Column, ColumnAlignments, ColumnLines,%
 4374 ColumnsEqual, ColumnSpacings, ColumnWidths, CommonDefaultFormatTypes,%
 4375 CompileOptimizations, CompletionsListPacket, Complexes,%
 4376 ComplexityFunction, Compose, ComposeSeries, ConfigurationPath,%
 4377 ConjugateTranspose, Connect, ConsoleMessage, ConsoleMessagePacket,%
 4378 ConsolePrint, ContentsBoundingBox, ContextToFileName,%
 4379 ContinuedFraction, ConversionOptions, ConversionRules,%
 4380 ConvertToBitmapPacket, ConvertToPostScript, ConvertToPostScriptPacket,%
 4381 Copyable, CoshIntegral, CounterAssignments, CounterBox,%
 4382 CounterBoxOptions, CounterEvaluator, CounterFunction,%
 4383 CounterIncrements, CounterStyle, CounterStyleMenuListing,%
 4384 CreatePalettePacket, Cross, CurrentlySpeakingPacket, Cyan,%
 4385 CylindricalDecomposition, DampingFactor, DataRange, Debug, DebugTag,%
 4386 Decimal, DedekindEta, DefaultDuplicateCellStyle, DefaultFontProperties,%
 4387 DefaultFormatType, DefaultFormatTypeForStyle, DefaultInlineFormatType,%
 4388 DefaultInputFormatType, DefaultNaturalLanguage, DefaultNewCellStyle,%
 4389 DefaultNewInlineCellStyle, DefaultNotebook, DefaultOutputFormatType,%
 4390 DefaultStyleDefinitions, DefaultTextFormatType,%
 4391 DefaultTextInlineFormatType, DefaultValues, DefineExternal,%
 4392 DegreeLexicographic, DegreeReverseLexicographic, Deletable,%
 4393 DeleteContents, DeletionWarning, DelimiterFlashTime, DelimiterMatching,%
 4394 Delimiters, DependentVariables, DiacriticalPositioning, DialogLevel,%

4395 DifferenceOrder, DigitCharacter, DigitCount, DiracDelta, Direction,%
 4396 DirectoryName, DisableConsolePrintPacket, DiscreteDelta,%
 4397 DisplayAnimation, DisplayEndPacket, DisplayFlushImagePacket,%
 4398 DisplayForm, DisplayPacket, DisplayRules, DisplaySetSizePacket,%
 4399 DisplayString, DivisionFreeRowReduction, DOSTextFormat,%
 4400 DoubleExponential, DoublyInfinite, Down, DragAndDrop, DrawHighlighted,%
 4401 DualLinearProgramming, DumpGet, DumpSave, Edit, Editable,%
 4402 EditButtonSettings, EditCellTagsSettings, EditDefinition, EditIn,%
 4403 Element, EliminationOrder, EllipticExpPrime, EllipticNomeQ,%
 4404 EllipticReducedHalfPeriods, EllipticThetaPrime, Empty,%
 4405 EnableConsolePrintPacket, Encoding, EndAdd, EndDialogPacket,%
 4406 EndFrontEndInteractionPacket, EndOfLine, EndOfString, Enter,%
 4407 EnterExpressionPacket, EnterTextPacket, EqualColumns, EqualRows,%
 4408 EquatedTo, Erfi, ErrorBox, ErrorBoxOptions, ErrorNorm, ErrorPacket,%
 4409 ErrorsDialogSettings, Evaluatable, EvaluatePacket, EvaluationCell,%
 4410 EvaluationCompletionAction, EvaluationMonitor, EvaluationNotebook,%
 4411 Evaluator, EvaluatorNames, EventEvaluator, ExactNumberQ,%
 4412 ExactRootIsolation, Except, ExcludedForms, Exists, ExitDialog,%
 4413 ExponentPosition, ExponentStep, Export, ExportAutoReplacements,%
 4414 ExportPacket, ExportString, ExpressionPacket, ExpToTrig, Extension,%
 4415 ExternalCall, ExternalDataCharacterEncoding, Extract, Fail,%
 4416 FEDisableConsolePrintPacket, FEEnableConsolePrintPacket, Fibonacci,%
 4417 File, FileFormat, FileInformation, FileName, FileNameDialogSettings,%
 4418 FindFit, FindInstance, FindMaximum, FindSettings, FitAll,%
 4419 FlushPrintOutputPacket, Font, FontColor, FontFamily, FontName,%
 4420 FontPostScriptName, FontProperties, FontReencoding, FontSize,%
 4421 FontSlant, FontSubstitutions, FontTracking, FontVariations, FontWeight,%
 4422 ForAll, FormatRules, FormatTypeAutoConvert, FormatValues, FormBox,%
 4423 FormBoxOptions, Forward, ForwardBackward, FourierCosTransform,%
 4424 FourierParameters, FourierSinTransform, FourierTransform,%
 4425 FractionalPart, FractionBox, FractionBoxOptions, FractionLine,%
 4426 FrameBox, FrameBoxOptions, FresnelC, FresnelS, FromContinuedFraction,%
 4427 FromDigits, FrontEndExecute, FrontEndObject, FrontEndStackSize,%
 4428 FrontEndToken, FrontEndTokenExecute, FrontEndVersion, Full, FullAxes,%
 4429 FullSimplify, FunctionExpand, FunctionInterpolation, GaussKronrod,%
 4430 GaussPoints, GenerateBitmapCaches, GenerateConditions, GeneratedCell,%
 4431 GeneratedParameters, Generic, GetBoundingBoxSizePacket, GetContext,%
 4432 GetFileName, GetFrontEndOptionsDataPacket,%
 4433 GetLinebreakInformationPacket, GetMenusPacket,%
 4434 GetPageBreakInformationPacket, Glaisher, GlobalPreferences,%
 4435 GlobalSession, Gradient, GraphicsData, GraphicsGrouping, Gray, Green,%
 4436 Grid, GridBaseline, GridBox, GridBoxOptions, GridCreationSettings,%
 4437 GridDefaultElement, GridFrame, GridFrameMargins, GroupPageBreakWithin,%
 4438 HarmonicNumber, Hash, HashTable, HeadCompose, HelpBrowserLookup,%
 4439 HelpBrowserNotebook, HelpBrowserSettings, HessenbergDecomposition,%
 4440 Hessian, HoldAllComplete, HoldComplete, HoldPattern, Horizontal,%
 4441 HorizontalForm, HorizontalScrollPosition, HTMLSave,%
 4442 Hypergeometric0F1Regularized, Hypergeometric1F1Regularized,%
 4443 Hypergeometric2F1Regularized, HypergeometricPFQ,%
 4444 HypergeometricPFQRegularized, HyperlinkCreationSettings, Hyphenation,%

4445 HyphenationOptions, IgnoreCase, ImageCache, ImageCacheValid,%
 4446 ImageMargins, ImageOffset, ImageRangeCache, ImageRegion,%
 4447 ImageResolution, ImageRotated, ImageSize, Import,%
 4448 ImportAutoReplacements, ImportString, IncludeFileExtension,%
 4449 IncludeSingularTerm, IndentingNewlineSpacings, IndentMaxFraction,%
 4450 IndexCreationOptions, Inequality, InexactNumberQ, InexactNumbers,%
 4451 Inherited, InitializationCell, InitializationCellEvaluation,%
 4452 InitializationCellWarning, InlineCounterAssignments,%
 4453 InlineCounterIncrements, InlineRules, InputAliases, InputAutoFormat,%
 4454 InputAutoReplacements, InputGrouping, InputNamePacket, InputNotebook,%
 4455 InputPacket, InputSettings, InputStringPacket, InputToBoxFormPacket,%
 4456 InputToInputForm, InputToStandardForm, InsertionPointObject,%
 4457 IntegerExponent, IntegerPart, Integers, Interactive, Interlaced,%
 4458 InterpolationOrder, InterpolationPoints, InterpolationPrecision,%
 4459 InterpretationBox, InterpretationBoxOptions, InterpretTemplate,%
 4460 InterruptSettings, Interval, IntervalIntersection, IntervalMemberQ,%
 4461 IntervalUnion, InverseBetaRegularized, InverseEllipticNomeQ,%
 4462 InverseErf, InverseErfc, InverseFourierCosTransform,%
 4463 InverseFourierSinTransform, InverseFourierTransform,%
 4464 InverseGammaRegularized, InverseJacobiCD, InverseJacobiCN,%
 4465 InverseJacobiCS, InverseJacobiDC, InverseJacobiDN, InverseJacobiDS,%
 4466 InverseJacobiNC, InverseJacobiND, InverseJacobiNS, InverseJacobiSC,%
 4467 InverseJacobiSD, InverseLaplaceTransform, InverseWeierstrassP,%
 4468 InverseZTransform, Jacobian, JacobiCD, JacobiCN, JacobiCS, JacobiDC,%
 4469 JacobiDN, JacobiDS, JacobiNC, JacobiND, JacobiNS, JacobiSC, JacobiSD,%
 4470 JordanDecomposition, K, Khinchin, KleinInvariantJ, KroneckerDelta,%
 4471 Language, LanguageCategory, LaplaceTransform, Larger, Launch,%
 4472 LayoutInformation, Left, LetterCharacter, Lexicographic, LicenseID,%
 4473 LimitsPositioning, LimitsPositioningTokens, LinearSolveFunction,%
 4474 LinebreakAdjustments, LineBreakWithin, LineForm, LineIndent,%
 4475 LineSpacing, LineWrapParts, LinkActivate, LinkClose, LinkConnect,%
 4476 LinkConnectedQ, LinkCreate, LinkError, LinkFlush, LinkHost,%
 4477 LinkInterrupt, LinkLaunch, LinkMode, LinkObject, LinkOpen, LinkOptions,%
 4478 LinkPatterns, LinkProtocol, LinkRead, LinkReadHeld, LinkReadyQ, Links,%
 4479 LinkWrite, LinkWriteHeld, ListConvolve, ListCorrelate, Listen,%
 4480 ListInterpolation, ListQ, LiteralSearch, LongestMatch, LongForm,%
 4481 Loopback, LUBackSubstitution, LUDecomposition, MachineID, MachineName,%
 4482 MachinePrecision, MacintoshSystemPageSetup, Magenta, Magnification,%
 4483 MakeBoxes, MakeExpression, MakeRules, Manual, MatchLocalNameQ,%
 4484 MathematicaNotation, MathieuC, MathieuCharacteristicA,%
 4485 MathieuCharacteristicB, MathieuCharacteristicExponent, MathieuCPrime,%
 4486 MathieuS, MathieuSPrime, MathMLForm, MathMLText, MatrixRank, Maximize,%
 4487 MaxIterations, MaxPlotPoints, MaxPoints, MaxRecursion, MaxStepFraction,%
 4488 MaxSteps, MaxStepSize, Mean, Median, MeijerG, MenuPacket,%
 4489 MessageOptions, MessagePacket, MessagesNotebook, MetaCharacters,%
 4490 Method, MethodOptions, Minimize, MinRecursion, MinSize, Mode,%
 4491 ModularLambda, MonomialOrder, MonteCarlo, Most, MousePointerNote,%
 4492 MultiDimensional, MultilaunchWarning, MultilineFunction,%
 4493 MultiplicativeOrder, Multiplicity, Nand,%
 4494 NeedCurrentFrontEndPackagePacket, NeedCurrentFrontEndSymbolsPacket,%

4495 NestedScriptRules, NestWhile, NestWhileList, NevilleThetaC,%
 4496 NevilleThetaD, NevilleThetaN, NevilleThetaS, Newton, Next, NHoldAll,%
 4497 NHoldFirst, NHoldRest, NMaximize, NMinimize, NonAssociative,%
 4498 NonPositive, Nor, Norm, NormalGrouping, NormalSelection, NormFunction,%
 4499 Notebook, NotebookApply, NotebookAutoSave, NotebookClose,%
 4500 NotebookConvert, NotebookConvertSettings, NotebookCreate,%
 4501 NotebookCreateReturnObject, NotebookDefault, NotebookDelete,%
 4502 NotebookDirectory, NotebookFind, NotebookFindReturnObject, NotebookGet,%
 4503 NotebookGetLayoutInformationPacket, NotebookGetMisspellingsPacket,%
 4504 NotebookInformation, NotebookLocate, NotebookObject, NotebookOpen,%
 4505 NotebookOpenReturnObject, NotebookPath, NotebookPrint, NotebookPut,%
 4506 NotebookPutReturnObject, NotebookRead, NotebookResetGeneratedCells,%
 4507 Notebooks, NotebookSave, NotebookSaveAs, NotebookSelection,%
 4508 NotebookSetupLayoutInformationPacket, NotebooksMenu, NotebookWrite,%
 4509 NotElement, NProductExtraFactors, NProductFactors, NRoots,%
 4510 NSumExtraTerms, NSumTerms, NumberMarks, NumberMultiplier, NumberString,%
 4511 NumericFunction, NumericQ, NValues, Offset, OLEData,%
 4512 OneStepRowReduction, Open, OpenFunctionInspectorPacket,%
 4513 OpenSpecialOptions, OptimizationLevel, OptionInspectorSettings,%
 4514 OptionQ, OptionsPacket, OptionValueBox, OptionValueBoxOptions, Orange,%
 4515 Ordering, Oscillatory, OutputAutoOverwrite, OutputFormData,%
 4516 OutputGrouping, OutputMathEditExpression, OutputNamePacket,%
 4517 OutputToOutputForm, OutputToStandardForm, Over, Overflow, Overlaps,%
 4518 Overscript, OverscriptBox, OverscriptBoxOptions, OwnValues, PadLeft,%
 4519 PadRight, PageBreakAbove, PageBreakBelow, PageBreakWithin,%
 4520 PageFooterLines, PageFooters, PageHeaderLines, PageHeaders,%
 4521 PalettePath, PaperWidth, ParagraphIndent, ParagraphSpacing,%
 4522 ParameterVariables, ParentConnect, ParentForm, Parenthesize,%
 4523 PasteBoxFormInlineCells, Path, PatternTest, PeriodicInterpolation,%
 4524 Pick, Piecewise, PiecewiseExpand, Pink, Pivoting, PixelConstrained,%
 4525 Placeholder, Plain, Plot3Matrix, PointForm, PolynomialForm,%
 4526 PolynomialReduce, Polynomials, PowerModList, Precedence,%
 4527 PreferencesPath, PreserveStyleSheet, Previous, PrimaryPlaceholder,%
 4528 Primes, PrincipalValue, PrintAction, PrintingCopies, PrintingOptions,%
 4529 PrintingPageRange, PrintingStartingPageNumber,%
 4530 PrintingStyleEnvironment, PrintPrecision, PrivateCellOptions,%
 4531 PrivateEvaluationOptions, PrivateFontOptions, PrivateNotebookOptions,%
 4532 PrivatePaths, ProductLog, PromptForm, Purple, Quantile,%
 4533 QuasiMonteCarlo, QuasiNewton, RadicalBox, RadicalBoxOptions,%
 4534 RandomSeed, RationalFunctions, Rationals, RawData, RawMedium,%
 4535 RealBlockForm, Reals, Reap, Red, Refine, Refresh, RegularExpression,%
 4536 Reinstall, Release, Removed, RenderingOptions, RepeatedString,%
 4537 ReplaceList, Rescale, ResetMenusPacket, Resolve, ResumePacket,%
 4538 ReturnExpressionPacket, ReturnInputFormPacket, ReturnPacket,%
 4539 ReturnTextPacket, Right, Root, RootReduce, RootSum, Row, RowAlignments,%
 4540 RowBox, RowLines, RowMinHeight, RowsEqual, RowSpacings, RSolve,%
 4541 RuleCondition, RuleForm, RulerUnits, Saveable, SaveAutoDelete,%
 4542 ScreenRectangle, ScreenStyleEnvironment, ScriptBaselineShifts,%
 4543 ScriptLevel, ScriptMinSize, ScriptRules, ScriptSizeMultipliers,%
 4544 ScrollingOptions, ScrollPosition, Second, SectionGrouping, Selectable,%

4545 SelectedNotebook, Selection, SelectionAnimate, SelectionCell,%
 4546 SelectionCellCreateCell, SelectionCellDefaultStyle,%
 4547 SelectionCellParentStyle, SelectionCreateCell, SelectionDuplicateCell,%
 4548 SelectionEvaluate, SelectionEvaluateCreateCell, SelectionMove,%
 4549 SelectionSetStyle, SelectionStrategy, SendFontInformationToKernel,%
 4550 SequenceHold, SequenceLimit, SeriesCoefficient, SetBoxFormNamesPacket,%
 4551 SetEvaluationNotebook, SetFileLoadingContext, SetNotebookStatusLine,%
 4552 SetOptionsPacket, SetSelectedNotebook, SetSpeechParametersPacket,%
 4553 SetValue, ShortestMatch, ShowAutoStyles, ShowCellBracket,%
 4554 ShowCellLabel, ShowCellTags, ShowClosedCellArea, ShowContents,%
 4555 ShowCursorTracker, ShowGroupOpenCloseIcon, ShowPageBreaks,%
 4556 ShowSelection, ShowShortBoxForm, ShowSpecialCharacters,%
 4557 ShowStringCharacters, ShrinkWrapBoundingBox, SingleLetterItalics,%
 4558 SingularityDepth, SingularValueDecomposition, SingularValueList,%
 4559 SinhIntegral, Smaller, Socket, SolveDelayed, SoundAndGraphics, Sow,%
 4560 Space, SpaceForm, SpanAdjustments, SpanCharacterRounding,%
 4561 SpanLineThickness, SpanMaxSize, SpanMinSize, SpanningCharacters,%
 4562 SpanSymmetric, Sparse, SparseArray, SpeakTextPacket,%
 4563 SpellingDictionaries, SpellingDictionariesPath, SpellingOptions,%
 4564 SpellingSuggestionsPacket, Spherical, Split, SqrtBox, SqrtBoxOptions,%
 4565 StandardDeviation, StandardForm, StartingStepSize, StartOffline,%
 4566 StartOfString, StartupSound, StepMonitor, StieltjesGamma, StoppingTest,%
 4567 StringCases, StringCount, StringExpression, StringFreeQ, StringQ,%
 4568 StringReplaceList, StringReplacePart, StringSplit, StripBoxes,%
 4569 StripWrapperBoxes, StructuredSelection, StruveH, StruveL, StyleBox,%
 4570 StyleBoxAutoDelete, StyleBoxOptions, StyleData, StyleDefinitions,%
 4571 StyleForm, StyleMenuListing, StyleNameDialogSettings, StylePrint,%
 4572 StyleSheetPath, Subresultants, SubscriptBox, SubscriptBoxOptions,%
 4573 Subsets, Subsuperscript, SubsuperscriptBox, SubsuperscriptBoxOptions,%
 4574 SubtractFrom, SubValues, SugarCube, SuperscriptBox,%
 4575 SuperscriptBoxOptions, SuspendPacket, SylvesterMatrix, SymbolName,%
 4576 Syntax, SyntaxForm, SyntaxPacket, SystemException, SystemHelpPath,%
 4577 SystemStub, Tab, TabFilling, TabSpacings, TagBox, TagBoxOptions,%
 4578 TaggingRules, TagStyle, TargetFunctions, TemporaryVariable, TensorQ,%
 4579 TeXSave, TextAlignment, TextBoundingBox, TextData, TextJustification,%
 4580 TextLine, TextPacket, TextParagraph, TextRendering, TextStyle,%
 4581 ThisLink, TimeConstraint, TimeVariable, TitleGrouping, ToBoxes,%
 4582 ToColor, ToFileName, Toggle, ToggleFalse, Tolerance, TooBig, Top,%
 4583 ToRadicals, Total, Tr, TraceAction, TraceInternal, TraceLevel,%
 4584 TraditionalForm, TraditionalFunctionNotation, TraditionalNotation,%
 4585 TraditionalOrder, TransformationFunctions, TransparentColor,%
 4586 Trapezoidal, TrigExpand, TrigFactor, TrigFactorList, TrigReduce,%
 4587 TrigToExp, Tuples, UnAlias, Underflow, Underoverscript,%
 4588 UnderoverscriptBox, UnderoverscriptBoxOptions, Underscript,%
 4589 UnderscriptBox, UnderscriptBoxOptions, UndocumentedTestFEParsePacket,%
 4590 UndocumentedTestGetSelectionPacket, UnitStep, Up, URL, Using, V2Get,%
 4591 Value, ValueBox, ValueBoxOptions, ValueForm, Variance, Verbatim,%
 4592 Verbose, VerboseConvertToPostScriptPacket, VerifyConvergence,%
 4593 VerifySolutions, Version, VersionNumber, Vertical, VerticalForm,%
 4594 ViewPointSelectorSettings, Visible, VisibleCell,%

```

4595 WeierstrassHalfPeriods, WeierstrassInvariants, WeierstrassSigma,%
4596 WeierstrassZeta, White, Whitespace, WhitespaceCharacter,%
4597 WindowClickSelect, WindowElements, WindowFloating, WindowFrame,%
4598 WindowFrameElements, WindowMargins, WindowMovable, WindowSize,%
4599 WindowTitle, WindowToolbars, WindowWidth, WordBoundary, WordCharacter,%
4600 WynnDegree, XMLElement},%
4601 morendkeywords={,$, $AddOnsDirectory, $AnimationDisplayFunction,%
4602 $AnimationFunction,%
4603 $Assumptions, $BaseDirectory, $BoxForms, $ByteOrdering,%
4604 $CharacterEncoding, $ConditionHold, $CurrentLink, $DefaultPath,%
4605 $ExportEncodings, $ExportFormats, $FormatType, $FrontEnd,%
4606 $HistoryLength, $HomeDirectory, $ImportEncodings, $ImportFormats,%
4607 $InitialDirectory, $InstallationDate, $InstallationDirectory,%
4608 $InterfaceEnvironment,%
4609 $LaunchDirectory, $LicenseExpirationDate, $LicenseID, $LicenseProcesses,%
4610 $LicenseServer, $MachineDomain, $MaxExtraPrecision, $MaxLicenseProcesses,%
4611 $MaxNumber, $MaxPiecewiseCases, $MaxPrecision, $MaxRootDegree,%
4612 $MinNumber, $MinPrecision, $NetworkLicense, $NumberMarks,%
4613 $Off, $OutputForms, $ParentLink, $ParentProcessID,%
4614 $PasswordFile, $PathnameSeparator, $PreferencesDirectory, $PrintForms,%
4615 $PrintLiteral, $ProcessID, $ProcessorType, $ProductInformation,%
4616 $ProgramName, $PSDirectDisplay, $RandomState, $RasterFunction,%
4617 $RootDirectory, $SetParentLink, $SoundDisplay, $SuppressInputFormHeads,%
4618 $SystemCharacterEncoding, $SystemID, $TemporaryPrefix, $TextStyle,%
4619 $TopDirectory, $TraceOff, $TraceOn, $TracePattern,%
4620 $TracePostAction, $TracePreAction, $UserAddOnsDirectory, $UserBaseDirectory,%
4621 $UserName, Constant, Flat, HoldAll,%
4622 HoldAllComplete, HoldFirst, HoldRest, Listable,%
4623 Locked, NHoldAll, NHoldFirst, NHoldRest,%
4624 NumericFunction, OneIdentity, Orderless, Protected,%
4625 ReadProtected, SequenceHold},%
4626 }%

4627 %%
4628 %% Mathematica definitions (c) 1999 Michael Wiese
4629 %%
4630 \lst@definlanguage[3.0]{Mathematica}[1.0]{Mathematica}%
4631 {morekeywords={Abort, AbortProtect, AbsoluteDashing, AbsolutePointSize,%
4632 AbsoluteThickness, AbsoluteTime, AccountingFormAiry, AiPrime, AiryBi,%
4633 AiryBiPrime, Alternatives, AnchoredSearch, AxesEdge, AxesOrigin,%
4634 AxesStyle, Background, BetaRegularized, BoxStyle, C, CheckAbort,%
4635 Circle, ClebschGordan, CMYKColor, ColorFunction, ColorOutput, Compile,%
4636 Compiled, CompiledFunction, ComplexExpand, ComposeList, Composition,%
4637 ConstrainedMax, ConstrainedMin, Contexts, ContextToFilename,%
4638 ContourLines, Contours, ContourShading, ContourSmoothing,%
4639 ContourStyle, CopyDirectory, CopyFile, CosIntegral, CreateDirectory,%
4640 Cuboid, Date, DeclarePackage, DefaultColor, DefaultFont, Delete,%
4641 DeleteCases, DeleteDirectory, DeleteFile, Dialog, DialogIndent,%
4642 DialogProlog, DialogSymbols, DigitQ, Directory, DirectoryStack, Disk,%
4643 Dispatch, DownValues, DSolve, Encode, Epilog, Erfc, Evaluate,%

```

```

4644 ExponentFunction,FaceGrids,FileByteCount,FileDate,FileNames,%
4645 FileType,Find,FindList,FixedPointList,FlattenAt,Fold,FoldList,%
4646 Frame,FrameLabel,FrameStyle,FrameTicks,FromCharCode,%
4647 FromDate,FullGraphics,FullOptions,GammaRegularized,%
4648 GaussianIntegers,GraphicsArray,GraphicsSpacing,GridLines,%
4649 GroebnerBasis,Heads,HeldPart,HomeDirectory,Hue,IgnoreCases,%
4650 InputStream,Install,InString,IntegerDigits,InterpolatingFunction,%
4651 InterpolatingPolynomial,Interpolation,Interrupt,InverseFunction,%
4652 InverseFunctions,JacobiZeta,LetterQ,LinearProgramming,ListPlay,%
4653 LogGamma,LowerCaseQ,MachineNumberQ,MantissaExponent,MapIndexed,%
4654 MapThread,MatchLocalNames,MatrixExp,MatrixPower,MeshRange,%
4655 MeshStyle,MessageList,Module,NDSolve,NSolve,NullRecords,%
4656 NullWords,NumberFormat,NumberPadding,NumberSigns,OutputStream,%
4657 PaddedForm,ParentDirectory,Pause,Play,PlayRange,PlotRegion,%
4658 PolygonIntersections,PolynomialGCD,PolynomialLCM,PolynomialMod,%
4659 PostScript,PowerExpand,PrecisionGoal,PrimePi,Prolog,%
4660 QRDecomposition,Raster,RasterArray,RealDigits,Record,RecordLists,%
4661 RecordSeparators,ReleaseHold,RenameDirectory,RenameFile,%
4662 ReplaceHeldPart,ReplacePart,ResetDirectory,Residue,%
4663 RiemannSiegelTheta,RiemannSiegelZ,RotateLabel,SameTest,%
4664 SampleDepth,SampledSoundFunction,SampledSoundList,SampleRate,%
4665 SchurDecomposition,SessionTime,SetAccuracy,SetDirectory,%
4666 SetFileDate,SetPrecision,SetStreamPosition,Shallow,SignPadding,%
4667 SinIntegral,SixJSymbol,Skip,Sound,SpellingCorrection,%
4668 SphericalRegion,Stack,StackBegin,StackComplete,StackInhibit,%
4669 StreamPosition,Streams,StringByteCount,StringConversion,%
4670 StringDrop,StringInsert,StringPosition,StringReplace,%
4671 StringReverse,StringTake,StringToStream,SurfaceColor,%
4672 SyntaxLength,SyntaxQ,TableAlignments,TableDepth,%
4673 TableDirections,TableHeadings,TableSpacing,ThreeJSymbol,TimeUsed,%
4674 TimeZone,ToCharCode,ToDate,ToHeldExpression,TokenWords,%
4675 ToLowerCase,ToUpperCase,Trace,TraceAbove,TraceBackward,%
4676 TraceDepth,TraceDialog,TraceForward,TraceOff,TraceOn,%
4677 TraceOriginal,TracePrint,TraceScan,Trig,Unevaluated,Uninstall,%
4678 UnsameQ,UppercaseQ,UpValues,ViewCenter,ViewVertical,With,Word,%
4679 WordSearch,WordSeparators},%
4680 moreendkeywords={Stub,Temporary,$Aborted,$BatchInput,$BatchOutput,%
4681 $CreationDate,$DefaultFont,$DumpDates,$DumpSupported,$Failed,%
4682 $Input,$Inspector,$IterationLimit,$Language,$Letters,$Linked,%
4683 $LinkSupported,$MachineEpsilon,$MachineID,$MachineName,%
4684 $MachinePrecision,$MachineType,$MaxMachineNumber,$MessageList,%
4685 $MessagePrePrint,$MinMachineNumber,$ModuleNumber,$NewMessage,%
4686 $NewSymbol,$Notebooks,$OperatingSystem,$Packages,$PipeSupported,%
4687 $PreRead,$ReleaseNumber,$SessionID,$SoundDisplayFunction,%
4688 $StringConversion,$StringOrder,$SyntaxHandler,$TimeUnit,%
4689 $VersionNumber}%
4690 }%

4691 \lst@definlanguage[1.0]{Mathematica}%
4692 {morekeywords={Abs,Accuracy,AccuracyGoal,AddTo,AiryAi,AlgebraicRules,%

```

4693 AmbientLight, And, Apart, Append, AppendTo, Apply, ArcCos, ArcCosh, %
 4694 ArcCot, ArcCoth, ArcCsc, ArcCsch, ArcSec, ArcSech, ArcSin, ArcSinh, %
 4695 ArcTan, ArcTanh, Arg, ArithmeticGeometricMean, Array, AspectRatio, %
 4696 AtomQ, Attributes, Axes, AxesLabel, BaseForm, Begin, BeginPackage, %
 4697 BernoulliB, BesselI, BesselJ, BesselK, BesselY, Beta, Binomial, Blank, %
 4698 BlankNullSequence, BlankSequence, Block, Boxed, BoxRatios, Break, Byte, %
 4699 ByteCount, Cancel, Cases, Catch, Ceiling, CForm, Character, Characters, %
 4700 ChebyshevT, ChebyshevU, Check, Chop, Clear, ClearAll, ClearAttributes, %
 4701 ClipFill, Close, Coefficient, CoefficientList, Collect, ColumnForm, %
 4702 Complement, Complex, CompoundExpression, Condition, Conjugate, %
 4703 Constants, Context, Continuation, Continue, ContourGraphics, %
 4704 ContourPlot, Cos, Cosh, Cot, Coth, Count, Csc, Csch, Cubics, Cyclotomic, %
 4705 D, Dashing, Decompose, Decrement, Default, Definition, Denominator, %
 4706 DensityGraphics, DensityPlot, Depth, Derivative, Det, DiagonalMatrix, %
 4707 DigitBlock, Dimensions, DirectedInfinity, Display, DisplayFunction, %
 4708 Distribute, Divide, DivideBy, Divisors, DivisorSigma, Do, Dot, Drop, Dt, %
 4709 Dump, EdgeForm, Eigensystem, Eigenvalues, Eigenvectors, Eliminate, %
 4710 EllipticE, EllipticExp, EllipticF, EllipticK, EllipticLog, EllipticPi, %
 4711 EllipticTheta, End, EndPackage, EngineeringForm, Environment, Equal, %
 4712 Erf, EulerE, EulerPhi, EvenQ, Exit, Exp, Expand, ExpandAll, %
 4713 ExpandDenominator, ExpandNumerator, ExpIntegralE, ExpIntegralEi, %
 4714 Exponent, Expression, ExtendedGCD, FaceForm, Factor, FactorComplete, %
 4715 Factorial, Factorial2, FactorInteger, FactorList, FactorSquareFree, %
 4716 FactorSquareFreeList, FactorTerms, FactorTermsList, FindMinimum, %
 4717 FindRoot, First, Fit, FixedPoint, Flatten, Floor, FontForm, For, Format, %
 4718 FormatType, FortranForm, Fourier, FreeQ, FullDefinition, FullForm, %
 4719 Function, Gamma, GCD, GegenbauerC, General, Get, Goto, Graphics, %
 4720 Graphics3D, GrayLevel, Greater, GreaterEqual, Head, HermiteH, %
 4721 HiddenSurface, Hold, HoldForm, Hypergeometric0F1, Hypergeometric1F1, %
 4722 Hypergeometric2F1, HypergeometricU, Identity, IdentityMatrix, If, Im, %
 4723 Implies, In, Increment, Indent, Infix, Information, Inner, Input, %
 4724 InputForm, InputString, Insert, Integer, IntegerQ, Integrate, %
 4725 Intersection, Inverse, InverseFourier, InverseJacobiSN, %
 4726 InverseSeries, JacobiAmplitude, JacobiP, JacobiSN, JacobiSymbol, Join, %
 4727 Label, LaguerreL, Last, LatticeReduce, LCM, LeafCount, LegendreP, %
 4728 LegendreQ, LegendreType, Length, LerchPhi, Less, LessEqual, Level, %
 4729 Lighting, LightSources, Limit, Line, LinearSolve, LineBreak, List, %
 4730 ListContourPlot, ListDensityPlot, ListPlot, ListPlot3D, Literal, Log, %
 4731 LogicalExpand, LogIntegral, MainSolve, Map, MapAll, MapAt, MatchQ, %
 4732 MatrixForm, MatrixQ, Max, MaxBend, MaxMemoryUsed, MemberQ, %
 4733 MemoryConstrained, MemoryInUse, Mesh, Message, MessageName, Messages, %
 4734 Min, Minors, Minus, Mod, Modulus, MoebiusMu, Multinomial, N, NameQ, Names, %
 4735 NBernoulliB, Needs, Negative, Nest, NestList, NIntegrate, %
 4736 NonCommutativeMultiply, NonConstants, NonNegative, Normal, Not, %
 4737 NProduct, NSum, NullSpace, Number, NumberForm, NumberPoint, NumberQ, %
 4738 NumberSeparator, Numerator, O, OddQ, Off, On, OpenAppend, OpenRead, %
 4739 OpenTemporary, OpenWrite, Operate, Optional, Options, Or, Order, %
 4740 OrderedQ, Out, Outer, OutputForm, PageHeight, PageWidth, %
 4741 ParametricPlot, ParametricPlot3D, Part, Partition, PartitionsP, %
 4742 PartitionsQ, Pattern, Permutations, Plot, Plot3D, PlotDivision, %

```

4743 PlotJoined,PlotLabel,PlotPoints,PlotRange,PlotStyle,Pochhammer,%
4744 Plus,Point,PointSize,PolyGamma,Polygon,PolyLog,PolynomialQ,%
4745 PolynomialQuotient,PolynomialRemainder,Position,Positive,Postfix,%
4746 Power,PowerMod,PrecedenceForm,Precision,PreDecrement,Prefix,%
4747 PreIncrement,Prepend,PrependTo,Prime,PrimeQ,Print,PrintForm,%
4748 Product,Protect,PseudoInverse,Put,PutAppend,Quartics,Quit,%
4749 Quotient,Random,Range,Rational,Rationalize,Raw,Re,Read,ReadList,%
4750 Real,Rectangle,Reduce,Remove,RenderAll,Repeated,RepeatedNull,%
4751 Replace,ReplaceAll,ReplaceRepeated,Rest,Resultant,Return,Reverse,%
4752 RGBColor,Roots,RotateLeft,RotateRight,Round,RowReduce,Rule,%
4753 RuleDelayed,Run,RunThrough,SameQ,Save,Scaled,Scan,ScientificForm,%
4754 Sec,Sech,SeedRandom,Select,Sequence,SequenceForm,Series,%
4755 SeriesData,Set,SetAttributes,SetDelayed,SetOptions,Shading,Share,%
4756 Short,Show,Sign,Signature,Simplify,Sin,SingularValues,Sinh,%
4757 Skeleton,Slot,SlotSequence,Solve,SolveAlways,Sort,%
4758 SphericalHarmonicY,Splice,Sqrt,StirlingS1,StirlingS2,String,%
4759 StringBreak,StringForm,StringJoin,StringLength,StringMatchQ,%
4760 StringSkeleton,Subscript,Subscripted,Subtract,SubtractForm,Sum,%
4761 Superscript,SurfaceGraphics,Switch,Symbol,Table,TableForm,TagSet,%
4762 TagSetDelayed,TagUnset,Take,Tan,Tanh,ToString,TensorRank,TeXForm,%
4763 Text,TextForm,Thickness,Thread,Through,Throw,Ticks,%
4764 TimeConstrained,Times,TimesBy,Timing,ToExpression,Together,%
4765 ToRules,ToString,TotalHeight,TotalWidth,Transpose,TreeForm,TrueQ,%
4766 Unequal,Union,Unique,Unprotect,Unset,Update,UpSet,UpSetDelayed,%
4767 ValueQ,Variables,VectorQ,ViewPoint,WeierstrassP,%
4768 WeierstrassPPrime,Which,While,WorkingPrecision,Write,WriteString,%
4769 Xor,ZeroTest,Zeta},%
4770 moreendkeywords={All,Automatic,Catalan,ComplexInfinity,Constant,%
4771 Degree,E,EndOfFile,EulerGamma,False,Flat,GoldenRatio,HoldAll,%
4772 HoldFirst,HoldRest,I,Indeterminate,Infinity,Listable,Locked,%
4773 Modular,None,Null,OneIdentity,Orderless,Pi,Protected,%
4774 ReadProtected,True,$CommandLine,$Context,$ContextPath,$Display,%
4775 $DisplayFunction,$Echo,$Epilog,$IgnoreEOF,$Line,$Messages,%
4776 $Output,$Path,$Post,$Pre,$PrePrint,$RecursionLimit,$System,%
4777 $Urgent,$Version},%
4778 sensitive,%
4779 morecomment=[s]{(*)}{(*)},%
4780 morestring=[d]"%
4781 }[keywords,comments,strings]
4782 </lang1>

```

2.45 Mercury

Dominique de Waleffe mailed me the data and Ralph Becket extended the definition.

```

4783 <lang2>
4784 %%
4785 %% Mercury definition (c) 1997 Dominique de Waleffe

```



```

4786 %% Extended (c) 2001 Ralph Becket
4787 %%
4788 \lst@definelanguage{Mercury}%
4789 {otherkeywords={::,->,<->,--->,:-==,<=>},%
4790 morekeywords={module,include_module,import_module,interface,%
4791 end_module,implementation,mode,is,failure,semidet,nondet,det,%
4792 multi,erroneous,inst,in,out,di,uo,ui,type,typeclass,instance,%
4793 where,with_type,pred,func,lamba,impure,semipure,if,then,else,%
4794 some,all,not,true,fail,pragma,memo,no_inline,inline,loop_check,%
4795 minimal_model,fact_table,type_spec,terminates,does_not_terminate,%
4796 check_termination,promise_only_solution,unsafe_promise_unique,%
4797 source_file,obsolete,import,export,c_header_code,c_code,%
4798 foreign_code,foreign_proc,may_call_mercury,will_not_call_mercury,%
4799 thread_safe,not_thread_safe},%
4800 sensitive=t,%
4801 morecomment=[l]\%,%
4802 morecomment=[s]{/*}{*/},%
4803 morestring=[bd]",%
4804 morestring=[bd]'%
4805 }[keywords,comments,strings]
4806 \end{document}

```

Uwe Siart provided the keywords for a previous version. The current language definition comes from Brooks Moses.

```

4829      odd,or,pair,path,pen,penoffset,picture,point,postcontrol,%
4830      precontrol,redpart,reverse,rotated,round,rt,scaled,shifted,%
4831      sind,slanted,sqrt,str,string,subpath,substring,top,transform,%
4832      transformed,ulcorner,uniformdeviate,unitvector,unknown,%
4833      urcorner,whatever,xpart,xscaled,xxpart,ypart,yscaled,%
4834      yxpart,yypart,zscaled,of,reflectedabout,rotatedaround,ulft,urt,%
4835      llft,lrt,readfrom,write,stroked,filled,textual,clipped,bounded,%
4836      pathpart,penpart,dashpart,textpart,fontpart},%
4837      % keywords[3] = Commands (Table 10)
4838      morekeywords=[3]{addto,clip,cutdraw,draw,drawarrow,drawdblarrow,%
4839      fill,filldraw,interim,let,loggingall,newinternal,pickup,%
4840      save,setbounds,shipout,show,showdependencies,showtoken,%
4841      showvariable,special,tracingall,tracingnone,undraw,unfill,%
4842      unfilldraw,to,also,contour,doublepath,withcolor,withpen,%
4843      dashed,randomseed},%
4844      % keywords[4] = Function-Like Macros (Table 11)
4845      morekeywords=[4]{boxit,boxjoin,bpath,buildcycle,circleit,dashpattern,%
4846      decr,dotlabel,dotlabels,drawboxed,drawboxes,drawoptions,%
4847      drawunboxed,fixpos,fixsize,incr,interpath,label,labels,max,min,pic,%
4848      thelabel,z,image},%
4849      % keywords[5] = Internal and Predefined Variables (Tables 3, 4)
4850      morekeywords=[5]{ahangle,ahlength,bboxmargin,charcode,circmargin,%
4851      day,defaultdx,defaultdy,defaultpen,defaultscale,labeloffset,%
4852      linecap,linejoin,miterlimit,month,pausing,prologues,showstopping,%
4853      time,tracingcapsules,tracingchoices,tracingcommands,%
4854      tracingequations,tracinglostchars,tracingmacros,tracingonline,%
4855      tracingoutput,tracingrestores,tracingspecs,tracingstats,%
4856      tracingtitles,truecorners,warningcheck,year},
4857      morekeywords=[5]{background,currentpen,currentpicture,cuttings,%
4858      defaultfont},%
4859      % keywords[6] = Predefined Constants (Table 5)
4860      morekeywords=[6]{beveled,black,blue,bp,butt,cc,cm,dd,ditto,down,%
4861      epsilon,evenly,false,fullcircle,green,halfcircle,identity,%
4862      in,infinity,left,mitered,mm,nullpicture,origin,pc,pencircle,%
4863      pt,quartercircle,red,right,rounded,squared,true,unitsquare,%
4864      up,white,withdots},
4865      sensitive=false,%
4866      alsoother={0123456789$},%
4867      morecomment=[1]\%,%
4868      morestring=[mf]{input\ },%
4869      morestring=[b]"%
4870      }[keywords,comments,strings,mf]%
4871      /lang3

```

2.47 Miranda

Thanks to Peter Bartke for providing the definition.

```

4872      (*lang2)

```

```

4873 %%
4874 %% Miranda definition (c) 1998 Peter Bartke
4875 %%
4876 %% Miranda: pure lazy functional language with polymorphic type system,
4877 %%          garbage collection and functions as first class citizens
4878 %%
4879 \lst@definlanguage{Miranda}%
4880 {morekeywords={abstype,div,if,mod,otherwise,readvals,show,type,where,%
4881   with,bool,char,num,sys_message,False,True,Appendfile,Closefile,%
4882   Exit,Stderr,Stdout,System,Tofile,\%include,\%export,\%free,%
4883   \%insert,abs,and,arctan,cjustify,code,concat,const,converse,cos,%
4884   decode,digit,drop,dropwhile,entier,error,exp,filemode,filter,%
4885   foldl,foldl1,foldr,foldr1,force,fst,getenv,hd,hugenum,id,index,%
4886   init,integer,iterate,last,lay,laln,letter,limit,lines,ljustify,%
4887   log,log10,map,map2,max,max2,member,merge,min,min2,mkset,neg,%
4888   numval,or,pi,postfix,product,read,rep,repeat,reverse,rjustify,%
4889   scan,seq,showfloat,shownum,showscaled,sin,snd,sort,spaces,sqrt,%
4890   subtract,sum,system,take,takewhile,tinynum,tl,transpose,undef,%
4891   until,zip2,zip3,zip4,zip5,zip6,zip},%
4892   sensitive,%
4893   morecomment=[l]||,%
4894   morestring=[b]"%
4895 }[keywords,comments,strings]
4896 \end{lang2}

```

2.48 Mizar

As you can read below, Adam Grabowski provided this language definition.

```

4897 \begin{lang3}
4898 %%
4899 %% Mizar definition (c) 2003 Adam Grabowski
4900 %%
4901 %% Mizar is freely available at URL www.mizar.org for the Linux x86,
4902 %% Solaris x86, and Windows operating systems.
4903 %%
4904 \lst@definlanguage{Mizar}%
4905 {otherkeywords={->,( \#, \#), . =), \&},%
4906   morekeywords={vocabulary,constructors,$1,$1,$2,$3,$4,$5,$6,$7,$8,%
4907     @proof,according,aggregate,and,antonym,as,associativity,assume,%
4908     asymmetry,attr,be,begin,being,by,canceled,case,cases,cluster,%
4909     clusters,coherence,commutativity,compatibility,connectedness,%
4910     consider,consistency,constructors,contradiction,correctness,def,%
4911     deffunc,define,definition,definitions,defpred,end,environ,equals,%
4912     ex,exactly,existence,for,from,func,given,hence,hereby,holds,%
4913     idempotence,if,iff,implies,involutiveness,irreflexivity,is,it,%
4914     let,means,mode,non,not,notation,now,of,or,otherwise,over,per,%
4915     pred,prefix,projectivity,proof,provided,qua,reconsider,redesign,%
4916     reflexivity,requirements,reserve,scheme,schemes,section,selector,%

```

```

4917      set,st,struct,such,suppose,symmetry,synonym,take,that,the,then,%
4918      theorem,theorems,thesis,thus,to,transitivity,uniqueness,%
4919      vocabulary,where},%
4920      sensitive=t,%
4921      morecomment=[1]::%
4922  }[keywords,comments]%
4923 (/lang3)

```

2.49 ML

Thanks to Torben Hoffmann for providing the definition.

```

4924 (*lang2)
4925 %%
4926 %% ML definition (c) 1999 Torben Hoffmann
4927 %%
4928 \lst@definlanguage{ML}%
4929 {morekeywords={abstype,and,andalso,as,case,do,datatype,else,end,%
4930      eqtype,exception,fn,fun,functor,handle,if,in,include,infix,%
4931      infixr,let,local,nonfix,of,op,open,orelse,raise,rec,sharing,sig,%
4932      signature,struct,structure,then,type,val,with,withtype,while},%
4933      sensitive,%
4934      morecomment=[n]{(*){(*)}},%
4935      morestring=[d]"%
4936  }[keywords,comments,strings]
4937 (/lang2)

```

2.50 Modula-2

Took data from

- NIKLAUS WIRTH: **Programmieren in Modula-2**, Übers. Guido Pfeiffer; 2. Auflage – Berlin; Heidelberg; New York; London; Paris; Tokyo; Hong Kong: Springer, 1991; ISBN 3-540-51689-1.

```

4938 (*lang3)
4939 \lst@definlanguage{Modula-2}%
4940 {morekeywords={AND,ARRAY,BEGIN,BY,CASE,CONST,DIV,DO,ELSE,ELSIF,END,%
4941      EXIT,EXPORT,FOR,FROM,IF,IMPLEMENTATION,IMPORT,IN,MOD,MODULE,NOT,%
4942      OF,OR,POINTER,PROCEDURE,QUALIFIED,RECORD,REPEAT,RETURN,SET,THEN,%
4943      TYPE,UNTIL,VAR,WHILE,WITH,ABS,BITSET,BOOLEAN,CAP,CARDINAL,CHAR,%
4944      CHR,DEC,EXCL,FALSE,FLOAT,HALT,HIGH,INC,INCL,INTEGER,LONGCARD,%
4945      LONGINT,LONGREAL,MAX,MIN,NIL,ODD,ORD,PROC,REAL,SIZE,TRUE,TRUNC,%
4946      VAL,DEFINITION,LOOP},% added keywords due to Peter Bartke 99/07/22
4947      sensitive,%
4948      morecomment=[n]{(*){(*)}},%
4949      morestring=[d]' ,%
4950      morestring=[d]"%
4951  }[keywords,comments,strings]
4952 (/lang3)

```

2.51 MuPAD

This definition was provided by Christopher Creutzig. Again thanks to Ulrike Fischer for pointing to a missing @ in `\lstdefinelanguage`.

```
4953 (*lang3)
4954 \lst@definelanguage{MuPAD}{%
4955     morekeywords={end,next,break,if,then,elif,else,end_if,case,end_case,%
4956         otherwise,for,from,to,step,downto,in,end_for,while,end_while,%
4957         repeat,until,end_repeat,or,and,not,xor,div,mod,union,minus,%
4958         intersect,subset,proc,begin,end_proc,domain,end_domain,category,%
4959         end_category,axiom,end_axiom,quit,delete,frame},%
4960     morekeywords=[2]{NIL,FAIL,TRUE,FALSE,UNKNOWN,I,RD_INF,RD_NINF,%
4961         RD_NAN,name,local,option,save,inherits,of,do},%
4962     otherkeywords={\%if,?,!,:=,<,>,<=,<>,>=,==,<=>,:,.,.,.,-,%
4963         @,@@,\$},%
4964     sensitive=true,%
4965     morecomment=[1]{//},%
4966     morecomment=[n]{/*}{*/},%
4967     morestring=[b]",%
4968     morestring=[d]{'}%
4969 }[keywords,comments,strings]
4970 /lang3)
```

2.52 NASTRAN

```
4971 (*lang3)
```

The definition is from Jeffrey Ratcliffe—except the `MoreSelectCharTable` part which simulates the keyword `BEGIN BULK`.

```
4972 \lst@definelanguage{NASTRAN}
4973 {morekeywords={ENDDATA},%
4974     morecomment=[1]$,%
4975     MoreSelectCharTable=%
4976         \lst@CArgX BEGIN\ BULK\relax\lst@CDef{}%
4977         {\lst@ifmode\else \ifnum\lst@length=\z@
4978             \lst@EnterMode{\lst@GPmode}{\lst@modetrue
4979                 \let\lst@currstyle\lst@gkeywords@sty}%
4980             \fi \fi}%
4981         {\ifnum\lst@mode=\lst@GPmode
4982             \lst@XPrintToken \lst@LeaveMode
4983             \fi}%
4984 }[keywords,comments]%
4985 /lang3)
```

2.53 Oberon-2

```
4986 (*lang3)
```

```
4987 \lst@definelanguage{Oberon-2}%
4988 {morekeywords={ARRAY,BEGIN,BOOLEAN,BY,CASE,CHAR,CONST,DIV,DO,ELSE,%
```

```

4989      ELSIF,END,EXIT,FALSE,FOR,IF,IMPORT,IN,INTEGER,IS,LONGINT,%
4990      LONGREAL,LOOP,MOD,MODULE,NIL,OF,OR,POINTER,PROCEDURE,REAL,RECORD,%
4991      REPEAT,RETURN,SET,SHORTINT,THEN,TO,TRUE,TYPE,UNTIL,VAR,WHILE,%
4992      WITH,ABS,ASH,CAP,CHR,COPY,DEC,ENTIER,EXCL,HALT,INC,INCL,LEN,LONG,%
4993      MAX,MIN,NEW,ODD,ORD,SHORT,SIZE},%
4994      sensitive,%
4995      morecomment=[n]{(*){(*)}},%
4996      morestring=[d] ',%
4997      morestring=[d] "%
4998  }[keywords,comments,strings]
4999 </lang3>

```

2.54 OCL

This definition is based on chapter 7 of the OMG UML standard version 1.3:

- **OMG: OMG Unified Modeling Language Specification;** © 1999 OMG;
Available at <ftp://ftp.omg.org/pub/docs/ad/99-06-08.pdf>.

This language is due to Achim D. Brucker.

```

5000 <*lang3>
5001 %%
5002 %% OCL definition (c) 2000 Achim D. Brucker
5003 %%
5004 %% You are allowed to use, modify and distribute this code either under
5005 %% the terms of the LPPL (version 1.0 or later) or the GPL (version 2.0
5006 %% or later).
5007 %%

```

First we define a very decorative style. In the OMG standard only the boolean (infix (?)) operations are highlighted, but I think all OCL-defined operations should be highlighted, because they are *guaranteed* to be side-effect-free (in OCL only side effect free evaluations or path expressions are allowed).

```

5008 \lst@definlanguage[decorative]{OCL}[OMG]{OCL}
5009   {otherkeywords={@pre},%
5010     moreendkeywords={name,attributes,associations,operations,%
5011       supertypes,allSupertypes,allInstances,oclIsKindOf,oclIsTypeOf,%
5012       oclAsType,oclInState,oclIsNew,evaluationType,abs,floor,round,max,%
5013       min,div,mod,size,concat,toUpper,toLower,substring,includes,%
5014       excludes,count,includesAll,excludesAll,isEmpty,notEmpty,sum,%
5015       exists,forAll,isUnique,sortedBy,iterate,union,intersection,%
5016       including,excluding,symmetricDifference,select,reject,collect,%
5017       asSequence,asBag,asSequence,asSet,append,prepend,subSequence,at,%
5018       first,last,true,false,isQuery}%
5019   }%

```

Remark: "isQuery" is not real OCL, but an important attribute of the underlying UML model.

The dialect called OMG is a very spare version. If you use this variant with bold style for first and second order keywords you get the look and feel of the OMG

standard. First order keywords are the OCL context declarations (see section 7.3 of the OMG standard):

```
5020 \lst@definelanguage[OMG]{OCL}%
5021     {morekeywords={context,pre,inv,post},%
```

Second order keywords are the operation which are defined for type Boolean (see pages 7-34/35 of the OMG standard) and the let-operation (in principle these are the infix operations):

```
5022     ndkeywords={or,xor,and,not,implies,if,then,else,endif},%
```

Third order keywords are the basic data types as declared in section 7.4 of the OMG standard:

```
5023     morekeywords=[3]{Boolean,Integer,Real,String,Set,Sequence,Bag,%
5024         OclType,OclAny,OclExpression,Enumeration,Collection,},%
5025     sensitive=t,%
5026     morecomment=[1]--,%
5027     morestring=[d]’%
5028 }[keywords,comments,strings]
```

After a bug report by Martin Süßkraut `morekeywords` has been changed to the correct optional argument `[3]`.

```
5029 </lang3>
```

2.55 Octave

```
5030 (*lang1)
```

As you can read below the definition is due to Ulrich G. Wortmann. Additions due to Sebastian Schubert.

```
5031 %%
5032 %% Octave definition (c) 2001,2002 Ulrich G. Wortmann
5033 %%
5034 \lst@definelanguage{Octave}%
5035     {morekeywords={gt,lt,amp,abs,acos,acosh,acot,acoth,acsc,acsch,%
5036         all,angle,ans,any,asec,asech,asin,asinh,atan,atan2,atanh,auread,%
5037         auwrite,axes,axis,balance,bar,bessel,besselk,bessely,beta,%
5038         betainc,betaln,blanks,bone,break,brighten,capture,card2pol,%
5039         card2sph,caxis,cd,cdf2rdf,cedit,ceil,chol,cla,clabel,clc,clear,%
5040         clf,clock,close,colmmd,Colon,colorbar,colormap,ColorSpec,colperm,%
5041         comet,comet3,compan,compass,computer,cond,condest,conj,contour,%
5042         contour3,contourc,contrast,conv,conv2,cool,copper,corrcoef,cos,%
5043         cosh,cot,coth,cov,cplxpair,cputime,cross,csc,csch,csread,%
5044         csvwrite,cumprod,cumsum,cylinder,date,dbclean,dbcont,dbdown,%
5045         dbquit,dbstack,dbstatus,dbstep,dbstop,dbtype,dbup,ddead,ddeexec,%
5046         ddeinit,ddepoke,ddereq,ddeterm,ddeunadv,deblank,dec2hex,deconv,%
5047         del2,delete,demo,det,diag,diary,diff,diffuse,dir,disp,dlmread,%
5048         dlmwrite,dmperm,dot,drawnow,echo,eig,ellipj,ellipke,else,elseif,%
5049         end,engClose,engEvalString,engGetFull,engGetMatrix,engOpen,%
5050         engOutputBuffer,engPutFull,engPutMatrix,engSetEvalCallback,%
5051         engSetEvalTimeout,engWinInit,eps,erf,erfc,erfcx,erfinv,%
```

```

5052 errorbar,etime,etree,eval,exist,exp,expint,expm,expo,eye,fclose,%
5053 feather,feof,ferror,feval,fft,fft2,fftshift,fgetl,fgets,figure,%
5054 fill,fill3,filter,filter2,find,findstr,finite,fix,flag,flipr,%
5055 flipud,floor,flops,fmin,fmins,fopen,for,format,fplot,fprintf,%
5056 fread,frewind,fscanf,fseek,ftell,full,function,funm,fwrite,fzero,%
5057 gallery,gamma,gammainc,gammaln,gca,gcd,gcf,gco,get,getenv,%
5058 getframe,ginput,global,gplot,gradient,gray,graymon,grid,griddata,%
5059 gtext,hadamard,hankel,help,hess,hex2dec,hex2num,hidden,hilb,hist,%
5060 hold,home,hostid,hot,hsv,hsv2rgb,if,ifft,ifft2,imag,image,%
5061 imagesc,Inf,info,input,int2str,interp1,interp2,interpft,inv,%
5062 invhilb,isempty,isglobal,ishold,isieee,isinf,isletter,isnan,%
5063 isreal,isspace,issparse,isstr,jet,keyboard,kron,lasterr,lcm,%
5064 legend,legendre,length,lin2mu,line,linspace,load,log,log10,log2,%
5065 loglog,logm,logspace,lookfor,lower,ls,lscov,lu,magic,matClose,%
5066 matDeleteMatrix,matGetDir,matGetFp,matGetFull,matGetMatrix,%
5067 matGetNextMatrix,matGetString,matlabrc,matlabroot,matOpen,%
5068 matPutFull,matPutMatrix,matPutString,max,mean,median,menu,mesh,%
5069 meshc,meshgrid,meshz,mexAtExit,mexCallMATLAB,mexdebug,%
5070 mexErrMsgTxt,mexEvalString,mexFunction,mexGetFull,mexGetMatrix,%
5071 mexGetMatrixPtr,mexPrintf,mexPutFull,mexPutMatrix,mexSetTrapFlag,%
5072 min,more,movie,moviein,mu2lin,mxMalloc,mxCopyCharacterToPtr,%
5073 mxCopyComplex16ToPtr,mxCopyInteger4ToPtr,mxCopyPtrToCharacter,%
5074 mxCopyPtrToComplex16,mxCopyPtrToInteger4,mxCopyPtrToReal8,%
5075 mxCopyReal8ToPtr,mxCreateFull,mxCreateSparse,mxCreateString,%
5076 mxFree,mxFreeMatrix,mxGetIr,mxGetJc,mxGetM,mxGetN,mxGetName,%
5077 mxGetNzmax,mxGetPi,mxGetPr,mxGetScalar,mxGetString,mxIsComplex,%
5078 mxIsFull,mxIsNumeric,mxIsSparse,mxIsString,mxIsTypeDouble,%
5079 mxSetIr,mxSetJc,mxSetM,mxSetN,mxSetName,mxSetNzmax,mxSetPi,%
5080 mxSetPr,mxNaN,nargchk,nargin,nargout,newplot,nextpow2,nnls,nnz,%
5081 nonzeros,norm,normest,null,num2str,nzmax,ode23,ode45,orient,orth,%
5082 pack,pascal,patch,path,pause,pcolor,pi,pink,pinv,plot,plot3,%
5083 pol2cart,polar,poly,polyder,polyeig,polyfit,polyval,polyvalm,%
5084 pow2,print,printopt,prism,prod,pwd,qr,qrdelete,qrinsert,quad,%
5085 quad8,quit,quiver,qz,rand,randn,randperm,rank,rat,rats,rbbox,%
5086 rcond,real,realmax,realmin,refresh,rem,reset,reshape,residue,%
5087 return,rgb2hsv,rgbplot,rootobject,roots,rose,rosser,rot90,rotate,%
5088 round,rref,rrefmovie,rsf2csf,save,saxis,schur,sec,sech,semilogx,%
5089 semilogy,set,setstr,shading,sign,sin,sinh,size,slice,sort,sound,%
5090 spalloc,sparse,spaugment,spconvert,spdiags,specular,speye,spfun,%
5091 sph2cart,sphere,spinmap,spline,spones,spparms,sprandn,sprandsym,%
5092 sprank,sprintf,spy,sqrt,sqrtm,sscanf,stair,stairs,startup,std,stem,%
5093 str2mat,str2num,strcmp,strings,strrep,strtok,subplot,subscribe,%
5094 subspace,sum,surf,surface,surfc,surfl,surfnorm,svd,symbfact,%
5095 symmmd,symrcm,tan,tanh,tempdir,tempname,terminal,text,tic,title,%
5096 toc,toeplitz,trace,trapez,tril,triu,type,uicontrol,uigetfile,%
5097 uimenu,uiputfile,unix,unwrap,upper,vander,ver,version,view,%
5098 viewmtx,waitforbuttonpress,waterfall,wavread,wavwrite,what,%
5099 whatsnew,which,while,white,whitebg,who,whos,wilkinson,wk1read,%
5100 stderr,stdout,plot,set,endif,wk1write,xlabel,xor,ylabel,zeros,%
5101 xlabel,zoom,endwhile,endfunction,printf,case,switch,otherwise,%

```



```

5102     system,lsode,endfor,error,ones,oneplot,__gnuplot_set__,do,until},%
5103     sensitive=t,%
5104     morecomment=[l]\#,%
5105     morecomment=[l]\#\#,%
5106     morecomment=[l]\%,%
5107     morestring=[m] ',%
5108     morestring=[m] "%
5109 }[keywords,comments,strings]
5110 
```

2.56 Oz

```

5111 (*lang2)

```

Thanks to Andres Becerra Sandoval for providing this language definition.

```

5112 %%
5113 %% Oz definition (c) Andres Becerra Sandoval
5114 %%
5115 \lst@definlanguage{Oz}%
5116 {morekeywords={andthen,at,attr,case,catch,choice,class,%
5117     cond,declare,define,dis,div,else,elsecase,%
5118     elseif,end,export,fail,false,feat,finally,%
5119     from,fun,functor,if,import,in,local,%
5120     lock,meth,mod,not,of,or,orelse,%
5121     prepare,proc,prop,raise,require,self,skip,%
5122     then,thread,true,try,unit},%
5123     sensitive=true,%
5124     morecomment=[l]{\%},%
5125     morecomment=[s]{/*}{*/},%
5126     morestring=[b] ",%
5127     morestring=[d] '%
5128 }[keywords,comments,strings]
5129 
```

2.57 Pascal

```

5130 (*lang1)

```

Thanks to Andreas Stephan for reporting non-keywords alpha, byte, pack and unpack.

```

5131 \lst@definlanguage[XSC]{Pascal}[Standard]{Pascal}
5132 {deletekeywords={alfa,byte,pack,unpack},% 1998 Andreas Stephan
5133     morekeywords={dynamic,external,forward,global,module,nil,operator,%
5134     priority,sum,type,use,dispose,mark,page,release,cimatrix,%
5135     cinterval,civector,cmatrix,complex,cvector,dotprecision,imatrix,%
5136     interval,ivector,rmatrix,rvector,string,im,inf,re,sup,chr,comp,%
5137     eof,eoln,expo,image,ival,lb,lbound,length,loc,mant,maxlength,odd,%
5138     ord,pos,pred,round,rval,sign,substring,succ,trunc,ub,ubound}%
5139 }%
5140 \lst@definlanguage[Borland6]{Pascal}[Standard]{Pascal}
5141 {morekeywords={asm,constructor,destructor,implementation,inline,%

```

```

5142     interface,nil,object,shl,shr,string,unit,uses,xor},%
5143     morekeywords={Abs,Addr,ArcTan,Chr,Concat,Copy,Cos,CSeg,DiskFree,%
5144         DiskSize,DosExitCode,DosVersion,DSeg,EnvCount,EnvStr,Eof,Eoln,%
5145         Exp,FExpand,FilePos,FileSize,Frac,FSearch,GetBkColor,GetColor,%
5146         GetDefaultPalette,GetDriverName,GetEnv,GetGraphMode,GetMaxMode,%
5147         GetMaxX,GetMaxY,GetModeName,GetPaletteSize,GetPixel,GetX,GetY,%
5148         GraphErrorMsg,GraphResult,Hi,ImageSize,InstallUserDriver,%
5149         InstallUserFont,Int,IOResult,KeyPressed,Length,Lo,MaxAvail,%
5150         MemAvail,Msdos,Odd,Ofs,Ord,OvrGetBuf,OvrGetRetry,ParamCount,%
5151         ParamStr,Pi,Pos,Pred,Ptr,Random,ReadKey,Round,SeekEof,SeekEoln,%
5152         Seg,SetAspectRatio,Sin,SizeOf,Sound,SPtr,Sqr,Sqrt,SSeg,Succ,%
5153         Swap,TextHeight,TextWidth,Trunc,TypeOf,UpCase,WhereX,WhereY,%
5154         Append,Arc,Assign,AssignCrt,Bar,Bar3D,BlockRead,BlockWrite,ChDir,%
5155         Circle,ClearDevice,ClearViewPort,Close,CloseGraph,ClrEol,ClrScr,%
5156         Dec,Delay,Delete,DelLine,DetectGraph,Dispose,DrawPoly,Ellipse,%
5157         Erase,Exec,Exit,FillChar,FillEllipse,FillPoly,FindFirst,FindNext,%
5158         FloodFill,Flush,FreeMem,FSplit,GetArcCoords,GetAspectRatio,%
5159         GetDate,GetDefaultPalette,GetDir,GetCBreak,GetFAttr,%
5160         GetFillSettings,GetFTime,GetImage,GetIntVec,GetLineSettings,%
5161         GetMem,GetPalette,GetTextSettings,GetTime,GetVerify,%
5162         GetViewSettings,GoToXY,Halt,HighVideo,Inc,InitGraph,Insert,%
5163         InSLine,Intr,Keep,Line,LineRel,LineTo,LowVideo,Mark,MkDir,Move,%
5164         MoveRel,MoveTo,Msdos,New,NormVideo,NoSound,OutText,OutTextXY,%
5165         OvrClearBuf,OvrInit,OvrInitEMS,OvrSetBuf,PackTime,PieSlice,%
5166         PutImage,PutPixel,Randomize,Rectangle,Release,Rename,%
5167         RestoreCrtMode,RmDir,RunError,Sector,Seek,SetActivePage,%
5168         SetAllPalette,SetBkColor,SetCBreak,SetColor,SetDate,SetFAttr,%
5169         SetFillPattern,SetFillStyle,SetFTime,SetGraphBufSize,%
5170         SetGraphMode,SetIntVec,SetLineStyle,SetPalette,SetRGBPalette,%
5171         SetTextBuf,SetTextJustify,SetTextStyle,SetTime,SetUserCharSize,%
5172         SetVerify,SetViewPort,SetVisualPage,SetWriteMode,Sound,Str,%
5173         SwapVectors,TextBackground,TextColor,TextMode,Truncate,%
5174         UnpackTime,Val,Window}%
5175     }%
5176 \lst@definlanguage[Standard]{Pascal}%
5177     {morekeywords={alfa,and,array,begin,boolean,byte,case,char,const,div,%
5178         do,downto,else,end,false,file,for,function,get,goto,if,in,%
5179         integer,label,maxint,mod,new,not,of,or,pack,packed,page,program,%
5180         put,procedure,read,readln,real,record,repeat,reset,rewrite,set,%
5181         text,then,to,true,type,unpack,until,var,while,with,write,%
5182         writeln},%
5183         sensitive=f,%
5184         morecomment=[s]{(*){(*)}},%
5185         morecomment=[s]{\{\}\{\}\},%
5186         morestring=[d]'%
5187     }[keywords,comments,strings]
5188 \end{language}

```

2.58 Perl

I got the data from <http://www.perl.com>. But I wish to thank Herbert Weinhndl for the book 'Learning Perl'.

```
5189 (*lang1)
5190 \lst@definelanguage{Perl}%
5191   {morekeywords={abs,accept,alarm,atan2,bind,binmode,bless,caller,%
5192     chdir,chmod,chomp,chop,chown,chr,chroot,close,closedir,connect,%
5193     continue,cos,crypt,dbmclose,dbmopen,defined,delete,die,do,dump,%
5194     each,else,elsif,endgrent,endhostent,endnetent,endprotoent,%
5195     endpwent,endservent,eof,eval,exec,exists,exit,exp,fcntl,fileno,%
5196     flock,for,foreach,fork,format,formline,getc,getgrent,getgrgid,%
5197     getgrnam,gethostbyaddr,gethostbyname,gethostent,getlogin,%
5198     getnetbyaddr,getnetbyname,getnetent,getpeername,getpgrp,%
5199     getppid,getpriority,getprotobyname,getprotobynumber,getprotoent,%
5200     getpwent,getpwnam,getpwuid,getservbyname,getservbyport,%
5201     getservent,getsockname,getsockopt,glob,gmtime,goto,grep,hex,if,%
5202     import,index,int,iocctl,join,keys,kill,last,lc,lcfirst,length,%
5203     link,listen,local,localtime,log,lstat,m,map,mkdir,msgctl,msgget,%
5204     msgrcv,msgsnd,my,next,no,oct,open,opendir,ord,pack,package,pipe,%
5205     pop,pos,print,printf,prototype,push,q,qq,quotemeta,qw,qx,rand,%
5206     read,readdir,readlink,recv,redo,ref,rename,require,reset,return,%
5207     reverse,rewinddir,rindex,rmdir,s,scalar,seek,seekdir,select,%
5208     semctl,semget,semop,send,setgrent,sethostent,setnetent,setpgrp,%
5209     setpriority,setprotoent,setpwent,setservent,setsockopt,shift,%
5210     shmctl,shmget,shmread,shmwrite,shutdown,sin,sleep,socket,%
5211     socketpair,sort,splice,split,sprintf,sqrt,srand,stat,study,sub,%
5212     substr,symlink,syscall,sysopen,sysread,system,syswrite,tell,%
5213     telldir,tie,tied,time,times,tr,truncate,uc,ucfirst,umask,undef,%
5214     unless,unlink,unpack,unshift,untie,until,use,utime,values,vec,%
5215     wait,waitpid,wantarray,warn,while,write,y},%
5216   sensitive,%
5217   morecomment=[l]\#,%
5218   morestring=[b]",%
5219   morestring=[b]',%
5220   MoreSelectCharTable=%
5221   \lst@ReplaceInput{\$ \#}{\lst@ProcessOther\$ \lst@ProcessOther\#}%
5222 }[keywords,comments,strings]
5223 (/lang1)
```

2.59 PHP

Luca Balzerani sent me this language definition.

```
5224 (*lang2)
5225 %%
5226 %% PHP definition by Luca Balzerani
5227 %%
5228 \lst@definelanguage{PHP}%
```

```

5229 {morekeywords={%
5230 %--- core language
5231 <?,?>,:,:,break,case,continue,default,do,else,%
5232 elseif,for,foreach,if,include,require,phpinfo,%
5233 switch,while,false,FALSE,true,TRUE,%
5234 %--- apache functions
5235 apache_lookup_uri,apache_note,ascii2ebcdic,ebcdic2ascii,%
5236 virtual,apache_child_terminate,apache_setenv,%
5237 %--- array functions
5238 array,array_change_key_case,array_chunk,array_count_values,%
5239 array_filter,array_flip,array_fill,array_intersect,%
5240 array_keys,array_map,array_merge,array_merge_recursive,%
5241 array_pad,array_pop,array_push,array_rand,array_reverse,%
5242 array_shift,array_slice,array_splice,array_sum,array_unique,%
5243 array_values,array_walk,arsort,asort,compact,count,current,each,%
5244 extract,in_array,array_search,key,krsort,ksort,list,natsort,%
5245 next,pos,prev,range,reset,rsort,shuffle,sizeof,sort,uasort,%
5246 usort,%
5247 %--- aspell functions
5248 aspell_new,aspell_check,aspell_check_raw,aspell_suggest,%
5249 %--- bc functions
5250 bcadd,bccomp,bcdiv,bcmul,bcpow,bcscale,bcsqrt,bcsub,%
5251 %--- bzip2 functions
5252 bzclos, bzcompress, bzdecompress, bzerrno, bzerror, bzerrstr,%
5253 bzopen, bzread, bzwrite,%
5254 %--- calendar functions
5255 JDToGregorian, GregorianToJD, JDToJulian, JulianToJD, JDToJewish,%
5256 JDToFrench, FrenchToJD, JDMonthName, JDDayOfWeek, easter_date,%
5257 unixtojd, jdtounix, cal_days_in_month, cal_to_jd, cal_from_jd,%
5258 %--- ccvs functions
5259 ccvs_init, ccvs_done, ccvs_new, ccvs_add, ccvs_delete, ccvs_auth,%
5260 ccvs_reverse, ccvs_sale, ccvs_void, ccvs_status, ccvs_count,%
5261 ccvs_report, ccvs_command, ccvs_textvalue,%
5262 %--- classobj functions
5263 call_user_method, call_user_method_array, class_exists, get_class,%
5264 get_class_vars, get_declared_classes, get_object_vars,%
5265 is_a, is_subclass_of, method_exists,%
5266 %--- com functions
5267 COM, VARIANT, com_load, com_invoke, com_propget, com_get, com_propput,%
5268 com_set, com_addref, com_release, com_isenum, com_load_typelib,%
5269 %--- cpdf functions
5270 cpdf_add_annotation, cpdf_add_outline, cpdf_arc, cpdf_begin_text,%
5271 cpdf_clip, cpdf_close, cpdf_closepath, cpdf_closepath_fill_stroke,%
5272 cpdf_continue_text, cpdf_curveto, cpdf_end_text, cpdf_fill,%
5273 cpdf_finalize, cpdf_finalize_page,%
5274 cpdf_import_jpeg, cpdf_lineto, cpdf_moveto, cpdf_newpath, cpdf_open,%
5275 cpdf_page_init, cpdf_place_inline_image, cpdf_rect, cpdf_restore,%
5276 cpdf_rmoveto, cpdf_rotate, cpdf_rotate_text, cpdf_save,%
5277 cpdf_scale, cpdf_set_char_spacing, cpdf_set_creator,%
5278 cpdf_set_font, cpdf_set_horiz_scaling, cpdf_set_keywords,%

```

```

5279     cpdf_set_page_animation,cpdf_set_subject,cpdf_set_text_matrix,%
5280     cpdf_set_text_rendering,cpdf_set_text_rise,cpdf_set_title,%
5281     cpdf_setdash,cpdf_setflat,cpdf_setgray,cpdf_setgray_fill,%
5282     cpdf_setlinecap,cpdf_setlinejoin,cpdf_setlinewidth,%
5283     cpdf_setrgbcolor,cpdf_setrgbcolor_fill,cpdf_setrgbcolor_stroke,%
5284     cpdf_show_xy,cpdf_stringwidth,cpdf_set_font_directories,%
5285     cpdf_set_viewer_preferences,cpdf_stroke,cpdf_text,%
5286     cpdf_set_action_url,%
5287 %--- crack functions
5288     crack_opendict,crack_closedict,crack_check,crack_getlastmessage,%
5289 %--- ctype functions
5290     ctype_alnum,ctype_alpha,ctype_cntrl,ctype_digit,ctype_lower,%
5291     ctype_print,ctype_punct,ctype_space,ctype_upper,ctype_xdigit,%
5292 %--- curl functions
5293     curl_init,curl_setopt,curl_exec,curl_close,curl_version,%
5294     curl_error,curl_getinfo,%
5295 %--- cybercash functions
5296     cybercash_encr,cybercash_decr,cybercash_base64_encode,%
5297 %--- cybermut functions
5298     cybermut_creerformulairecm,cybermut_testmac,%
5299 %--- cyrus functions
5300     cyrus_connect,cyrus_authenticate,cyrus_bind,cyrus_unbind,%
5301     cyrus_close,%
5302 %--- datetime functions
5303     checkdate,date,getdate,gettimeofday,gmtime,gmmktime,gmstrftime,%
5304     microtime,mktime,strftime,time,strtotime,%
5305 %--- dbase functions
5306     dbase_create,dbase_open,dbase_close,dbase_pack,dbase_add_record,%
5307     dbase_delete_record,dbase_get_record,%
5308     dbase_numfields,dbase_numrecords,%
5309 %--- dba functions
5310     dba_close,dba_delete,dba_exists,dba_fetch,dba_firstkey,%
5311     dba_nextkey,dba_popen,dba_open,dba_optimize,dba_replace,%
5312 %--- dbm functions
5313     dbmopen,dbmclose,dbmexists,dbmfetch,dbminsert,dbmreplace,%
5314     dbmfirstkey,dbmnextkey,dblist,%
5315 %--- dbx functions
5316     dbx_close,dbx_connect,dbx_error,dbx_query,dbx_sort,dbx_compare,%
5317 %--- dio functions
5318     dio_open,dio_read,dio_write,dio_truncate,dio_stat,dio_seek,%
5319     dio_close,%
5320 %--- dir functions
5321     chroot,chdir,dir,closedir,getcwd,opendir,readdir,rewinddir,%
5322 %--- dotnet functions
5323     dotnet_load,%
5324 %--- errorfunc functions
5325     error_log,error_reporting,restore_error_handler,%
5326     trigger_error,user_error,%
5327 %--- exec functions
5328     escapeshellarg,escapeshellcmd,exec,passthru,system,shell_exec,%

```

```

5329 %--- fbsql functions
5330     fbsql_affected_rows,fbsql_autocommit,fbsql_change_user,%
5331     fbsql_commit,fbsql_connect,fbsql_create_db,fbsql_create_blob,%
5332     fbsql_database_password,fbsql_data_seek,fbsql_db_query,%
5333     fbsql_drop_db,fbsql_errno,fbsql_error,fbsql_fetch_array,%
5334     fbsql_fetch_field,fbsql_fetch_lengths,fbsql_fetch_object,%
5335     fbsql_field_flags,fbsql_field_name,fbsql_field_len,%
5336     fbsql_field_table,fbsql_field_type,fbsql_free_result,%
5337     fbsql_list_dbs,fbsql_list_fields,fbsql_list_tables,%
5338     fbsql_num_fields,fbsql_num_rows,fbsql_pconnect,fbsql_query,%
5339     fbsql_read_clob,fbsql_result,fbsql_rollback,fbsql_set_lob_mode,%
5340     fbsql_start_db,fbsql_stop_db,fbsql_tablename,fbsql_warnings,%
5341     fbsql_get_autostart_info,fbsql_hostname,fbsql_password,%
5342     fbsql_username,%
5343 %--- fdf functions
5344     fdf_open,fdf_close,fdf_create,fdf_save,fdf_get_value,%
5345     fdf_next_field_name,fdf_set_ap,fdf_set_status,fdf_get_status,%
5346     fdf_get_file,fdf_set_flags,fdf_set_opt,%
5347     fdf_set_javascript_action,fdf_set_encoding,fdf_add_template,%
5348 %--- filepro functions
5349     filepro,filepro_fieldname,filepro_fielddtype,filepro_fieldwidth,%
5350     filepro_fieldcount,filepro_rowcount,%
5351 %--- filesystem functions
5352     basename,chgrp,chmod,chown,clearstatcache,copy,delete,dirname,%
5353     diskfreespace,disk_total_space,fclose,feof,fflush,fgetc,fgetcsv,%
5354     fgetss,file_get_contents,file,file_exists,fileatime,filetime,%
5355     fileinode,filemtime,fileowner,fileperms,filesize,filetype,flock,%
5356     fopen,fpassthru,fputs,fread,fscanf,fseek,fstat,ftell,ftruncate,%
5357     set_file_buffer,is_dir,is_executable,is_file,is_link,%
5358     is_writable,is_writeable,is_uploaded_file,link,linkinfo,mkdir,%
5359     parse_ini_file,pathinfo,pclose,popen,readfile,readlink,rename,%
5360     rmdir,stat,lstat,realpath,symlink,tempnam,tmpfile,touch,umask,%
5361 %--- fribidi functions
5362     fribidi_log2vis,%
5363 %--- ftp functions
5364     ftp_connect,ftp_login,ftp_pwd,ftp_cdup,ftp_chdir,ftp_mkdir,%
5365     ftp_nlist,ftp_rawlist,ftp_systype,ftp_pasv,ftp_get,ftp_fget,%
5366     ftp_fput,ftp_size,ftp_mdtm,ftp_rename,ftp_delete,ftp_site,%
5367     ftp_quit,ftp_exec,ftp_set_option,ftp_get_option,%
5368 %--- funchand functions
5369     call_user_func_array,call_user_func,create_function,%
5370     func_get_args,func_num_args,function_exists,%
5371     register_shutdown_function,register_tick_function,%
5372 %--- gettext functions
5373     bindtextdomain,bind_textdomain_codeset,dcgettext,dcngettext,%
5374     dngettext,gettext,ngettext,textdomain,%
5375 %--- gmp functions
5376     gmp_init,gmp_intval,gmp_strval,gmp_add,gmp_sub,gmp_mul,%
5377     gmp_div_r,gmp_div_qr,gmp_div,gmp_mod,gmp_divexact,gmp_cmp,%
5378     gmp_com,gmp_abs,gmp_sign,gmp_fact,gmp_sqrt,gmp_sqrtrm,%

```

```

5379     gmp_pow,gmp_powm,gmp_prob_prime,gmp_gcd,gmp_gcdext,gmp_invert,%
5380     gmp_jacobi,gmp_random,gmp_and,gmp_or,gmp_xor,gmp_setbit,%
5381     gmp_scan0,gmp_scan1,gmp_popcount,gmp_hamdist,%
5382 %--- http functions
5383     header,headers_sent,setcookie,%
5384 %--- hw functions
5385     hw_Array2Objrec,hw_Children,hw_ChildrenObj,hw_Close,hw_Connect,%
5386     hw_Deleteobject,hw_DocByAnchor,hw_DocByAnchorObj,%
5387     hw_Document_BodyTag,hw_Document_Content,hw_Document_SetContent,%
5388     hw_ErrorMsg,hw_EditText,hw_Error,hw_Free_Document,hw_GetParents,%
5389     hw_GetChildColl,hw_GetChildCollObj,hw_GetRemote,%
5390     hw_GetSrcByDestObj,hw_GetObject,hw_GetAndLock,hw_GetText,%
5391     hw_GetObjectByQueryObj,hw_GetObjectByQueryColl,%
5392     hw_GetChildDocColl,hw_GetChildDocCollObj,hw_GetAnchors,%
5393     hw_Mv,hw_Identify,hw_InCollections,hw_Info,hw_InsColl,hw_InsDoc,%
5394     hw_InsertObject,hw_mapid,hw_Modifyobject,hw_New_Document,%
5395     hw_Output_Document,hw_pConnect,hw_PipeDocument,hw_Root,%
5396     hw_Who,hw_getusername,hw_stat,hw_setlinkroot,hw_connection_info,%
5397     hw_insertanchors,hw_getrellink,hw_changeobject,%
5398 %--- ibase functions
5399     ibase_connect,ibase_pconnect,ibase_close,ibase_query,%
5400     ibase_fetch_row,ibase_fetch_object,ibase_field_info,%
5401     ibase_free_result,ibase_prepare,ibase_execute,ibase_trans,%
5402     ibase_rollback,ibase_timefmt,ibase_num_fields,ibase_blob_add,%
5403     ibase_blob_close,ibase_blob_create,ibase_blob_echo,%
5404     ibase_blob_import,ibase_blob_info,ibase_blob_open,%
5405 %--- icap functions
5406     icap_open,icap_close,icap_fetch_event,icap_list_events,%
5407     icap_delete_event,icap_snooze,icap_list_alarms,%
5408     icap_rename_calendar,icap_delete_calendar,icap_reopen,%
5409 %--- iconv functions
5410     iconv,iconv_get_encoding,iconv_set_encoding,ob_iconv_handler,%
5411 %--- ifx functions
5412     ifx_connect,ifx_pconnect,ifx_close,ifx_query,ifx_prepare,ifx_do,%
5413     ifx_errormsg,ifx_affected_rows,ifx_getsqlca,ifx_fetch_row,%
5414     ifx_fieldtypes,ifx_fieldproperties,ifx_num_fields,ifx_num_rows,%
5415     ifx_create_char,ifx_free_char,ifx_update_char,ifx_get_char,%
5416     ifx_copy_blob,ifx_free_blob,ifx_get_blob,ifx_update_blob,%
5417     ifx_textasvarchar,ifx_byteasvarchar,ifx_nullformat,%
5418     ifxus_free_slob,ifxus_close_slob,ifxus_open_slob,%
5419     ifxus_seek_slob,ifxus_read_slob,ifxus_write_slob,%
5420 %--- iisfunc functions
5421     iis_get_server_by_path,iis_get_server_by_comment,iis_add_server,%
5422     iis_set_dir_security,iis_get_dir_security,iis_set_server_rights,%
5423     iis_set_script_map,iis_get_script_map,iis_set_app_settings,%
5424     iis_stop_server,iis_stop_service,iis_start_service,%
5425 %--- image functions
5426     exif_imagetype,exif_read_data,exif_thumbnail,getimagesize,%
5427     imagealphablending,imagearc,imagefilledarc,imageellipse,%
5428     imagechar,imagecharup,imagecolorallocate,imagecolordeallocate,%

```

```

5429 imagecolorclosest,imagecolorclosestalpha,imagecolorclosestthwb,%
5430 imagecolorexactalpha,imagecolorresolve,imagecolorresolvealpha,%
5431 imagecolorset,imagecolorsforindex,imagecolorstotal,%
5432 imagecopy,imagecopymerge,imagecopymergegray,imagecopyresized,%
5433 imagecreate,imagecreatetruecolor,imagetruecolortopalette,%
5434 imagecreatefromgd2,imagecreatefromgd2part,imagecreatefromgif,%
5435 imagecreatefrompng,imagecreatefromwbmp,imagecreatefromstring,%
5436 imagecreatefromxpm,imagedashedline,imagedestroy,imagefill,%
5437 imagefilledrectangle,imagefilltoborder,imagefontheight,%
5438 imagegd,imagegd2,imagegif,imagepng,imagejpeg,imagewbmp,%
5439 imageline,imageloadfont,imagepalettecopy,imagepolygon,%
5440 imagepsencodefont,imagepsfreefont,imagepsloadfont,%
5441 imagepsslantfont,imagepstext,imagerectangle,imagesetpixel,%
5442 imagesetstyle,imagesettile,imagesetthickness,imagestring,%
5443 imagesx,imagesy,imageftbbox,imageftbbox,imagefttext,%
5444 imagetypes,jpeg2wbmp,png2wbmp,iptcembed,read_exif_data,%
5445 %--- imap functions
5446 imap_8bit,imap_alerts,imap_append,imap_base64,imap_binary,%
5447 imap_bodystruct,imap_check,imap_clearflag_full,imap_close,%
5448 imap_delete,imap_deletemailbox,imap_errors,imap_expunge,%
5449 imap_fetchbody,imap_fetchheader,imap_fetchstructure,%
5450 imap_getmailboxes,imap_getsubscribed,imap_header,%
5451 imap_headers,imap_last_error,imap_listmailbox,%
5452 imap_mail,imap_mail_compose,imap_mail_copy,imap_mail_move,%
5453 imap_mime_header_decode,imap_msgno,imap_num_msg,imap_num_recent,%
5454 imap_ping,imap_popen,imap_qprint,imap_renamemailbox,imap_reopen,%
5455 imap_rfc822_parse_headers,imap_rfc822_write_address,%
5456 imap_search,imap_setacl,imap_set_quota,imap_setflag_full,%
5457 imap_status,imap_subscribe,imap_uid,imap_undelete,%
5458 imap_utf7_decode,imap_utf7_encode,imap_utf8,imap_thread,%
5459 %--- info functions
5460 assert,assert_options,extension_loaded,dl,getenv,get_cfg_var,%
5461 get_defined_constants,get_extension_funcs,getmygid,%
5462 get_loaded_extensions,get_magic_quotes_gpc,%
5463 getlastmod,getmyinode,getmypid,getmyuid,get_required_files,%
5464 ini_alter,ini_get,ini_get_all,ini_restore,ini_set,phpcredits,%
5465 phpversion,php_logo_guid,php_sapi_name,php_uname,putenv,%
5466 set_time_limit,version_compare,zend_logo_guid,zend_version,%
5467 %--- ircg functions
5468 ircg_pconnect,ircg_fetch_error_msg,ircg_set_current,ircg_join,%
5469 ircg_msg,ircg_notice,ircg_nick,ircg_topic,ircg_channel_mode,%
5470 ircg_whois,ircg_kick,ircg_ignore_add,ircg_ignore_del,%
5471 ircg_is_conn_alive,ircg_lookup_format_messages,%
5472 ircg_set_on_die,ircg_set_file,ircg_get_username,%
5473 ircg_nickname_unescape,%
5474 %--- java functions
5475 java_last_exception_clear,java_last_exception_get,%
5476 %--- ldap functions
5477 ldap_add,ldap_bind,ldap_close,ldap_compare,ldap_connect,%
5478 ldap_delete,ldap_dn2ufn,ldap_err2str,ldap_errno,ldap_error,%

```



```

5479 ldap_first_attribute,ldap_first_entry,ldap_free_result,%
5480 ldap_get_dn,ldap_get_entries,ldap_get_option,ldap_get_values,%
5481 ldap_list,ldap_modify,ldap_mod_add,ldap_mod_del,%
5482 ldap_next_attribute,ldap_next_entry,ldap_read,ldap_rename,%
5483 ldap_set_option,ldap_unbind,ldap_8859_to_t61,%
5484 ldap_next_reference,ldap_parse_reference,ldap_parse_result,%
5485 ldap_sort,ldap_start_tls,ldap_t61_to_8859,%
5486 %--- mail functions
5487 mail,ezmlm_hash,%
5488 %--- math functions
5489 abs,acos,acosh,asin,asinh,atan,atanh,atan2,base_convert,bindec,%
5490 cos,cosh,decbin,dechex,decoct,deg2rad,exp,expm1,floor,%
5491 hexdec,hypot,is_finite,is_infinite,is_nan,lcg_value,log,log10,%
5492 max,min,mt_rand,mt_srand,mt_getrandmax,number_format,octdec,pi,%
5493 rad2deg,rand,round,sin,sinh,sqrt,srand,tan,tanh,%
5494 %--- mbstring functions
5495 mb_language,mb_parse_str,mb_internal_encoding,mb_http_input,%
5496 mb_detect_order,mb_substitute_character,mb_output_handler,%
5497 mb_strlen,mb_strpos,mb_strrpos,mb_substr,mb_strcut,mb_strwidth,%
5498 mb_convert_encoding,mb_detect_encoding,mb_convert_kana,%
5499 mb_decode_mimeheader,mb_convert_variables,%
5500 mb_decode_numericentity,mb_send_mail,mb_get_info,%
5501 mb_ereg,mb_eregi,mb_ereg_replace,mb_eregi_replace,mb_split,%
5502 mb_ereg_search,mb_ereg_search_pos,mb_ereg_search_regs,%
5503 mb_ereg_search_getregs,mb_ereg_search_getpos,%
5504 %--- mcal functions
5505 mcal_open,mcal_popen,mcal_reopen,mcal_close,%
5506 mcal_rename_calendar,mcal_delete_calendar,mcal_fetch_event,%
5507 mcal_append_event,mcal_store_event,mcal_delete_event,%
5508 mcal_list_alarms,mcal_event_init,mcal_event_set_category,%
5509 mcal_event_set_description,mcal_event_set_start,%
5510 mcal_event_set_alarm,mcal_event_set_class,mcal_is_leap_year,%
5511 mcal_date_valid,mcal_time_valid,mcal_day_of_week,%
5512 mcal_date_compare,mcal_next_recurrence,%
5513 mcal_event_set_recur_daily,mcal_event_set_recur_weekly,%
5514 mcal_event_set_recur_monthly_wday,mcal_event_set_recur_yearly,%
5515 mcal_event_add_attribute,mcal_expunge,mcal_week_of_year,%
5516 %--- mcrypt functions
5517 mcrypt_get_cipher_name,mcrypt_get_block_size,%
5518 mcrypt_create_iv,mcrypt_cbc,mcrypt_cfb,mcrypt_ecb,mcrypt_ofb,%
5519 mcrypt_list_modes,mcrypt_get_iv_size,mcrypt_encrypt,%
5520 mcrypt_module_open,mcrypt_module_close,mcrypt_generic_deinit,%
5521 mcrypt_generic,mdecrypt_generic,mcrypt_generic_end,%
5522 mcrypt_enc_is_block_algorithm_mode,%
5523 mcrypt_enc_is_block_mode,mcrypt_enc_get_block_size,%
5524 mcrypt_enc_get_supported_key_sizes,mcrypt_enc_get_iv_size,%
5525 mcrypt_enc_get_modes_name,mcrypt_module_self_test,%
5526 mcrypt_module_is_block_algorithm,mcrypt_module_is_block_mode,%
5527 mcrypt_module_get_algo_key_size,%
5528 %--- mhash functions

```

```

5529     mhash_get_hash_name,mhash_get_block_size,mhash_count,mhash,%
5530 %--- misc functions
5531     connection_aborted,connection_status,connection_timeout,%
5532     define,defined,die,eval,exit,get_browser,highlight_file,%
5533     ignore_user_abort,iptcparse,leak,pack,show_source,sleep,uniqid,%
5534     usleep,%
5535 %--- mnogosearch functions
5536     udm_add_search_limit,udm_alloc_agent,udm_api_version,%
5537     udm_cat_list,udm_clear_search_limits,udm_errno,udm_error,%
5538     udm_free_agent,udm_free_ispell_data,udm_free_res,%
5539     udm_get_res_field,udm_get_res_param,udm_load_ispell_data,%
5540     udm_check_charset,udm_check_stored,udm_close_stored,udm_crc32,%
5541 %--- msession functions
5542     msession_connect,msession_disconnect,msession_count,%
5543     msession_destroy,msession_lock,msession_unlock,msession_set,%
5544     msession_uniq,msession_randstr,msession_find,msession_list,%
5545     msession_set_array,msession_listvar,msession_timeout,%
5546     msession_getdata,msession_setdata,msession_plugin,%
5547 %--- mysql functions
5548     mysql,mysql_affected_rows,mysql_close,mysql_connect,mysql_create_db,%
5549     mysql_data_seek,mysql_dbname,mysql_drop_db,mysql_dropdb,mysql_error,%
5550     mysql_fetch_field,mysql_fetch_object,mysql_fetch_row,%
5551     mysql_field_seek,mysql_fieldtable,mysql_fieldtype,mysql_fieldflags,%
5552     mysql_free_result,mysql_freeresult,mysql_list_fields,%
5553     mysql_list_dbs,mysql_listdbs,mysql_list_tables,mysql_listtables,%
5554     mysql_num_rows,mysql_numfields,mysql_numrows,mysql_pconnect,%
5555     mysql_regcase,mysql_result,mysql_select_db,mysql_selectdb,%
5556 %--- mssql functions
5557     mssql_close,mssql_connect,mssql_data_seek,mssql_fetch_array,%
5558     mssql_fetch_object,mssql_fetch_row,mssql_field_length,%
5559     mssql_field_seek,mssql_field_type,mssql_free_result,%
5560     mssql_min_error_severity,mssql_min_message_severity,%
5561     mssql_num_fields,mssql_num_rows,mssql_pconnect,mssql_query,%
5562     mssql_select_db,mssql_bind,mssql_execute,mssql_fetch_assoc,%
5563     mssql_guid_string,mssql_init,mssql_rows_affected,%
5564 %--- muscat functions
5565     muscat_setup,muscat_setup_net,muscat_give,muscat_get,%
5566 %--- mysql functions
5567     mysql_affected_rows,mysql_change_user,mysql_character_set_name,%
5568     mysql_connect,mysql_create_db,mysql_data_seek,mysql_db_name,%
5569     mysql_drop_db,mysql_errno,mysql_error,mysql_escape_string,%
5570     mysql_fetch_assoc,mysql_fetch_field,mysql_fetch_lengths,%
5571     mysql_fetch_row,mysql_field_flags,mysql_field_name,%
5572     mysql_field_seek,mysql_field_table,mysql_field_type,%
5573     mysql_info,mysql_insert_id,mysql_list_dbs,mysql_list_fields,%
5574     mysql_list_tables,mysql_num_fields,mysql_num_rows,%
5575     mysql_ping,mysql_query,mysql_unbuffered_query,%
5576     mysql_result,mysql_select_db,mysql_tablename,mysql_thread_id,%
5577     mysql_get_host_info,mysql_get_proto_info,mysql_get_server_info,%
5578 %--- network functions

```

```

5579     checkdnsrr,closelog,debugger_off,debugger_on,%
5580     fsockopen,gethostbyaddr,gethostbyname,gethostbyname1,getmxrr,%
5581     getprotobynumber,getservbyname,getservbyport,ip2long,long2ip,%
5582     pfsockopen,socket_get_status,socket_set_blocking,%
5583     syslog,%
5584 %--- nis functions
5585     yp_get_default_domain,yp_order,yp_master,yp_match,yp_first,%
5586     yp_errno,yp_err_string,yp_all,yp_cat,%
5587 %--- oci8 functions
5588     OCIDefineByName,OCIBindByName,OCILogon,OCIPLogon,OCINLogon,%
5589     OCIExecute,OCICommit,OCIRollback,OCINewDescriptor,OCIRowCount,%
5590     OCIResult,OCIFetch,OCIFetchInto,OCIFetchStatement,%
5591     OCIColumnName,OCIColumnSize,OCIColumnType,OCIServerVersion,%
5592     OCINewCursor,OCIFreeStatement,OCIFreeCursor,OCIFreeDesc,%
5593     OCIError,OCIInternalDebug,OCICancel,OCISetPrefetch,%
5594     OCISaveLobFile,OCISaveLob,OCILoadLob,OCIColumnScale,%
5595     OCIColumnTypeRaw,OCINewCollection,OCIFreeCollection,%
5596     OCICollAppend,OCICollAssignElem,OCICollGetElem,OCICollMax,%
5597     OCICollTrim,%
5598 %--- oracle functions
5599     Ora_Bind,Ora_Close,Ora_ColumnName,Ora_ColumnSize,Ora_ColumnType,%
5600     Ora_CommitOff,Ora_CommitOn,Ora_Do,Ora_Error,Ora_ErrorCode,%
5601     Ora_Fetch,Ora_Fetch_Into,Ora_GetColumn,Ora_Logoff,Ora_Logon,%
5602     Ora_Numcols,Ora_Numrows,Ora_Open,Ora_Parse,Ora_Rollback,%
5603 %--- outcontrol functions
5604     flush,ob_start,ob_get_contents,ob_get_length,ob_get_level,%
5605     ob_flush,ob_clean,ob_end_flush,ob_end_clean,ob_implicit_flush,%
5606 %--- ovrimos functions
5607     ovrimos_connect,ovrimos_close,ovrimos_longreadlen,%
5608     ovrimos_execute,ovrimos_cursor,ovrimos_exec,ovrimos_fetch_into,%
5609     ovrimos_result,ovrimos_result_all,ovrimos_num_rows,%
5610     ovrimos_field_name,ovrimos_field_type,ovrimos_field_len,%
5611     ovrimos_free_result,ovrimos_commit,ovrimos_rollback,%
5612 %--- pcntl functions
5613     pcntl_fork,pcntl_signal,pcntl_waitpid,pcntl_wexitstatus,%
5614     pcntl_wifsignaled,pcntl_wifstopped,pcntl_wstopsig,%
5615     pcntl_exec,%
5616 %--- pcre functions
5617     preg_match,preg_match_all,preg_replace,preg_replace_callback,%
5618     preg_quote,preg_grep,Pattern Modifiers,Pattern Syntax,%
5619 %--- pdf functions
5620     pdf_add_annotation,pdf_add_bookmark,pdf_add_launchlink,%
5621     pdf_add_note,pdf_add_outline,pdf_add_pdflink,pdf_add_thumbnail,%
5622     pdf_arc,pdf_arcn,pdf_attach_file,pdf_begin_page,%
5623     pdf_begin_template,pdf_circle,pdf_clip,pdf_close,pdf_closepath,%
5624     pdf_closepath_stroke,pdf_close_image,pdf_close_pdi,%
5625     pdf_concat,pdf_continue_text,pdf_curveto,pdf_delete,%
5626     pdf_endpath,pdf_end_pattern,pdf_end_template,pdf_fill,%
5627     pdf_findfont,pdf_get_buffer,pdf_get_font,pdf_get_fontname,%
5628     pdf_get_image_height,pdf_get_image_width,pdf_get_parameter,%

```

```

5629 pdf_get_pdi_value,pdf_get_majorversion,pdf_get_minorversion,%
5630 pdf_initgraphics,pdf_lineto,pdf_makespotcolor,pdf_moveto,%
5631 pdf_open,pdf_open_CCITT,pdf_open_file,pdf_open_gif,%
5632 pdf_open_image_file,pdf_open_jpeg,pdf_open_memory_image,%
5633 pdf_open_pdi_page,pdf_open_png,pdf_open_tiff,pdf_place_image,%
5634 pdf_rect,pdf_restore,pdf_rotate,pdf_save,pdf_scale,pdf_setcolor,%
5635 pdf_setflat,pdf_setfont,pdf_setgray,pdf_setgray_fill,%
5636 pdf_setlinecap,pdf_setlinejoin,pdf_setlinewidth,pdf_setmatrix,%
5637 pdf_setpolydash,pdf_setrgbcolor,pdf_setrgbcolor_fill,%
5638 pdf_set_border_color,pdf_set_border_dash,pdf_set_border_style,%
5639 pdf_set_duration,pdf_set_font,pdf_set_horiz_scaling,%
5640 pdf_set_info_author,pdf_set_info_creator,pdf_set_info_keywords,%
5641 pdf_set_info_title,pdf_set_leading,pdf_set_parameter,%
5642 pdf_set_text_rendering,pdf_set_text_rise,pdf_set_text_matrix,%
5643 pdf_set_word_spacing,pdf_show,pdf_show_boxed,pdf_show_xy,%
5644 pdf_stringwidth,pdf_stroke,pdf_translate,%
5645 %--- pfp functions
5646 pfp_init,pfp_cleanup,pfp_process,pfp_process_raw,%
5647 %--- pgsql functions
5648 pg_close,pg_affected_rows,pg_connect,pg_dbname,pg_end_copy,%
5649 pg_query,pg_fetch_array,pg_fetch_object,pg_fetch_row,%
5650 pg_field_name,pg_field_num,pg_field_prtlen,pg_field_size,%
5651 pg_free_result,pg_last_oid,pg_host,pg_last_notice,pg_lo_close,%
5652 pg_lo_export,pg_lo_import,pg_lo_open,pg_lo_read,pg_lo_seek,%
5653 pg_lo_read_all,pg_lo_unlink,pg_lo_write,pg_num_fields,%
5654 pg_options,pg_pconnect,pg_port,pg_put_line,pg_fetch_result,%
5655 pg_client_encoding,pg_trace,pg_tty,pg_untrace,pg_get_result,%
5656 pg_send_query,pg_cancel_query,pg_connection_busy,%
5657 pg_connection_status,pg_copy_from,pg_copy_to,pg_escape_bytea,%
5658 pg_result_error,%
5659 %--- posix functions
5660 posix_kill,posix_getpid,posix_getppid,posix_getuid,%
5661 posix_getgid,posix_getegid,posix_setuid,posix_seteuid,%
5662 posix_setegid,posix_getgroups,posix_getlogin,posix_getpgrp,%
5663 posix_setpgid,posix_getpgid,posix_getsid,posix_uname,%
5664 posix_ctermid,posix_ttyname,posix_isatty,posix_getcwd,%
5665 posix_getgrnam,posix_getgrgid,posix_getpwnam,posix_getpwuid,%
5666 %--- printer functions
5667 printer_open,printer_abort,printer_close,printer_write,%
5668 printer_set_option,printer_get_option,printer_create_dc,%
5669 printer_start_doc,printer_end_doc,printer_start_page,%
5670 printer_create_pen,printer_delete_pen,printer_select_pen,%
5671 printer_delete_brush,printer_select_brush,printer_create_font,%
5672 printer_select_font,printer_logical_fontheight,%
5673 printer_draw_rectangle,printer_draw_ellipse,printer_draw_text,%
5674 printer_draw_chord,printer_draw_pie,printer_draw_bmp,%
5675 %--- pspell functions
5676 pspell_add_to_personal,pspell_add_to_session,pspell_check,%
5677 pspell_config_create,pspell_config_ignore,pspell_config_mode,%
5678 pspell_config_repl,pspell_config_runtogether,%

```

```

5679     pspell_new,pspell_new_config,pspell_new_personal,%
5680     pspell_store_replacement,pspell_suggest,%
5681 %--- qtdom functions
5682     qdom_tree,qdom_error,%
5683 %--- readline functions
5684     readline,readline_add_history,readline_clear_history,%
5685     readline_info,readline_list_history,readline_read_history,%
5686 %--- recode functions
5687     recode_string,recode,recode_file,%
5688 %--- regex functions
5689     ereg,ereg_replace,eregi,eregi_replace,split,spliti,sql_regcase,%
5690 %--- sem functions
5691     sem_get,sem_acquire,sem_release,sem_remove,shm_attach,%
5692     shm_remove,shm_put_var,shm_get_var,shm_remove_var,ftok,%
5693 %--- sesam functions
5694     sesam_connect,sesam_disconnect,sesam_settransaction,%
5695     sesam_rollback,sesam_execimm,sesam_query,sesam_num_fields,%
5696     sesam_diagnostic,sesam_fetch_result,sesam_affected_rows,%
5697     sesam_field_array,sesam_fetch_row,sesam_fetch_array,%
5698     sesam_free_result,%
5699 %--- session functions
5700     session_start,session_destroy,session_name,session_module_name,%
5701     session_id,session_register,session_unregister,session_unset,%
5702     session_get_cookie_params,session_set_cookie_params,%
5703     session_encode,session_set_save_handler,session_cache_limiter,%
5704     session_write_close,%
5705 %--- shmop functions
5706     shmop_open,shmop_read,shmop_write,shmop_size,shmop_delete,%
5707 %--- snmp functions
5708     snmpget,snmpset,snmpwalk,snmpwalkoid,snmp_get_quick_print,%
5709     snmprealwalk,%
5710 %--- strings functions
5711     addcslashes,addslashes,bin2hex,chop,chr,chunk_split,%
5712     count_chars,crc32,crypt,echo,explode,get_html_translation_table,%
5713     hebrew,hebrevc,htmlentities,htmlspecialchars,implode,join,%
5714     localeconv,ltrim,md5,md5_file,metaphone,nl_langinfo,nl2br,ord,%
5715     print,printf,quoted_printable_decode,quotemeta,str_rot13,rtrim,%
5716     setlocale,similar_text,soundex,sprintf,strcasecmp,strcmp,%
5717     strcmp,strcmp,strcmp,strip_tags,stripclashes,stripslashes,%
5718     strlen,strnatcmp,strnatcasecmp,strcmp,str_pad,strpos,strcmp,%
5719     strcmp,strcmp,strcmp,strcmp,strcmp,strcmp,strcmp,strcmp,%
5720     strcmp,strcmp,strcmp,strcmp,strcmp,strcmp,strcmp,strcmp,%
5721     strcmp,strcmp,strcmp,strcmp,strcmp,strcmp,strcmp,strcmp,%
5722 %--- swf functions
5723     swf_openfile,swf_closefile,swf_labelframe,swf_showframe,%
5724     swf_getframe,swf_mulcolor,swf_addcolor,swf_placeobject,%
5725     swf_removeobject,swf_nextid,swf_startdoaction,%
5726     swf_actiongeturl,swf_actionnextframe,swf_actionprevframe,%
5727     swf_actionstop,swf_actiontogglequality,swf_actionwaitforframe,%
5728     swf_actiongotolabel,swf_enddoaction,swf_defineline,%

```

```

5729     swf_definepoly,swf_startshape,swf_shapelinesolid,%
5730     swf_shapefillsolid,swf_shapefillbitmapclip,%
5731     swf_shapemoveto,swf_shapelineto,swf_shapecurveto,%
5732     swf_shapearc,swf_endshape,swf_definefont,swf_setfont,%
5733     swf_fontslant,swf_fonttracking,swf_getfontinfo,swf_definetext,%
5734     swf_definebitmap,swf_getbitmapinfo,swf_startsymbol,%
5735     swf_startbutton,swf_addbuttonrecord,swf_oncondition,%
5736     swf_viewport,swf_ortho,swf_ortho2,swf_perspective,swf_polarview,%
5737     swf_pushmatrix,swf_popmatrix,swf_scale,swf_translate,swf_rotate,%
5738 %--- sybase functions
5739     sybase_affected_rows,sybase_close,sybase_connect,%
5740     sybase_fetch_array,sybase_fetch_field,sybase_fetch_object,%
5741     sybase_field_seek,sybase_free_result,sybase_get_last_message,%
5742     sybase_min_error_severity,sybase_min_message_severity,%
5743     sybase_num_fields,sybase_num_rows,sybase_pconnect,sybase_query,%
5744     sybase_select_db,%
5745 %--- uodbc functions
5746     odbc_autocommit,odbc_binmode,odbc_close,odbc_close_all,%
5747     odbc_connect,odbc_cursor,odbc_do,odbc_error,odbc_errormsg,%
5748     odbc_execute,odbc_fetch_into,odbc_fetch_row,odbc_fetch_array,%
5749     odbc_fetch_object,odbc_field_name,odbc_field_num,%
5750     odbc_field_len,odbc_field_precision,odbc_field_scale,%
5751     odbc_longreadlen,odbc_num_fields,odbc_pconnect,odbc_prepare,%
5752     odbc_result,odbc_result_all,odbc_rollback,odbc_setoption,%
5753     odbc_tableprivileges,odbc_columns,odbc_columnprivileges,%
5754     odbc_primarykeys,odbc_foreignkeys,odbc_procedures,%
5755     odbc_specialcolumns,odbc_statistics,%
5756 %--- url functions
5757     base64_decode,base64_encode,parse_url,rawurldecode,rawurlencode,%
5758     urlencode,%
5759 %--- var functions
5760     doubleval,empty,floatval,gettype,get_defined_vars,%
5761     import_request_variables,intval,is_array,is_bool,is_double,%
5762     is_int,is_integer,is_long,is_null,is_numeric,is_object,is_real,%
5763     is_scalar,is_string,isset,print_r,serialize,unset,%
5764     unset,var_dump,var_export,is_callable,%
5765 %--- vpopmail functions
5766     vpopmail_add_domain,vpopmail_del_domain,%
5767     vpopmail_add_domain_ex,vpopmail_del_domain_ex,%
5768     vpopmail_add_user,vpopmail_del_user,vpopmail_passwd,%
5769     vpopmail_auth_user,vpopmail_alias_add,vpopmail_alias_del,%
5770     vpopmail_alias_get,vpopmail_alias_get_all,vpopmail_error,%
5771 %--- w32api functions
5772     w32api_set_call_method,w32api_register_function,%
5773     w32api_deftype,w32api_init_dtype,%
5774 %--- wddx functions
5775     wddx_serialize_value,wddx_serialize_vars,wddx_packet_start,%
5776     wddx_add_vars,wddx_deserialize,%
5777 %--- xml functions
5778     xml_parser_create,xml_set_object,xml_set_element_handler,%

```

```

5779     xml_set_processing_instruction_handler,xml_set_default_handler,%
5780     xml_set_notation_decl_handler,%
5781     xml_parse,xml_get_error_code,xml_error_string,%
5782     xml_get_current_column_number,xml_get_current_byte_index,%
5783     xml_parser_free,xml_parser_set_option,xml_parser_get_option,%
5784     utf8_encode,xml_parser_create_ns,%
5785     xml_set_start_namespace_decl_handler,%
5786 %--- xslt functions
5787     xslt_set_log,xslt_create,xslt_errno,xslt_error,xslt_free,%
5788     xslt_set_sax_handler,xslt_set_scheme_handler,%
5789     xslt_set_base,xslt_set_encoding,xslt_set_sax_handlers,%
5790 %--- yaz functions
5791     yaz_addinfo,yaz_close,yaz_connect,yaz_errno,yaz_error,yaz_hits,%
5792     yaz_database,yaz_range,yaz_record,yaz_search,yaz_present,%
5793     yaz_scan,yaz_scan_result,yaz_ccl_conf,yaz_ccl_parse,%
5794     yaz_wait,yaz_sort,%
5795 %--- zip functions
5796     zip_close,zip_entry_close,zip_entry_compressedsize,%
5797     zip_entry_filesize,zip_entry_name,zip_entry_open,zip_entry_read,%
5798     zip_read,%
5799 %--- zlib functions
5800     gzclose,gzEOF,gzfile,gzgetc,gzgets,gzgetss,gzopen,gzpassthru,%
5801     gzread,gzrewind,gzseek,gztell,gzwrite,readgzfile,gzcompress,%
5802     gzdeflate,gzinflate,gzencode,},%
5803     sensitive,%
5804     morecomment=[l]\#,%
5805     morecomment=[l]//,%
5806     morecomment=[s]{/*}{*/},%
5807     morestring=[b]" ,%
5808     morestring=[b]' %
5809 } [keywords,comments,strings]
5810 (/lang2)

```

2.60 Plasm

Alessio Pace provided the following definition.

```

5811 (*lang3)
5812 \lstdefinlanguage{Plasm}%
5813 {sensitive=false,%
5814     morekeywords={aa,abs,ac,acolor,acos,actor,al,alias,align,and,%
5815         animation,animation,appearance,apply,ar,arc,as,asin,assoc,atan,%
5816         axialcamera,axialcameras,basehermite,bbox,bbox,bernstein,%
5817         bernsteinbasis,bezier,beziercurve,beziermanifold,bezierstripe,%
5818         beziersurface,bigger,biggest,bilinearsurface,binormal,%
5819         biquadraticsurface,black,blend,blue,bottom,box,brown,bspize,%
5820         bspline,bsplinebasis,c,cabinet,camera,car,cart,case,cat,catch,ceil,%
5821         centeredcameras,centralcavalier,char,charseq,choose,circle,%
5822         circumference,class,cmap,color,comp,computecoords,cone,%

```

5823 conicalsurface, cons, control, convexcoords, convexhull, coonspatch, %
5824 copy, cos, cosh, crease, crosspolytope, cube, cubiccircular, %
5825 cubiccircularbasis, cubichermite, cubicbspline, cubicbsplinebasis, %
5826 cuboid, curl, curvature, curve2ccpath, curve2mapvect, cyan, cylinder, %
5827 cylindricalsurface, d, deboo, def, depol, depth_sort, depth_test, %
5828 derbernstein, derbernsteinbase, derbezier, determinant, difference, %
5829 differencepr, dim, dimetric, dirproject, displaygraph, displaynubspline, %
5830 displaynurbbspline, distl, distr, div, divergence, dodecahedron, dot, down, %
5831 dp, drawedges, drawforks, drawtree, ds, dsphere, dump, dumprep, ellipse, %
5832 embed, end, eq, ex, exp, explode, export, extract_bodies, extract_polygons, %
5833 extract_wires, extrude, extrusion, fact, false, feature, ff, fillcolor, %
5834 filter, finitecone, first, flash, flashani, floor, fontcolor, fontheight, %
5835 fontspacing, fontwidth, fractalsimplex, frame, frame, frameflash, fromto, %
5836 gausscurvature, ge, grad, gradient, gradmap, gray, green, gt, help, hermite, %
5837 hermitebasis, hermitesurface, hexahedron, icosahedron, id, idnt, if, in, %
5838 inarcs, innerprod, inset, insl, insr, intersection, intersectionpr, %
5839 intervals, intmax, intmin, intsto, inv, isa, isanimpol, isbool, ischar, %
5840 isclosedshape, iscloseto, isempty, iseven, isfun, isfunvect, isge, isgt, %
5841 isint, isintneg, isinto, isintpos, isle, islt, ismat, ismatof, isnat, %
5842 isnull, isnum, isnumneg, isnumpos, isodd, isometric, isorthoshape, ispair, %
5843 ispoint, ispointseq, ispol, ispolldim, ispolytope, ispurepol, isreal, %
5844 isrealneg, isrealpos, isrealvect, isseq, isseqof, isshape, issimplex, %
5845 issqmat, isstring, isvect, iszero, jacobian, join, joints, k, last, le, %
5846 left, leftcavalier, len, less, lesseq, lex, lift, light, linecolor, %
5847 linesize, list, ln, load, loadlib, loop, lt, lxmy, magenta, map, mapshapes, %
5848 markersize, mat, matdotprod, material, mathom, max, mean, meanpoint, med, %
5849 merge, mesh, min, minkowski, mirror, mixedprod, mk, mkframe, mkpol, %
5850 mkvector, mkversork, mod, model, move, mul, multextrude, mxby, mxmy, mxt, %
5851 myfont, n, nat2string, neq, ngon, norm2, normalmap, not, nu_grid, nubspline, %
5852 nubsplineknots, nurbbspline, nurbbsplineknots, octahedron, offset, %
5853 onepoint, open, optimize, or, orange, ord, ortho, orthoproject, orthox, %
5854 orthoy, orthoz, outarcs, outerloop, outerwarp, pairdiff, parallel, %
5855 pascaltriangle, pdiff, pdifference, permutahedron, permutations, %
5856 perspective, perspective, pi, pivotop, plane, planemapping, pmap, %
5857 points2shape, polar, polyline, polymarker, polypoint, power, powerset, %
5858 presort, principalnormal, print, prism, profileprodsurface, %
5859 progressivesum, project, projection, purple, pyramid, q, quadarray, %
5860 quadmesh, quote, r, raise, range, rationalbezier, rationalblend, %
5861 rationalbspline, rationalize, red, rev, reverse, rgbacolor, right, %
5862 rightcavalier, ring, rn, rotatedtext, rotationalsurface, rotn, rtail, %
5863 ruledsurface, rxmy, s, save, scalarmatprod, scalarvectprod, schlegel2d, %
5864 schlegel3d, sdifference, sdifferencepr, segment, sel, setand, setdiff, %
5865 setfontcolor, setor, setxor, sex, shape_0, shape_1, shape2points, %
5866 shape2pol, shapeclosed, shapecomb, shapediff, shapedist, %
5867 shapeinbetweening, shapeinf, shapejoin, shapelen, shapenorm, %
5868 shapenormal, shapeprod, shaperot, shapesum, shapesup, shapezero, shift, %
5869 showprop, sign, signal, simplex, simplexpile, sin, sinh, size, skeleton, %
5870 skew, smaller, smallest, solidifier, solidify, sort, sphere, spline, %
5871 splinesampling, splitcells, splitpols, sqr, sqrt, star, string, %
5872 stringtokens, struct, sub, svg, sweep, t, tail, tan, tangent, tanh, %


```

5873     tensorprodsurface,tetrahedron,text,texture,textwithattributes,%
5874     thinsolid,threepoints,time,tmax,tmin,top,torus,torusmap,trace,%
5875     trans,tree,trianglefan,trianglestripe,trimetric,true,trunccone,tt,%
5876     tube,twopoints,uk,ukpol,ukpolf,union,unionpr,unitvect,unprune,up,%
5877     vect2dtoangle,vect2mat,vectdiff,vectnorm,vectprod,vectsum,view,%
5878     viewmodel,viewmodel,vrml,warp,warp,where,white,with,xcavalier,xor,%
5879     xquadarray,xx,ycavalier,yellow},%
5880     moredirectives={loadlib},%
5881     otherkeywords={-,+,*,**,/,~,|,...,^,\&,\&\&,\#,\#\#},%
5882     morecomment=[s]{\%}{\%},%
5883     morestring=[b] ',%
5884     literate={~}{\sim$}{1} {^}{\wedge$}{1},%
5885     }[keywords,directives,comments,strings]
5886 </lang3>

```

2.61 PL/I

Found the data in

- BERNHARD FISCHER, HERMAN FISCHER: **Structured Programming in PL/I and PL/C**; Copyright © 1976 by Marcel Dekker, Inc.; ISBN 0-8247-6394-7

```

5887 <*lang3>
5888 \lst@definelanguage{PL/I}{%
5889     morekeywords={ABS, ATAN, AUTOMATIC, AUTO, ATAND, BEGIN, BINARY, BIN, BIT,%
5890     BUILTIN, BY, CALL, CHARACTER, CHAR, CHECK, COLUMN, COL, COMPLEX, CPLX,%
5891     COPY, COS, COSD, COSH, DATA, DATE, DECIMAL, DEC, DECLARE, DCL, DO,%
5892     EDIT, ELSE, END, ENDFILE, ENDPAGE, ENTRY, EXP, EXTERNAL, EXT, FINISH,%
5893     FIXED, FIXEDOVERFLOW, FOFL, FLOAT, FORMAT, GET, GO, GOTO, IF, IMAG,%
5894     INDEX, INITIAL, INIT, INTERNAL, INT, LABEL, LENGTH, LIKE, LINE, LIST,%
5895     LOG, LOG2, LOG10, MAIN, MAX, MIN, MOD, NOCHECK, NOFIXEDOVERFLOW,%
5896     NOFOFL, NOOVERFLOW, NOOFL, NOSIZE, NOUNDERFLOW, NOUFL, NOZERODIVIDE,%
5897     NOZDIV, ON, OPTIONS, OVERFLOW, OFL, PAGE, PICTURE, PROCEDURE, PROC,%
5898     PUT, READ, REPEAT, RETURN, RETURNS, ROUND, SIN, SIND, SINH, SIZE, SKIP,%
5899     SQRT, STATIC, STOP, STRING, SUBSTR, SUM, SYSIN, SYSPRINT, TAN, TAND,%
5900     TANH, THEN, TO, UNDERFLOW, UFL, VARYING, WHILE, WRITE, ZERODIVIDE,%
5901     ZDIV},%
5902     sensitive=f,%
5903     morecomment=[s]{/*}{*/},%
5904     morestring=[d] '%
5905 }[keywords,comments,strings]
5906 </lang3>

```

2.62 PostScript

Herbert Voss provided the following definition, written by Christophe Jorssen provided the following definition.

```

5907 <*lang3>

```

```

5908 %%
5909 %% PostScript language definition (c) 2005 Christophe Jorssen.
5910 %%
5911 \lst@definelanguage{PostScript}{%
5912   morekeywords={abs, add, aload, anchorsearch, and, arc, arcn, arct, arcto,%
5913     array, ashow, astore, atan, awidthshow, begin, bind, bitshift,%
5914     bytesavailable, cachestatus, ceiling, charpath, clear, cleartomark,%
5915     cleardictstack, clip, clippath, closefile, closepath, colorimage,%
5916     concat, concatmatrix, condition, copy, cypage, cos, count,%
5917     countdictstack, countexecstack, counttomark, cshow,%
5918     currentblackgeneration, currentcacheparams, currentcmykcolor,%
5919     currentcolor, currentcolorrendering, currentcolorscreen,%
5920     currentcolorspace, currentcolortransfer, currentcontext, currentdash,%
5921     currentdevparams, currentdict, currentfile, currentflat, currentfont,%
5922     currentglobal, currentgray, currentgstate, currenthalftone,%
5923     currenthalftonephase, currenthsbcolor, currentlinecap, currentlinejoin,%
5924     currentlinewidth, currentmatrix, currentmiterlimit,%
5925     currentobjectformat, currentpacking, currentpagedevice, currentpoint,%
5926     currentrgbcolor, currentscreen, currentshared, currentstrokeadjust,%
5927     currentsystemparams, currentttransfer, currentundercolorremoval,%
5928     currentuserparams, curveto, cvi, cvlit, cvn, cvr, cvrs, cvs, cvx, def,%
5929     defaultmatrix, definefont, defineresource, defineusername,%
5930     defineuserobject, deletefile, detach, deviceinfo, dict, dictstack, div,%
5931     dtransform, dup, echo, eexec, end, eoclip, eofill, eoviewclip, eq,%
5932     erasepage, errordict, exch, exec, execform, execstack, executerobject,%
5933     executeonly, executive, exit, exp, false, file, filenameforall,%
5934     fileposition, fill, filter, findencoding, findfont, findresource,%
5935     flattenpath, floor, flush, flushfile, FontDirectory, for, forall, fork,%
5936     ge, get, getinterval, globaldict, GlobalFontDirectory, glyphshow,%
5937     grestore, grestoreall, gsave, gstate, gt, identmatrix, idiv,%
5938     idtransform, if, ifelse, image, imagemask, index, ineofill, infill,%
5939     initclip, initgraphics, initmatrix, initviewclip, instroke,%
5940     internaldict, inueofill, inufill, inustroke, invertmatrix,%
5941     ISOLatin1Encoding, itransform, join, kshow, known, languagelevel, le,%
5942     length, lineto, ln, load, lock, log, loop, lt, makefont, makepattern,%
5943     mark, matrix, maxlength, mod, monitor, moveto, mul, ne, neg, newpath,%
5944     noaccess, not, notify, null, nulldevice, or, packedarray, pathbbox,%
5945     pathforall, pop, print, printobject, product, prompt, pstack, put,%
5946     putinterval, quit, rand, rcurveto, read, readhexstring, readline,%
5947     readonly, readstring, realtime, rectclip, rectfill, rectstroke,%
5948     rectviewclip, renamefile, repeat, resetfile, resourceforall,%
5949     resourcestatus, restore, reversepath, revision, rlineto, rmoveto, roll,%
5950     rootfont, rotate, round, rrand, run, save, scale, scalefont, scheck,%
5951     search, selectfont, serialnumber, setbbox, setblackgeneration,%
5952     setcachedevice, setcachedevice2, setcachelimit, setcacheparams,%
5953     setcharwidth, setcmykcolor, setcolor, setcolorrendering,%
5954     setcolorscreen, setcolorspace, setcolortransfer, setdash, setdevparams,%
5955     setfileposition, setflat, setfont, setglobal, setgray, setgstate,%
5956     sethalftone, sethalftonephase, sethsbcolor, setlinecap, setlinejoin,%
5957     setlinewidth, setmatrix, setmiterlimit, setobjectformat, setoverprint,%

```

```

5958 setpacking, setpagedevice, setpattern, setrgbcolor, setscreen,%
5959 setshared, setstrokeadjust, setsystemparams, settransfer,%
5960 setucacheparams, setundercolorremoval, setuserparams, setvmthreshold,%
5961 shareddict, show, showpage, sin, sqrt, srand, stack, StandardEncoding,%
5962 start, startjob, status, statusdict, stop, stopped, store, string,%
5963 stringwidth, stroke, strokepath, sub, systemdict, transform, translate,%
5964 true, truncate, type, token, uappend, ucache, ucachestatus, ueofill,%
5965 ufill, undef, upath, userdict, UserObjects, usertime, ustroke,%
5966 ustrokepath, version, viewclip, viewclippath, vmreclaim, vmstatus,%
5967 wait, wcheck, where, widthshow, write, writehexstring, writeobject,%
5968 writestring, wtranslation, xcheck, xor, xshow, xyshow, yield, yshow},%
5969 sensitive,%
5970 morecomment=[1]\%}[keywords,comments]
5971 </lang3>

```

2.63 POV-Ray

Berthold Höllmann sent me the definition. But I removed `blankstring=false` and `flexiblecolumns=true` from the driver since they have nothing to do with a language definition.

```

5972 (*lang1)
5973 %%
5974 %% POV definition (c) 1999 Berthold H"ollmann
5975 %%
5976 \lst@definlanguage{POV}%
5977 {morekeywords={abs,absorption,acos,acosh,adaptive,adc_bailout,agate,%
5978 agate_turb,all,alpha,ambient,ambient_light,angle,aperture,append,%
5979 arc_angle,area_light,array,asc,asin,asinh,assumed_gamma,atan,%
5980 atan2,atanh,average,background,bezier_spline,bicubic_patch,%
5981 black_hole,blob,blue,blur_samples,bounded_by,box,boxed,bozo,%
5982 break,brick,brick_size,brightness,brilliance,bumps,bump_map,%
5983 bump_size,camera,case,caustics,ceil,checker,chr,clipped_by,clock,%
5984 clock_delta,color,color_map,colour,colour_map,component,%
5985 composite,concat,cone,confidence,conic_sweep,control0,control1,%
5986 cos,cosh,count,crackle,crand,cube,cubic,cubic_spline,cubic_wave,%
5987 cylinder,cylindrical,debug,declare,default,defined,degrees,%
5988 density,density_file,density_map,dents,difference,diffuse,%
5989 dimensions,dimension_size,direction,disc,distance,%
5990 distance_maximum,div,eccentricity,else,emission,end,error,%
5991 error_bound,exp,extinction,fade_distance,fade_power,falloff,%
5992 falloff_angle,false,fclose,file_exists,filter,finish,fisheye,%
5993 flatness,flip,floor,focal_point,fog,fog_alt,fog_offset,fog_type,%
5994 fopen,frequency,gif,global_settings,gradient,granite,%
5995 gray_threshold,green,height_field,hexagon,hf_gray_16,hierarchy,%
5996 hollow,hypercomplex,if,ifdef,iff,ifndef,image_map,include,int,%
5997 interior,interpolate,intersection,intervals,inverse,ior,irid,%
5998 irid_wavelength,jitter,julia_fractal,lambda,lathe,leopard,%
5999 light_source,linear_spline,linear_sweep,local,location,log,%

```

```

6000     looks_like,look_at,low_error_factor,macro,mandel,map_type,marble,%
6001     material,material_map,matrix,max,max_intersections,max_iteration,%
6002     max_trace_level,media,media_attenuation,media_interaction,merge,%
6003     mesh,metallic,min,minimum_reuse,mod,mortar,nearest_count,no,%
6004     normal,normal_map,no_shadow,number_of_waves,object,octaves,off,%
6005     offset,omega,omnimax,on,once,onion,open,orthographic,panoramic,%
6006     perspective,pgm,phase,phong,phong_size,pi,pigment,pigment_map,%
6007     planar,plane,png,point_at,poly,polygon,poly_wave,pot,pow,ppm,%
6008     precision,prism,pwr,quadratic_spline,quadric,quartic,quaternion,%
6009     quick_color,quick_colour,quilted,radial,radians,radiosity,radius,%
6010     rainbow,ramp_wave,rand,range,ratio,read,reciprocal,%
6011     recursion_limit,red,reflection,reflection_exponent,refraction,%
6012     render,repeat,rgb,rgbf,rgbft,rgbt,right,ripples,rotate,roughness,%
6013     samples,scale,scallop_wave,scattering,seed,shadowless,sin,%
6014     sine_wave,sinh,sky,sky_sphere,slice,slope_map,smooth,%
6015     smooth_triangle,sor,specular,sphere,spherical,spiral1,spiral2,%
6016     spotlight,spotted,sqr,sqrt,statistics,str,strcmp,strength,strlen,%
6017     strlwr,strupr,sturm,substr,superellipsoid,switch,sys,t,tan,tanh,%
6018     text,texture,texture_map,tga,thickness,threshold,tightness,tile2,%
6019     tiles,torus,track,transform,translate,transmit,triangle,%
6020     triangle_wave,true,ttf,turbulence,turb_depth,type,u,%
6021     ultra_wide_angle,undef,union,up,use_color,use_colour,use_index,%
6022     u_steps,v,val,variance,vaxis_rotate,vcross,vdot,version,vlength,%
6023     vnormalize,vrotate,v_steps,warning,warp,water_level,waves,while,%
6024     width,wood,wrinkles,write,x,y,yes,z},%
6025     moredirectives={break,case,debug,declare,default,else,end,fclose,%
6026         fopen,local,macro,read,render,statistics,switch,undef,version,%
6027         warning,write},%
6028     moredelim=[directive]\#,%
6029     sensitive,%
6030     morecomment=[l]//,%
6031     morecomment=[s]{/*}{*/},%
6032     morestring=[d]" ,%
6033 }[keywords,directives,comments,strings]
6034 </lang1>

```

2.64 Prolog

Dominique de Waleffe mailed me the data for Prolog. He took the keywords from the LGrind language definition file.

```

6035 <*lang2>
6036 %%
6037 %% Prolog definition (c) 1997 Dominique de Waleffe
6038 %%
6039 \lst@definlanguage{Prolog}%
6040 {morekeywords={op,mod,abort,ancestors,arg,ascii,ask,assert,asserta,%
6041     assertz,atom,atomic,char,clause,close,concat,consult,ed,ef,em,%
6042     eof,fail,file,findall,write,functor,getc,integer,is,length,%

```

```

6043      listing,load,name,nl,nonvar,not,numbervars,op,or,pp,prin,print,%
6044      private,prompt,putc,ratom,read,read_from_this_file,rename,repeat,%
6045      retract,retractall,save,see,seeing,seen,sh,skip,statistics,%
6046      subgoal_of,system,tab,tell,telling,time,told,trace,true,unload,%
6047      untrace,var,write},%
6048      sensitive=f,%
6049      morecomment=[l]\%,%
6050      morecomment=[s]{/*}{*/},%
6051      morestring=[bd]" ,%
6052      morestring=[bd]'%
6053  }[keywords,comments,strings]
6054 </lang2>

```

2.65 Promela

Thanks to William ThimblebyPromela for this language definition.

```

6055 <*lang3>
6056 %%
6057 %% Promela definition (c) 2004 William Thimbleby
6058 %%
6059 \lst@definlanguage{Promela}
6060 {morekeywords={active,assert,atomic,bit,bool,break,byte,chan,d_step,%
6061      Dproctype,do,else,empty,enabled,fi,full,goto,hidden,if,init,int,%
6062      len,mtype,nempty,never,nfull,od,of,pcvalue,printf,priority,%
6063      proctype,provided,run,short,skip,timeout,typedef,unless,unsigned,%
6064      xr,xs,true,false,inline,eval},%
6065      moredirectives={define,ifdef,ifndef,if,if,else,endif,undef,include},%
6066      moredelim=[s]{/*}{*/},%
6067      morecomment=[s]{/*}{*/},%
6068      morestring=[b]"%
6069  }[keywords,comments,strings,directives]%
6070 </lang3>

```

2.66 PSTricks

PSTricks is a T_EX macro package bundle. Herbert Voss provided the following definition.

```

6071 <*lang3>
6072 %%
6073 %% PSTricks definition (c) 2006 Herbert Voss
6074 %%
6075 \lst@definlanguage{PSTricks}%
6076 {morekeywords={%
6077      begin,end,definecolor,multido,%
6078      KillGlue,DontKillGlue,pslbrace,bsrbrace,psscalebox,psset,pstVerb,pstverb,%
6079      pst@def,psframebox,psclip,endclip,endpspicture,psframe,%
6080      pspicture,%

```

```

6081    multirput,multips,Rput,rput,uput,cput,lput,%
6082    newrgbcolor,newgray,newcmykcolor,%
6083 %%
6084 %% pstricks-add
6085    psStep,psgraph,psbrace,psPrintValue,%
6086 %%
6087 %% pst-plot
6088    psvlabel,pslabel,psplot,psline,pscustom,pscurve,psccurve,%
6089    readdata,savedata,fileplot,dataplot,listplot,%
6090    psecurve,psgraph,parametricplot,%
6091    psellipse,psaxes,ncline,nccurve,psbezier,parabola,%
6092    qdisk,qline,clipbox,endpsclip,%
6093    psgrid,pscircle,pscirclebox,psdiabox,pstribox,%
6094    newpsfontdot,psdot,psdots,%
6095    pspolygon,psdiamond,psoval,pstriangle,%
6096    psarc,psarcn,psellipticarc,psellipticarcn,pswedge,psellipticwedge,%
6097    pcline,pcdiag,pcdiagg,pccurve,pccurve,pcecurve,%
6098    scalebox,scaleboxto,psmathboxtrue,everypsbox,psverbboxtrue,overlaybox,%
6099    psoverlay,putoverlaybox,%
6100    newpsstyle,newpsobject,%
6101    moveto,newpath,closepath,stroke,fill,gsave,grestore,msave,mrestore,%
6102    translate,scale,swapaxes,rotate,openshadow,closedshadow,movepath,%
6103    lineto,rlineto,curveto,rcurveto,code,dim,coor,rcoor,file,arrows,%
6104    setcolor,rotateleft,rotateright,rotatedown,%
6105 %%
6106 %% pst-node
6107    nput,naput,nbput,ncput,%
6108    ncarc,ncbox,ncangle,ncangles,ncloop,ncdiag,ncdiag,ncarcbox,ncbar,%
6109    cnodeput,nccircle,%
6110    pnode,rnode,Rnode,Cnode,cnode,fnode,%
6111    circnode,ovalnode,trinode,dianode,%
6112    psmatrix,endpsmatrix,psspan,%
6113 %%
6114 %% pst-tree
6115    pstree,Tcircle,TCircle,Ttri,Tn,TC,Tc,Tfan,TR,Tr,Tdia,Toval,Tdot,Tp,Tf,%
6116    skiplevel,skiplevels,endskiplevels,tspace,tlput,%
6117 %%
6118 %% pst-text
6119    pscharpath,psfilepath,%
6120 %%
6121 %% pst-barcode
6122    psbarcode,%
6123 %%
6124 %% pst-coil
6125    psboxfill,pscoil,psCoil,pszigzag,nccoil,%
6126    psshadow,ps tilt,psTilt,ThreeDput,%
6127 %%
6128 %% pst-gr3d
6129    PstGridThreeDNodeProcessor,%
6130 %%

```

```

6131 %% pst-vue3d
6132     PstGridThreeD,%
6133     AxesThreeD,LineThreeD,DieThreeD,FrameThreeD,SphereCircleThreeD,%
6134     SphereMeridienThreeD,QuadrillageThreeD,TetraedreThreeD,%
6135     PyramideThreeD,ConeThreeD,CylindreThreeD,DodecahedronThreeD,%
6136     ConeThreeD,SphereThreeD,SphereInverseThreeD,DemiSphereThreeD,%
6137     SphereCreuseThreeD,SphereCircledThreeD,PortionSphereThreeD,%
6138     pNodeThreeD,CubeThreeD,%
6139 %%
6140 %% pst-3dplot
6141     pstThreeDCoor, pstThreeDDot, pstThreeDTriangle, pstThreeDCircle,%
6142     pstPlanePut, pstThreeDBox, pstThreeDEllipse, pstThreeDLine,%
6143     pstThreeDPut, pstThreeDNode, pstThreeDSquare, psplotThreeD,%
6144     parametricplotThreeD, fileplotThreeD, dataplotThreeD,%
6145     pstScalePoints,%
6146 %%
6147 %% pst-circ
6148     resistor,battery,Ucc,Icc,capacitor,coil,diode,Zener,LED,lamp,switch,%
6149     wire,tension,circledipole,multidipole,OA,transistor,Tswitch,%
6150     potentiometer,transformer,optoCoupler,logic,%
6151 %%
6152 %% pst-eucl
6153     pstTriangle,pstMediatorAB,pstInterLL,pstMiddleAB,pstProjection,%
6154     pstCircleOA,pstLineAB,%
6155 %%
6156 %% pst-func
6157     psBessel,psPolynomial,psFourier,psGaussI,psGauss,psSi,psSi,psCi,psCi,%
6158 %%
6159 %% pst-infixplot
6160     psPlot,%
6161 %%
6162 %% pst-ob3d
6163     PstDie,PstCube,%
6164 %%
6165 %% pst-poly
6166     PstPolygon,pspolygonbox,%
6167 %%
6168 %% pst-bar
6169     psbarchart,readpsbardata,psbarscale,newpsbarstyle,%
6170 %%
6171 %% pst-lens
6172     PstLens,%
6173 %%
6174 %% pst-geo
6175     WorldMap,WorldMapII,WorldMapThreeD,WorldMapThreeDII,pnodeMap,MapPut,%
6176 %%
6177 %% pst-autoseg
6178     asr,firstnode,merge,assoc,labelmerge,%
6179 %%
6180 %% gastex

```

```

6181     node,imark,fmark,rmark,drawqbpedge,drawedge,drawloop,%
6182 %%
6183 %% pst-labo
6184     Distillation,Ballon,%
6185 %%
6186 %% pst-optic
6187     lens,Transform,%
6188 %%
6189 %% pst-light3d
6190     PstLightThreeDText,%
6191 %%
6192 %% calendrier
6193     Calendrier,%
6194 %%
6195 %% pst-osci
6196     Oscillo%
6197 },%
6198     sensitive,%
6199     alsoother={0123456789$_},%
6200     morecomment=[1]\% %
6201 }[keywords,comments]%
6202 </lang3>

```

2.67 Python

Michael Weber sent me the definition. He got data from MARK LUTZ: **Programming Python**; O'Reilly 1996; ISBN 1-56592-197-6. Stephen Kelly reported some problems that indicated that the comment definitions needed to be moved after the string definitions to work correctly.

In August 2013 Alexis Dimitriadis reworked the definition by supplying the builtins. The current version is based on https://docs.python.org/2/reference/lexical_analysis.html#identifiers.

```

6203 (*lang1)
6204 %%
6205 %% Python definition (c) 1998 Michael Weber
6206 %% Additional definitions (2013) Alexis Dimitriadis
6207 %% small corrections based on
6208 %% https://docs.python.org/2/reference/lexical_analysis.html#identifiers
6209 %%
6210 \lstdefinlanguage[2]{Python}{%
6211     morekeywords={and, as, assert, break, class, continue, def, del, elif,%
6212         else, except, exec, finally, for, from, global, if, import, in, is,%
6213         lambda, not, or, pass, print, raise, return, try, while, with, yield},%

```

Python has a long list of builtin-in functions (altogether 76 entries plus 5 special ones) (<http://docs.python.org/2/library/functions.html>) and it is a good idea to make them visible in printed code.

```

6214 % Built-ins according to

```



```

6215 % http://docs.python.org/2/library/functions.html,
6216 % the last five entries are known as advanced or not essential
6217 morekeywords=[2]{abs, all, any, basestring, bin, bool, bytearray,%
6218     callable, chr, classmethod, cmp, compile, complex, delattr, dict, dir,%
6219     divmod, enumerate, eval, execfile, file, filter, float, format,%
6220     frozenset, getattr, globals, hasattr, hash, help, hex, id, input, int,%
6221     isinstance, issubclass, iter, len, list, locals, long, map, max,%
6222     memoryview, min, next, object, oct, open, ord, pow, property, range,%
6223     raw_input, reduce, reload, repr, reversed, round, set, setattr, slice,%
6224     sorted, staticmethod, str, sum, super, tuple, type, unichr, unicode,%
6225     vars, xrange, zip, __import__, apply, buffer, coerce, intern},%
6226 sensitive=true,%
6227 morecomment=[1]\#,%
6228 morestring=[s]{'''}{'''},% used for documentation text
6229                               % (multiline strings)
6230 morestring=[s]{"""}{"""},% added by Philipp Matthias Hahn
6231 morestring=[b]',,%
6232 morestring=[b]"%
6233 }

```

Philipp Matthias Hahn added the third comment above. eRreuR found a bug using Python and Nicolas Markey informed me about the corresponding thread on `fr.comp.text.tex` and provided the fix—adding `[b]` to both `morestring` declarations.

Jürgen Dietel provided an example with a wrong representation of documentation strings, so the two lines added by Philipp Matthias Hahn got changed from `morestring` → `morecomment`.³

Python 3.0 was released in December 2008 and brought with it a number of new features. Naoki Sean Pross provided the lists of new keywords and built-in functions as well as the support for special strings.

```

6234 \lst@definelanguage[3]{Python}[2]{Python}{%
6235 % keywords
6236 deletekeywords={exec, print},
6237 morekeywords={False, None, True, async, await, nonlocal,

```

Python knows so called soft keywords:

```

6238         match, case},

```

The list of built-in functions has changed considerably (only 71 entries, no special ones):

```

6239 % built-in functions
6240 deletekeywords=[2]{apply, basestring, buffer, cmp, coerce, execfile, %
6241     file, intern, long, raw_input, reduce, reload, unichr, unicode, xrange},
6242 morekeywords=[2]{aiter, anext, ascii, breakpoint, bytes, exec},

```

Python now supports special strings like *raw strings*, Unicode strings, and some more. Here is the definition of these strings:

```

6243 % 'raw' strings

```

³According to PEP (Python Enhancement Proposals—<https://peps.python.org/pep-0257/>) comment should be distinguished from documentation strings.

```

6244 morestring=[s]{r'}{'},
6245 morestring=[s]{r"}{"},
6246 morestring=[s]{r'''}{'''},
6247 morestring=[s]{r"""}{"""},
6248 morestring=[s]{R'}{'},
6249 morestring=[s]{R"}{"},
6250 morestring=[s]{R'''}{'''},
6251 morestring=[s]{R"""}{"""},
6252 % Unicode strings
6253 morestring=[s]{u'}{'},
6254 morestring=[s]{u"}{"},
6255 morestring=[s]{u'''}{'''},
6256 morestring=[s]{u"""}{"""},
6257 morestring=[s]{U'}{'},
6258 morestring=[s]{U"}{"},
6259 morestring=[s]{U'''}{'''},
6260 morestring=[s]{U"""}{"""},
6261 % Format strings
6262 morestring=[s]{f'}{'},
6263 morestring=[s]{f"}{"},
6264 morestring=[s]{f'''}{'''},
6265 morestring=[s]{f"""}{"""},
6266 morestring=[s]{F'}{'},
6267 morestring=[s]{F"}{"},
6268 morestring=[s]{F'''}{'''},
6269 morestring=[s]{F"""}{"""},
6270 % Byte literals
6271 morestring=[s]{b'}{'},
6272 morestring=[s]{b"}{"},
6273 morestring=[s]{b'''}{'''},
6274 morestring=[s]{b"""}{"""},
6275 morestring=[s]{B'}{'},
6276 morestring=[s]{B"}{"},
6277 morestring=[s]{B'''}{'''},
6278 morestring=[s]{B"""}{"""},
6279 }%
6280 </lang1>

```

Alexis Dimitriadis also proposes the following configuration for printing Python code which simulates colorizing the code as it's done by the IDLE GUI:

```

6281 <*python-prf>
6282 \usepackage{xcolor}
6283 \usepackage{textcomp}
6284
6285 %% Actual colors from idlelib/config-highlight.def
6286 %%      --> corrected to 'web-safe'
6287 %% Unimplemented IDLE syntax: function/class names being
6288 %% defined should be blue
6289 %% strings   = #00aa00 / 0,170,0      (a darker green)

```

```

6290 %% builtins = #900090 / 144,0,144      (purple-ish)
6291 %% keywords = #FF7700 / 255,119,0      (quite close to plain 'orange')
6292 \%definecolor{IDLEorange}{RGB}{255,119,0} % pretty close to real orange
6293 \%definecolor{IDLEpurple}{RGB}{144,0,144}
6294 \%definecolor{IDLEgreen}{RGB}{0,170,0}
6295 \%definecolor{IDLERed}{RGB}{221,0,0}
6296 %% Corrected to 'web-safe'
6297 \%definecolor{orange2}{RGB}{255,102,0}
6298 \%definecolor{purple2}{RGB}{153,0,153} % there's actually no standard purple
6299 \%definecolor{green2}{RGB}{0,153,0} % a darker green
6300 \%definecolor{red2}{RGB}{221,0,0}
6301
6302 % Except for green and purple, the other colors are pretty good in standard
6303 % hue
6304 \lstdefinestyle{python-idle-code}{%
6305     language=Python,                % the language
6306     basicstyle=\normalsize\ttfamily, % size of the fonts for the code
6307     % Color settings to match IDLE style
6308     keywordstyle=\color{orange},      % core keywords
6309     keywordstyle={[2]\color{purple2}}, % built-ins
6310     stringstyle=\color{green2},%
6311     commentstyle=\color{red},%
6312     upquote=true,                    % requires textcomp
6313 }
6314 % Unimplemented IDLE syntax: function/class names being defined should be
6315 % blue

This code is provided in the file listings-python.prf, see section 2.4.1 (Preferences) of the listings documentation.
6316 </python-prf>

```

2.68 Rexx

Patrick TJ McPhee provided this definition.

```

6317 <*lang2>

6318 %%
6319 %% classic rexx listings definition
6320 %% by Patrick TJ McPhee <ptjm@interlog.com>
6321 %%
6322 \lst@definelanguage{Rexx}{%
6323     morekeywords={address,arg,call,do,drop,else,end,exit,if,interpret,%
6324                 iterate,leave,nop,numeric,options,otherwise,parse,%
6325                 procedure,pull,push,queue,return,say,select,signal,then,%
6326                 to,trace,when},%
6327     sensitive=false,%
6328     morecomment=[1]{--},%
6329     morecomment=[n]{/*}{*/},%
6330     morestring=[d]{'},%
6331     morestring=[d]{"},%

```

```

6332 }[keywords,comments,strings]
6333 </lang2>

```

There are two dialects of Rexx: the one from System Product Interpreter Reference, VM/XA SP Release 1 and Release 2 and the modern version ooRexx (see <http://www.oorexx.org/>).

2.68.1 Rexx—VM/XA

```

6334 (*lang2)
6335 %%
6336 %% REXX keywords from System Product Interpreter Reference, VM/XA SP Release 1
6337 %% and Release 2
6338 \lstdefinlanguage[VM/XA]{Rexx}[] {Rexx}{%
6339   morekeywords={all,by,digits,commands,end,engineering,error,errors,expose,%
6340     external,for,form,fuzz,halt,labels,intermediates,negative,normal,novalue,%
6341     on,off,results,scan,scientific,select,source,stream,syntax,until,upper,%
6342     value,var,version,while,with},%
6343   morekeywords=[2]{abbrev,abs,address,bitand,bitor,bitxor,center,centre,%
6344     compare,copies,c2d,c2x,datatype,date,delstr,delword,diag,diagrc,%
6345     d2c,d2x,errortext,externals,find,format,index,insert,justify,%
6346     lastpos,left,length,linein,lineout,lines,linesize,max,min,overlay,%
6347     pos,queued,random,reverse,righth,sign,sourceline,space,storage,%
6348     strip,substr,subword,symbol,time,translate,trunc,userid,value,verify,%
6349     word,wordindex,wordlength,words,xrange,x2c,x2d},%
6350   morekeywords=[3]{result,rc,self,sigl,super},%
6351   sensitive=false,%
6352   morestring=[d]" ,%
6353   morestring=[d]' ,%
6354 }[keywords,comments,strings]
6355 </lang2>

```

Shmuel (Seymour J.) Metz pointed out the previously unsupported special variables `result` etc.. He also gave the advice to complete the definitions for ooRexx in the following section.

2.68.2 ooRexx

```

6356 (*lang2)
6357 %%
6358 %% ooREXX keywords (http://www.oorexx.org/)
6359 \lstdefinlanguage[] {OORexx}[VM/XA]{Rexx}{%
6360   morekeywords={::annotate, ::attribute, ::class, ::constant, ::method,%
6361     ::options, ::requires, ::resource, ::routine,%
6362     forward, guard, local, loop, raise, strict,%
6363   },%
6364   alsoletter={:}
6365 }[keywords,comments,strings]
6366 </lang2>

```

Jobst Hoffmann added the following configuration for printing Rexx code which is similar to the colors used by the Fortran preferences file.

```
6367 (*rexx-prf)
6368 \usepackage{xcolor}                % needed for colors like yellow!10
6369 \usepackage{textcomp}             % needed for upquote
6370
6371 \lstdefinestyle{rexx-colored}{%
6372   language=ooorexx,                % the language
6373   backgroundcolor=\color{yellow!10},
6374   basicstyle=\normalsize\ttfamily, % size of the fonts for
6375                                   % the code
6376   % Color settings to match JHf's preferred style
6377   keywordstyle=\color{blue},        % core keywords
6378   keywordstyle={[2]\color{cyan}},    % built-ins
6379   keywordstyle={[3]\color{olive}},   % special keywords
6380   stringstyle=\color{teal},%
6381   commentstyle=\color{orange},%
6382   upquote=true,                    % requires textcomp
6383 }
```

This code is provided in the file `listings-rexx.prf`, see section 2.4.1 (Preferences) of the listings documentation.

```
6384 (/rexx-prf)
```

2.69 Reduce

was provided by Geraint Paul Bevan.

```
6385 (*lang3)
6386 %%
6387 %% Reduce definition (c) 2002 Geraint Paul Bevan
6388 %%
6389 \lst@definlanguage{Reduce}%
6390 {morekeywords={%
6391 %% reserved identifiers
6392 abs,acos,acosh,acot,acoth,acsc,acsch,%
6393 adjprec,algebraic,algint,allbranch,allfac,and,%
6394 antisymmetric,append,arglength,array,asec,asech,%
6395 asin,asinh,atan,atan2,atanh,begin,bfspace,bye,%
6396 card_no,ceiling,clear,clearrules,coeff,coeffn,%
6397 cofactor,combineexpt,combinelogs,comment,comp,%
6398 complex,conj,cons,cont,cos,cosh,cot,coth,cramer,%
6399 cref,csc,csch,decompose,define,defn,deg,demo,den,%
6400 depend,det,df,difference,dilog,display,div,do,e,%
6401 echo,ed,editdef,ei,end,eps,eq,equal,erf,errcont,%
6402 evalhseqp,eval_mode,even,evenp,exp,expandlogs,%
6403 expr,expt,ezgcd,factor,factorial,factorize,fexpr,%
6404 first,fix,fixp,floor,for,forall,foreach,fort,%
6405 fort_width,freeof,fullroots,g,gcd,geq,go,goto,%
6406 greaterp,high_pow,hypot,i,if,ifactor,impart,in,%
6407 index,infinity,infix,input,int,integer,interpol,%
```

```

6408 intstr,k,korder,lambda,lcm,lcof,length,leq,lessp,%
6409 let,lhs,linear,linelength,lisp,list,listargp,%
6410 listargs,ln,load,load_package,log,log10,logb,%
6411 low_pow,lterm,macro,mainvar,mass,mat,match,%
6412 mateigen,matrix,max,mcd,member,memq,min,minus,mkid,%
6413 modular,msg,mshell,multiplicities,nat,neq,nero,%
6414 nextprime,nil,nodepend,noncom,nonzero,nosplit,%
6415 nospur,nullspace,num,numberp,odd,off,on,operator,%
6416 or,order,ordp,out,output,part,pause,period,pf,pi,%
6417 plus,precedence,precise,precision,pret,pri,primep,%
6418 print_precision,procedure,product,quit,quotient,%
6419 random,random_new_seed,rank,rat,ratarg,rational,%
6420 rationalize,ratpri,real,rederr,reduct,remainder,%
6421 remfac,remind,repert,repeat,rest,resultant,retry,%
6422 return,reverse,revpri,rhs,rlisp88,%
6423 root_multiplicity,round,roundall,roundbf,rounded,%
6424 saveas,savestructr,scalar,sec,sech,second,set,%
6425 setmod,setq,share,showrules,showtime,shut,sign,sin,%
6426 sinh,smacro,solve,solvesingular,spur,sqrt,structr,%
6427 sub,sum,symbolic,symmetric,t,tan,tanh,third,time,%
6428 times,tp,tra,trace,trfac,trigform,trint,until,%
6429 varname,vecdim,vector,weight,when,where,while,%
6430 write,ws,wtlevel,%
6431 %% identifiers with spaces
6432 %% for all,for each,go to,such that,%
6433 },%
6434 sensitive=false,%
6435 morecomment=[l]\%,%
6436 morecomment=[s]{COMMENT}{;};,%
6437 morecomment=[s]{COMMENT}{$};,%
6438 morestring="%
6439 }[keywords,comments,strings]
6440 </lang3>

```

2.70 RISC-V Assembly Language

was provided by Esing Zhang.

```

6441 <*lang3>
6442 %%
6443 %% RISC-V definition (c) 2025 Esing Zhang
6444 %%
6445 \lstdefinlanguage[riscv]{Assembler}%
6446 {morekeywords={add,addi,addw,addiw,sub,subw,and,andi,or,ori,xor,xori,%
6447 sll,slli,sllw,slliw,srl,srli,srlw,srliw,sra,srai,sraw,srai,%
6448 slt,slti,sltu,sltiu,lui,auipc,jal,jalr,beq,bne,blt,bge,bltu,bgeu,%
6449 lb,lh,lw,ld,lbu,lhu,lwu,sb,sh,sw,sd,fence,fence.i,ecall,ebreak,%
6450 csrrw,csrrs,csrrc,csrrwi,csrrsi,csrrci,mul,mulh,mulhsu,mulhu,%
6451 mulw,div,divw,divu,divuw,rem,remw,remu,remuw,lr.w,sc.w,lr.d,sc.d,%

```

```

6452 amoswap.w,amoadd.w,amoxor.w,amoand.w,amoor.w,amomin.w,amomax.w,%
6453 amominu.w,amomaxu.w,amoswap.d,amoadd.d,amoxor.d,amoand.d,amoor.d,%
6454 amomin.d,amomax.d,amominu.d,amomaxu.d,flw,fld,fsw,fld,fmadd.s,%
6455 fmsub.s,fnmsub.s,fnmadd.s,fadd.s,fsub.s,fmul.s,fdiv.s,fsqrt.s,%
6456 fsgnj.s,fsgnjn.s,fsgnjx.s,fmin.s,fmax.s,fcvt.w.s,fcvt.wu.s,%
6457 fmv.x.w,feq.s,flt.s,fle.s,fclass.s,fcvt.s.w,fcvt.s.wu,fmv.w.x,%
6458 fmadd.d,fmsub.d,fnmsub.d,fnmadd.d,fadd.d,fsub.d,fmul.d,fdiv.d,%
6459 fsqrt.d,fsgnj.d,fsgnjn.d,fsgnjx.d,fmin.d,fmax.d,fcvt.s.d,fcvt.d.s,%
6460 feq.d,flt.d,fle.d,fclass.d,fcvt.w.d,fcvt.wu.d,fcvt.d.w,fcvt.d.wu,%
6461 fcvt.l.s,fcvt.lu.s,fcvt.s.l,fcvt.s.lu,fcvt.l.d,fcvt.lu.d,%
6462 fmv.x.d,fcvt.d.l,fcvt.d.lu,fmv.d.x},%
6463 morekeywords=[2]{.align,.balign,.p2align,.ascii,.asciiz,.string,.byte,%
6464 .half,.hword,.short,.word,.long,.dword,.quad,.octa,.float,.double,%
6465 .space,.zero,.fill,.skip,.org,.set,.equ,.equiv,.eqv,.macro,.endm,%
6466 .rept,.endr,.if,.ifdef,.ifndef,.else,.endif,.include,.globl,.global,%
6467 .weak,.local,.extern,.type,.size,.section,.text,.data,.rodata,.bss,%
6468 .file,.line,.loc,.cfi_startproc,.cfi_endproc,.cfi_def_cfa_offset,%
6469 .cfi_offset,.option,.attribute,.insn},%
6470 morekeywords=[3]{x0,zero,x1,ra,x2,sp,x3,gp,x4,tp,x5,t0,x6,t1,x7,t2,%
6471 x8,s0,fp,x9,s1,x10,a0,x11,a1,x12,a2,x13,a3,x14,a4,x15,a5,%
6472 x16,a6,x17,a7,x18,s2,x19,s3,x20,s4,x21,s5,x22,s6,x23,s7,%
6473 x24,s8,x25,s9,x26,s10,x27,s11,x28,t3,x29,t4,x30,t5,x31,t6,%
6474 f0,ft0,f1,ft1,f2,ft2,f3,ft3,f4,ft4,f5,ft5,f6,ft6,f7,ft7,%
6475 f8,fs0,f9,fs1,f10,fa0,f11,fa1,f12,fa2,f13,fa3,f14,fa4,f15,fa5,%
6476 f16,fa6,f17,fa7,f18,fs2,f19,fs3,f20,fs4,f21,fs5,f22,fs6,f23,fs7,%
6477 f24,fs8,f25,fs9,f26,fs10,f27,fs11,f28,ft8,f29,ft9,f30,ft10,f31,ft11},
6478 alsoletter=.,%
6479 alsodigit=?,%
6480 sensitive=f,%
6481 morestring=[b]" ,%
6482 morestring=[b]' ,%
6483 morecomment=[l]\#
6484 }[keywords,comments,strings]
6485 </lang3>

```

Esing also supplied a definition of a style for printing RISC-V code:

```

6486 (*riscv-prf)
6487 \lstdefinestyle{riscv}{
6488   language=[riscv]Assembler,
6489   keywordstyle=\color{blue},
6490   keywordstyle=[2]\color{teal},
6491   keywordstyle=[3]\color{red},
6492   keywordstyle=[4]\color{orange!80!black},
6493   keywordstyle=[5]\color{purple},
6494   keywordstyle=[6]\color{cyan!80!black},
6495   commentstyle=\color{green!50!black}
6496 }

```

This code is provided in the file `listings-riscv.prf`, see section 2.4.1 (Preferences) of the listings documentation.

6497 $\langle /riscv-prf \rangle$

2.71 RSL

Thanks go to Brian Christensen.

6498 $\langle *lang3 \rangle$

```
6499 %%
6500 %% RSL definition (c) 2004 Brian Christensen
6501 %%
6502 \lst@definlanguage{RSL}%
6503   {morekeywords={Bool,Char,devt_relation,Int,Nat,Real,Text,Unit,abs,any,%
6504     as,axiom,card,case,channel,chaos,class,do,dom,elems,else,elsif,end,%
6505     extend,false,for,hd,hide,if,in,inds,initialise,int,len,let,local,%
6506     object,of,out,post,pre,read,real,rng,scheme,skip,stop,swap,%
6507     test_case,theory,then,tl,true,type,until,use,value,variable,while,%
6508     with,write},%
6509   literate=%
6510   {<}{<$}{1}%
6511   {>}{>$}{1}%
6512   {[ ]}{[ ]}{1}%
6513   { }{ }{1}%
6514   {^}{\mbox{$\widehat{\;}}}{1}%
6515   {'}{\raisebox{1ex}[1ex][0ex]{\protect\scriptsize$\prime$}}{1}%
6516   {||}{\mbox{$\parallel$}}{2}%
6517   {|-}{\vdash}{1}%
6518   {|=|}{\mbox{$\lceil\!\!\rceil\!\!\rfloor\!\!\rfloor$}}{1}%
6519   {**}{\uparrow}{1}%
6520   {/\}{\wedge}{1}%
6521   {inter}{\cap}{1}%
6522   {-\}{\lambda}{1}%
6523   {->}{\rightarrow}{1}%
6524   {-m->}{\mbox{$\rightarrow$ \hspace{-2.5\lst@width} _{m}\;}}{1}%
6525   {-~m->}{\mbox{$\stackrel{\sim}{\rightarrow}$ \hspace{-2.5\lst@width} _{m}\;}}{1}%
6526   {-~m->}{\mbox{$\stackrel{\sim}{\rightarrow}$ \hspace{-2.5\lst@width} _{m}\;}}{1}%
6527   {-~>}{\mbox{$\stackrel{\sim}{\rightarrow}$}}{1}%
6528   {-set}{\bf{-set}}{4}%
6529   {-list}{\ast}{1}%
6530   {-inflist}{\omega}{1}%
6531   {-infset}{\bf{-infset}}{7}%
6532   {\#}{\circ}{1}%
6533   {:-}{\raisebox{.4ex}{\tiny $\bullet$}}{1}%
6534   {=}{=}{1}%
6535   {==}{==}{2}%
6536   {=>}{\Rightarrow}{1}%
6537   {\ is\protect\^M}{\;$\equiv$}{2}%
6538   {\ is\ }{\;$\equiv$}{3}%
6539   {\ isin\protect\^M}{\;$\in$}{2}%
6540   {~}{\sim}{1}%
6541   {~=}{\neq}{1}%

```


6542 $\{\sim\text{isin}\}\{\$\text{\notin}\}\{1\}\%$
6543 $\{+\>\}\{\$\text{\mapsto}\}\{1\}\%$
6544 $\{++\}\{\}\{1\}\%$
6545 $\{|\wedge|\}\{\{\text{\mbox}\{\$\text{\lceil}\!\!\!\rceil}\}\}\{1\}\%$
6546 $\{\backslash\backslash/\}\{\$\text{\vee}\}\{1\}\%$
6547 $\{\text{exists}\}\{\$\text{\exists}\}\{1\}\%$
6548 $\{\text{union}\}\{\$\text{\cup}\}\{1\}\%$
6549 $\{>=\}\{\$\text{\geq}\}\{1\}\%$
6550 $\{><\}\{\$\text{\times}\}\{1\}\%$
6551 $\{>>\}\{\$\text{\supset}\}\{1\}\%$
6552 $\{>>=\}\{\$\text{\supseteq}\}\{1\}\%$
6553 $\{<=\}\{\$\text{\leq}\}\{1\}\%$
6554 $\{<<\}\{\$\text{\subset}\}\{1\}\%$
6555 $\{<.\}\{\$\text{\langle}\}\{1\}\%$
6556 $\{<=<\}\{\$\text{\subteq}\}\{1\}\%$
6557 $\{<->\}\{\$\text{\leftrightharpoonup}\}\{1\}\%$
6558 $\{[=\}\{\$\text{\sqsubteq}\}\{1\}\%$
6559 $\{\backslash=\}\{\$\text{\preceq}\}\{1\}\%$
6560 $\{\backslash\text{ all}\backslash\text{protect}\backslash\text{\textasciicircum{M}}\}\{\$\text{\forall}\}\{2\}\%$
6561 $\{\backslash\text{ all}\backslash\text{ }\}\{\$\text{\forall}\}\{3\}\%$
6562 $\{!!\}\{\$\text{\dagger}\}\{1\}\%$
6563 $\{\text{always}\}\{\$\text{\Box}\}\{1\}\%$
6564 $\{.>\}\{\$\text{\rangle}\}\{1\}\%$
6565 $\{\text{'alpha}\}\{\$\text{\alpha}\}\{1\}\%$
6566 $\{\text{'beta}\}\{\$\text{\beta}\}\{1\}\%$
6567 $\{\text{'gamma}\}\{\$\text{\gamma}\}\{1\}\%$
6568 $\{\text{'delta}\}\{\$\text{\delta}\}\{1\}\%$
6569 $\{\text{'epsilon}\}\{\$\text{\epsilon}\}\{1\}\%$
6570 $\{\text{'zeta}\}\{\$\text{\zeta}\}\{1\}\%$
6571 $\{\text{'eta}\}\{\$\text{\eta}\}\{1\}\%$
6572 $\{\text{'theta}\}\{\$\text{\theta}\}\{1\}\%$
6573 $\{\text{'iota}\}\{\$\text{\iota}\}\{1\}\%$
6574 $\{\text{'kappa}\}\{\$\text{\kappa}\}\{1\}\%$
6575 $\{\text{'mu}\}\{\$\text{\mu}\}\{1\}\%$
6576 $\{\text{'nu}\}\{\$\text{\nu}\}\{1\}\%$
6577 $\{\text{'xi}\}\{\$\text{\xi}\}\{1\}\%$
6578 $\{\text{'pi}\}\{\$\text{\pi}\}\{1\}\%$
6579 $\{\text{'rho}\}\{\$\text{\rho}\}\{1\}\%$
6580 $\{\text{'sigma}\}\{\$\text{\sigma}\}\{1\}\%$
6581 $\{\text{'tau}\}\{\$\text{\tau}\}\{1\}\%$
6582 $\{\text{'upsilon}\}\{\$\text{\upsilon}\}\{1\}\%$
6583 $\{\text{'phi}\}\{\$\text{\phi}\}\{1\}\%$
6584 $\{\text{'chi}\}\{\$\text{\chi}\}\{1\}\%$
6585 $\{\text{'psi}\}\{\$\text{\psi}\}\{1\}\%$
6586 $\{\text{'omega}\}\{\$\text{\omega}\}\{1\}\%$
6587 $\{\text{'Gamma}\}\{\$\text{\Gamma}\}\{1\}\%$
6588 $\{\text{'Delta}\}\{\$\text{\Delta}\}\{1\}\%$
6589 $\{\text{'Theta}\}\{\$\text{\Theta}\}\{1\}\%$
6590 $\{\text{'Lambda}\}\{\$\text{\Lambda}\}\{1\}\%$
6591 $\{\text{'Xi}\}\{\$\text{\Xi}\}\{1\}\%$

```

6592 {'Pi'}{${\Pi$}}{1}%
6593 {'Sigma'}{${\Sigma$}}{1}%
6594 {'Upsilon'}{${\Upsilon$}}{1}%
6595 {'Phi'}{${\Phi$}}{1}%
6596 {'Psi'}{${\Psi$}}{1}%
6597 {'Omega'}{${\Omega$}}{1},%
6598     sensitive=true,%
6599     morecomment=[1]{--},%
6600     morecomment=[s]{/*}{*/}%
6601 }[keywords,comments]%
6602 </lang3>

```

2.72 Ruby

Christian Kaiser provided the initial definition. Xavier Noria replaced the keywords with the keywords from the at the time of writing current stable Ruby version. An erroneous string delimiter was removed following a bug reported on comp.text.tex on 2006/09/01.

Ruby supports string delimiters of the form %q!...!, where ! can be any character, or can be matched braces or parentheses or brackets. The included string definitions include most of the common variants, but are of course not comprehensive.

```

6603 <*lang2>
6604 \lstdefinlanguage{Ruby}%
6605   {morekeywords={__FILE__,__LINE__,BEGIN,END,alias,and,begin,break,%
6606     case,class,def,defined?,do,else,elsif,end,ensure,false,for,%
6607     if,in,module,next,nil,not,or,redo,rescue,retry,return,self,%
6608     super,then,true,undef,unless,until,when,while,yield},%
6609     sensitive=true,%
6610     morecomment=[1]\#,%
6611     morecomment=[1]\#\#,%
6612     morecomment=[s]{=BEGIN}{=END},%
6613     morestring=[b]',%
6614     morestring=[b]",%
6615     morestring=[s]{\%q/}{/},%
6616     morestring=[s]{\%q!}{!},%
6617     morestring=[s]{\%q\}{\}},%
6618     morestring=[s]{\%q(){}},%
6619     morestring=[s]{\%q[]{}},%
6620     morestring=[s]{\%q-}{-},%
6621     morestring=[s]{\%Q/}{/},%
6622     morestring=[s]{\%Q!}{!},%
6623     morestring=[s]{\%Q\}{\}},%
6624     morestring=[s]{\%Q(){}},%
6625     morestring=[s]{\%Q[]{}},%
6626     morestring=[s]{\%Q-}{-}%
6627   }[keywords,comments,strings]
6628 %     \begin{macrocode}

```

6629 `</lang2>`

2.73 Scilab

Thanks go to Jean-Philippe Grivet.

6630 `<*lang1>`

```
6631 %%
6632 %% Scilab definition (c) 2002,2003 Jean-Philippe Grivet
6633 %%
6634 \lst@definlanguage{Scilab}%
6635     {morekeywords={abcd,abinv,abort,abs,acoshm,acosh,acosm,acos,addcolor,%
6636         addf,addinter,addmenu,add_edge,add_node,adj2sp,adj_lists,aff2ab,%
6637         amell,analf,analyze,ans,apropos,arc_graph,arc_number,argn,arhmk,%
6638         arl2,arma2p,armac,armax1,armax,arma,arsimul,artest,articul,ascii,%
6639         asinhm,asinh,asinm,asin,atanhm,atanh,atanm,atan,augment,auread,%
6640         auwrite,balanc,balreal,bandwr,basename,bdiag,besseli,besselj,%
6641         besselk,bessely,best_match,bezout,bifish,bilin,binomial,black,%
6642         bloc2exp,bloc2ss,bode,bool2s,boolean,boucle,break,bstap,buttmag,%
6643         bvode,cainv,calerf,calfrq,call,canon,casc,case,ccontrg,cdfbet,%
6644         cdfbin,cdfchi,cdfchn,cdfnc,cdf,cdfgam,cdfnbn,cdfnor,cdfpoi,%
6645         cdft,ceil,center,cepstrum,chaintest,chain_struct,champ1,champ,%
6646         chart,chdir,cheb1mag,cheb2mag,check_graph,check_io,chepol,chfact,%
6647         chol,chsolve,circuit,classmarkov,clean,clearfun,clearglobal,%
6648         clear,close,cls2dls,cmb_lin,cmdred,cmoment,code2str,coeff,coffg,%
6649         coff,colcompr,colcomp,colinout,colormap,colregul,companion,comp,%
6650         cond,conj,connex,contour2di,contour2d,contourf,contour,%
6651         contract_edge,contrss,contr,cont_frm,cont_mat,convex_hull,convol,%
6652         convstr,con_nodes,copfac,copy,correl,corr,coshm,cosh,cosm,cos,%
6653         cotg,cothm,coth,covar,csim,cspect,ctr_gram,cumprod,cumsum,%
6654         curbblock,cycle_basis,czt,c_link,dasrt,dassl,datafit,date,dbphi,%
6655         dcf,ddp,debug,dec2hex,deff,definedfields,degree,delbpt,%
6656         delete_arcs,delete_nodes,delete,delip,delmenu,demos,denom,%
6657         derivative,derivat,des2ss,des2tf,determ,detr,det,dft,dhinf,%
6658         dhnorm,diag,diary,diff,diophant,dirname,dispbpt,dispfiles,disp,%
6659         dlgamma,double,dragrect,drawaxis,drawlater,drawnow,draw,driver,%
6660         dscr,dsearch,dsimul,dtst,dt_ility,duplicate,edge_number,%
6661         edit_curv,edit_graph_menus,edit_graph,edit,eigenmarkov,ell1mag,%
6662         elseif,else,emptystr,endfunction,end,eqfir,eqiir,equil1,equil,%
6663         ereduc,erfcx,erfc,erf,errbar,errcatch,errclear,error,eval3dp,%
6664         eval3d,eval,evans,evstr,excel2sci,execstr,exec,exists,exit,expm,%
6665         exp,external,eye,fac3d,factors,faurre,fchamp,fcontour2d,fcontour,%
6666         fec,feedback,feval,ffilt,fftshift,fft,fgrayplot,figure,fileinfo,%
6667         file,filter,findm,findobj,findxOBD,find_freq,find_path,find,%
6668         findABCD,findAC,findBD,findBDK,findR,fit_dat,fix,floor,flts,foo,%
6669         formatman,format,fort,for,fourplan,fplot2d,fplot3d1,fplot3d,%
6670         fprintf,fprintfMat,frep2tf,freq,freson,frexp,frfit,frmag,fscanf,%
6671         fscanfMat,fsfirlin,fsolve,fspecg,fstabst,fstair,fstest,ftuneq,%
6672         fullrfrk,fullrf,full,fun2string,funcprot,functions,function,%
6673         funptr,fusee,gainplot,gamitg,gammaln,gamma,gcare,gcd,gcf,%
```

```

6674 genfac3d,genlib,genmarkov,gen_net,geom3d,geomean,getblocklabel,%
6675 getcolor,getcurblock,getcwd,getdate,getd,getenv,getfield,getfont,%
6676 getf,getio,getlinestyle,getmark,getpid,getscicosvars,getsymbol,%
6677 getvalue,getversion,get_function_path,get,gfare,gfrancis,girth,%
6678 givens,glever,glist,global,glue,gpeche,graduate,grand,%
6679 graphics_entities,graph_2_mat,graph_center,graph_complement,%
6680 graph_diameter,graph_power,graph_simp,graph_sum,graph_union,%
6681 graph-list,graycolormap,grayplot,graypolarplot,grep,group,%
6682 gr_menu,gschur,gsort,gspec,gstacksize,gtild,g_margin,h2norm,halt,%
6683 hamilton,hankelsv,hank,harmean,havewindow,help,hermit,hess,%
6684 hex2dec,hilb,hinf,hist3d,histplot,horner,host,hotcolormap,%
6685 householder,hrmt,htrianr,hypermat,h_cl,h_inf_st,h_inf,h_norm,%
6686 iconvert,icon_edit,ieee,if,iirgroup,iirlp,iir,ilib_build,%
6687 ilib_compile,ilib_for_link,ilib_gen_gateway,ilib_gen_loader,%
6688 ilib_gen_Make,imag,impl,imrep2ss,imult,im_inv,inistate,input,%
6689 int16,int2d,int32,int3d,int8,intc,intdec,integrate,interp,%
6690 interp,intersci,intersect,intg,intl,intppty,intsplin,inttrap,%
6691 inttype,int,invr,invsyslin,inv_coeff,inv,iqr,isdef,isdir,isequal,%
6692 iserror,isglobal,isinf,isnan,isoview,isreal,is_connex,jmat,%
6693 justify,kalm,karmarkar,kernel,keyboard,knapsack,kpure,krac2,%
6694 kroneck,kron,lasterror,lattn,lattp,lcf,lcmdiag,lcm,ldivf,ldiv,%
6695 leastsq,legends,length,leqr,levin,lev,lex_sort,lft,lgfft,library,%
6696 lib,lin2mu,lincos,lindquist,lines,line_graph,linfn,linf,link,%
6697 linmeq,linpro,linsolve,linspace,lin,listfiles,list,lmisolver,%
6698 lmitool,loadmatfile,loadplots,loadwave,load_graph,load,locate,%
6699 log10,log1p,log2,logm,logspace,log,lotest,lqe,lqg2stan,lqg_ltr,%
6700 lqg,lqr,lsq,lsslist,lstcat,lstsize,ltitr,ludel,lufact,luget,%
6701 lusolve,lu,lyap,macglov,macr2lst,macrovar,macro,mad,make_graph,%
6702 make_index,manedit,man,mapsound,markp2ss,matfile2sci,matrix,%
6703 mat_2_graph,maxi,max_cap_path,max_clique,max_flow,max,mclearerr,%
6704 mclose,meanf,mean,median,meof,mese,mesh2d,mfft,mfile2sci,mgeti,%
6705 mgetl,mgetstr,mget,milk_drop,mine,mini,minreal,minss,%
6706 min_lcost_cflow,min_lcost_flow1,min_lcost_flow2,min_qcost_flow,%
6707 min_weight_tree,min,mlist,mode,modulo,moment,mopen,move,%
6708 mps2linpro,mputl,mputstr,mput,mrfit,msd,mseek,mtell,mtlb_load,%
6709 mtlb_mode,mtlb_save,mtlb_sparse,mu2lin,mulf,mvvacov,m_circle,%
6710 names,nand2mean,nanmax,nanmeanf,nanmean,nanmedian,nanmin,%
6711 nanstdev,nansum,narsimul,ndims,nearfloat,nehari,neighbors,%
6712 netclose,netwindows,netwindow,newest,newfun,nextpow2,nf3d,nfreq,%
6713 nlev,nnz,nodes_2_path,nodes_degrees,node_number,noiseegen,norm,%
6714 null,numdiff,numer,nyquist,obscont1,obscont,observer,obsvss,%
6715 obsv_mat,obs_gram,odedc,odedi,odeoptions,ode_discrete,ode_root,%
6716 ode,oldload,oldsave,ones,optim,orth,param3d1,param3d,%
6717 paramfplot2d,parrot,part,pathconvert,path_2_nodes,pause,pbig,%
6718 pdiv,pen2ea,pencan,penlaur,perctl,perfect_match,pertrans,pfss,%
6719 phasemag,phc,pinv,pipe_network,playsnd,plot2d1,plot2d2,plot2d3,%
6720 plot2d4,plot2d,plot3d1,plot3d2,plot3d3,plot3d,plotframe,%
6721 plotprofile,plot_graph,plot,plzr,pmodulo,pol2des,pol2str,pol2tex,%
6722 polarplot,polar,polfact,poly,portr3d,portrait,power,ppol,prbs_a,%
6723 predecessors,predef,printf,printing,print,prod,profile,projsl,%

```

```

6724 projspec,proj,psmall,pspect,pvm_addhosts,pvm_barrier,pvm_bcast,%
6725 pvm_bufinfo,pvm_config,pvm_delhosts,pvm_error,pvm_exit,%
6726 pvm_f772sci,pvm_getinst,pvm_gettid,pvm_get_timer,pvm_gsize,%
6727 pvm_halt,pvm_joingroup,pvm_kill,pvm_lvgroup,pvm_mytid,pvm_parent,%
6728 pvm_probe,pvm_recv,pvm_reduce,pvm_sci2f77,pvm_send,pvm_set_timer,%
6729 pvm_spawn_independent,pvm_spawn,pvm_start,pvm_tasks,%
6730 pvm_tidtohost,pvm,pwd,p_margin,qassign,qr,quapro,quart,quaskro,%
6731 quit,randpencil,rand,range,rankqr,rank,rat,rcond,rdivf,read4b,%
6732 readb,readc_,readmps,read,real,recur,reglin,regress,remezb,remez,%
6733 repfreq,replot,residu,resume,return,riccati,riccsl,ricc,ric_desc,%
6734 rlist,roots,rotate,round,routh_t,rowcompr,rowcomp,rowinout,%
6735 rowregul,rowshuff,rpem,rref,rtitr,rubberbox,salesman,savewave,%
6736 save_graph,save,scaling,scanf,schur,sci2exp,sci2for,sci2map,%
6737 sciargs,scicosim,scicos,scifunc_block,sd2sci,secto3d,select,%
6738 semidef,sensi,sebtpt,seteventhandler,setfield,setmenu,%
6739 setsccosvars,set,sfact,sgrid,shortest_path,showprofile,%
6740 show_arcs,show_graph,show_nodes,sident,signm,sign,simp_mode,simp,%
6741 sincd,sinc,sinc,sinhm,sinh,sinm,sin,size,sm2des,sm2ss,smooth,%
6742 solve,sorder,sort,sound,sp2adj,spaninter,spanplus,spantwo,sparse,%
6743 spchol,spcompact,specfact,spec,speye,spget,splin,split_edge,%
6744 spones,sprand,sprintf,spzeros,sqroot,sqrtm,sqrt,squarewave,%
6745 square,srfaur,srkf,ss2des,ss2ss,ss2tf,sscanf,sskf,ssprint,ssrand,%
6746 stabil,stacksize,standard_define,standard_draw,standard_input,%
6747 standard_origin,standard_output,startup,stdevf,stdev,steadycos,%
6748 str2code,strange,strcmp,strcmp,strcmp,strings,string,stripblanks,%
6749 strong_connex,strong_con_nodes,strcmp,strcmp,strcmp,strings,string,stripblanks,%
6750 subf,subgraph,subplot,succcessors,sum,supernode,sva,svd,svplot,%
6751 sylv,sylv,sysconv,sysdiag,sysfact,syslin,syssize,systems,system,%
6752 systmat,tabul,tangent,tanhm,tanh,tanm,tan,tdinit,testmatrix,%
6753 texprint,tf2des,tf2ss,then,thrownan,timer,time_id,titlepage,%
6754 tk_getdir,tk_getfile,tlist,toeplitz,tokenpos,tokens,trace,%
6755 translatepaths,trans_closure,trans,trfmod,tranfml,tril,trimmean,%
6756 trisolve,triw,trzeros,typename,typeof,type,uicontrol,uimenu,%
6757 uint16,uint32,uint8,ui_observer,ulink,unglue,union,unique,unix_g,%
6758 unix_s,unix_w,unix_x,unix,unobs,unsetmenu,user,varargin,%
6759 varargout,variancef,variance,varn,warning,wavread,wavwrite,%
6760 wcenter,wfir,what,whereami,whereis,where,while,whos,who_user,who,%
6761 wiener,wigner>window,winsid,with_gtk,with_pvm,with_textmacs,%
6762 with_tk,writb,write4b,write,xarcs,xarc,xarrows,xaxis,xbase,%
6763 xbasimp,xbasr,xchange,xclear,xclea,xclick,xclip,xdel,xend,xfarcs,%
6764 xfarc,xfpolys,xfpoly,xirect,xgetech,xgetfile,xgetmouse,xget,%
6765 xgraduate,xgrid,xinfo,xinit,xlfont,xload,xname,xnumb,xpause,%
6766 xpolys,xpoly,xrects,xrect,xrpoly,xs2fig,xs2gif,xs2ppm,xs2ps,%
6767 xsave,xsegs,select,xsetech,xsetm,xset,xstringb,xstringl,xstring,%
6768 xtape,xtitle,x_choices,x_choose,x_dialog,x_matrix,x_mdialog,%
6769 x_message_modeless,x_message,yulewalk,zeros,zgrid,zpbutt,%
6770 zpch1,zpch2,zpell,mfprintf,mfscanf,mprintf,mscanf,msprintf,%
6771 msscanf,mucomp,%
6772 ABSBLK_f,AFFICH_f,ANDLOG_f,ANIMXY_f,BIGSOM_f,CLINDUMMY_f,CLKIN_f,%
6773 CLKINV_f,CLKOUT_f,CLKOUTV_f,CLKSOM_f,CLKSOMV_f,CLKSPLIT_f,%

```

```

6774     CLOCK_f,CLR_f,CLSS_f,CONST_f,COSBLK_f,CURV_f,DELAY_f,DELAYV_f,%
6775     DEMUX_f,DLR_f,DLRADAPT_f,DLSS_f,EVENTSCOPE_f,EVTDLY_f,EVTGEN_f,%
6776     EXPBLK_f,G_make,GAIN_f,GAINBLK_f,GENERAL_f,GENERIC_f,GENSIN_f,%
6777     GENSQR_f,HALT_f,IFTHEL_f,IN_f,INTEGRAL_f,INTRP2BLK_f,INTRPLBLK_f,%
6778     INVBLK_f,LOGBLK_f,LOOKUP_f,Matplot1,Matplot,MAX_f,MCLOCK_f,%
6779     MFCLCK_f,MIN_f,MUX_f,NDcost,NEGTOPOS_f,OUT_f,POSTONEG_f,POWBLK_f,%
6780     PROD_f,QUANT_f,RAND_f,READC_f,REGISTER_f,RELAY_f,RFILE_f,%
6781     ScilabEval,Sfgrayplot,Sgrayplot,SAMPLEHOLD_f,SAT_f,SAWTOOTH_f,%
6782     SCOPE_f,SCOPXY_f,SELECT_f,SINBLK_f,SOM_f,SPLIT_f,STOP_f,SUPER_f,%
6783     TANBLK_f,TCLSS_f,TEXT_f,TIME_f,TK_EvalFile,TK_EvalStr,TK_GetVar,%
6784     TK_SetVar,TRASH_f,WFILE_f,WRITEC_f,ZCROSS_f,%
6785     \%asn,\%helps,\%k,\%sn},%
6786     alsoletter=\%,% chmod
6787     sensitive,%
6788     morecomment=[l]//,%
6789     morestring=[b]" ,%
6790     morestring=[m]'%
6791 }[keywords,comments,strings]
6792 </lang1>

```

2.74 SHELXL

Thanks to Aidan Philip Heerdegen for mailing this definition.

```

6793 (*lang2)
6794 %%
6795 %% SHELXL definition (c) 1999 Aidan Philip Heerdegen
6796 %%
6797 \lst@definlanguage{SHELXL}%
6798 {morekeywords={TITL,CELL,ZERR,LATT,SYMM,SFAC,DISP,UNIT,LAUE,%
6799     REM,MORE,TIME,END,HKLF,OMIT,SHEL,BASF,TWIN,EXTI,SWAT,%
6800     MERG,SPEC,RESI,MOVE,ANIS,AFIX,HFIX,FRAG,FEND,EXYZ,EADP,%
6801     EQIV,OMIT,CONN,PART,BIND,FREE,DFIX,BUMP,SAME,SADI,CHIV,%
6802     FLAT,DELU,SIMU,DEFS,ISOR,SUMP,L.S.,CGLS,SLIM,BLOC,DAMP,%
6803     WGHT,FVAR,BOND,CONF,MPLA,RTAB,LIST,ACTA,SIZE,TEMP,WPDB,%
6804     FMAP,GRID,PLAN,MOLE},%
6805     sensitive=false,%
6806     alsoother=_,% Makes the syntax highlighting ignore the underscores
6807     morecomment=[l]{! } ,%
6808 }%
6809 </lang2>

```

2.75 Simula

Took data from

- GÜNTHER LAMPRECHT: **Introduction to SIMULA 67**; Braunschweig; Wiesbaden: Vieweg, 1981

```

6810 (*lang3)

```

```

6811 \lst@definlanguage[IBM]{Simula}[DEC]{Simula}{}%
6812 \lst@definlanguage[DEC]{Simula}[67]{Simula}%
6813   {morekeywords={and,eq,eqv,ge,gt,hidden,imp,le,long,lt,ne,not,%
6814     options,or,protected,short}}%
6815   }%
6816 \lst@definlanguage[CII]{Simula}[67]{Simula}%
6817   {morekeywords={and,equiv,exit,impl,not,or,stop}}%
6818 \lst@definlanguage[67]{Simula}%
6819   {morekeywords={activate,after,array,at,before,begin,boolean,%
6820     character,class,comment,delay,detach,do,else,end,external,false,%
6821     for,go,goto,if,in,inner,inspect,integer,is,label,name,new,none,%
6822     notext,otherwise,prior,procedure,qua,reactivate,real,ref,resume,%
6823     simset,simulation,step,switch,text,then,this,to,true,until,value,%
6824     virtual,when,while},%
6825     sensitive=f,%
6826     keywordcommentsemicolon={end}{else,end,otherwise,when}{comment},%
6827     morestring=[d] ",%
6828     morestring=[d] '%
6829   }[keywords,keywordcomments,strings]
6830 </lang3>

```

2.76 SPARQL

This definition for the SPARQL query language (SPARQL Protocol and RDF Query Language, <http://www.w3.org/TR/rdf-sparql-query/>) was provided by Christoph Kiefer.

```

6831 (*lang3)
6832 %%
6833 %% SPARQL definition (c) 2006 Christoph Kiefer
6834 %%
6835 \lst@definlanguage{SPARQL}%
6836   {morekeywords={BASE,PREFIX,SELECT,DISTINCT,CONSTRUCT,DESCRIBE,ASK,%
6837     FROM,NAMED,WHERE,ORDER,BY,ASC,DESC,LIMIT,OFFSET,OPTIONAL,%
6838     GRAPH,UNION,FILTER,a,STR,LANG,LANGMATCHES,DATATYPE,BOUND,%
6839     isIRI,isURI,isBLANK,isLITERAL,REGEX,true,false},%
6840     sensitive=false,%
6841     morecomment=[l]\#,%
6842     morestring=[d] ',%
6843     morestring=[d] "%
6844   }[keywords,comments,strings]
6845 </lang3>

```

2.77 SQL

Data come from Christian Haul. Neil Conway added some keywords, ditto Torsten Flatter, Robert Frank and Dirk Jesko. Hilmar Preuße informed about

an issue mentioned at <https://bugs.debian.org/626521>, the issue got corrected.

```
6846 (*lang1)

6847 %%
6848 %% SQL definition (c) 1998 Christian Haul
6849 %%                (c) 2002 Neil Conway
6850 %%                (c) 2002 Robert Frank
6851 %%                (c) 2003 Dirk Jesko
6852 %%
6853 \lst@definelanguage{SQL}%
6854 {morekeywords={ABSOLUTE,ACTION,ADD,ALLOCATE,ALTER,ARE,AS,ASSERTION,%
6855   AT,BEGIN,BETWEEN,BIT_LENGTH,BOTH,BY,CASCADE,CASCADDED,CASE,CAST,%
6856   CATALOG,CHAR_LENGTH,CHARACTER_LENGTH,CLUSTER,COALESCE,%
6857   COLLATE,COLLATION,COLUMN,CONNECT,CONNECTION,CONSTRAINT,%
6858   CONSTRAINTS,CONVERT,CORRESPONDING,CREATE,CROSS,CURRENT_DATE,%
6859   CURRENT_TIME,CURRENT_TIMESTAMP,CURRENT_USER,DAY,DEALLOCATE,%
6860   DEC,DEFERRABLE,DEFERED,DESCRIBE,DESCRIPTOR,DIAGNOSTICS,%
6861   DISCONNECT,DOMAIN,DROP,ELSE,END,EXEC,EXCEPT,EXCEPTION,EXECUTE,%
6862   EXTERNAL,EXTRACT,FALSE,FIRST,FOREIGN,FROM,FULL,GET,GLOBAL,%
6863   GRAPHIC,HAVING,HOURL,IDENTITY,IMMEDIATE,INDEX,INITIALLY,INNER,%
6864   INPUT,INSENSITIVE,INSERT,INTO,INTERSECT,INTERVAL,%
6865   ISOLATION,JOIN,KEY,LAST,LEADING,LEFT,LEVEL,LIMIT,LOCAL,LOWER,%
6866   MATCH,MINUTE,MONTH,NAMES,NATIONAL,NATURAL,NCHAR,NEXT,NO,NOT,NULL,%
6867   NULLIF,OCTET_LENGTH,ON,ONLY,ORDER,ORDERED,OUTER,OUTPUT,OVERLAPS,%
6868   PAD,PARTIAL,POSITION,PREPARE,PRESERVE,PRIMARY,PRIOR,READ,%
6869   RELATIVE,RESTRICT,REVOKE,RIGHT,ROWS,SCROLL,SECOND,SELECT,SESSION,%
6870   SESSION_USER,SIZE,SPACE,SQLSTATE,SUBSTRING,SYSTEM_USER,%
6871   TABLE,TEMPORARY,THEN,TIMEZONE_HOUR,%
6872   TIMEZONE_MINUTE,TRAILING,TRANSACTION,TRANSLATE,TRANSLATION,TRIM,%
6873   TRUE,UNIQUE,UNKNOWN,UPPER,USAGE,USING,VALUE,VALUES,%
6874   VARGRAPHIC,VARYING,WHEN,WHERE,WRITE,YEAR,ZONE,%
6875   AND,ASC,avg,CHECK,COMMIT,count,DECODE,DESC,DISTINCT,GROUP,IN,% FF
6876   LIKE,NUMBER,ROLLBACK,SUBSTR,sum,VARCHAR2,% FF
6877   MIN,MAX,UNION,UPDATE,% RF
6878   ALL,ANY,CUBE,CUBE,DEFAULT,DELETE,EXISTS,GRANT,OR,RECURSIVE,% DJ
6879   ROLE,ROLLUP,SET,SOME,TRIGGER,VIEW},% DJ
6880 moreendkeywords={BIT,BLOB,CHAR,CHARACTER,CLOB,DATE,DECIMAL,FLOAT,% DJ
6881   INT,INTEGER,NUMERIC,SMALLINT,TIME,TIMESTAMP,VARCHAR},% moved here
6882 sensitive=false,% DJ
6883 morecomment=[l]--,%
6884 morecomment=[s]{/*}{*/},%
6885 morestring=[d]',%
6886 morestring=[d]"%
6887 }[keywords,comments,strings]
6888 (/lang1)
```


2.78 Swift

The definition for Swift was provided by Stefan Jager.

```
6889 (*lang3)
6890 \lst@definlanguage{Swift}{%
6891   morekeywords={associatedtype,class,deinit,enum,extension,fileprivate,%
6892     func,import,init,inout,internal,let,open,operator,private,protocol,%
6893     public,static,struct,subscript,typealias,var,break,case,continue,%
6894     default,defer,do,else,fallthrough,for,guard,if,in,repeat,return,%
6895     switch,where,while,as,Any,catch,false,is,nil,rethrows,super,self,%
6896     Self,throw,throws,true,try,_,associativity,convenience,dynamic,%
6897     didSet,final,get,infix,indirect,lazy,left,mutating,none,%
6898     nonmutating,optional,override,postfix,precedence,prefix,Protocol,%
6899     required,right,set,Type,unowned,weak,willSet},%
6900   sensitive,%
6901   morecomment=[s]{/*}{*/},%
6902   morecomment=[s]{/**}{*/},%
6903   morecomment=[l]//,%
6904   morecomment=[l]///,%
6905   morestring=[b]",%
6906   morestring=[b]""",%
6907   moredelim=[directive]\#,%
6908   moredirectives={available,colorLiteral,column,else,elseif,endif,file,%
6909     fileLiteral,function,if,imageLiteral,line,selector,sourceLocation}%
6910 }[keywords,comments,strings,directives]%
6911 (/lang3)
```

2.79 Tcl/Tk

Tcl/Tk is a very dynamic language. A statical analysis might not be adequate. Nevertheless the following definitions produce the desired result for my programs with a minimum of “misses”.

Data come from

- WELCH, BRENT B.: **Practical Programming in Tcl and Tk**; © 1997 Prentice Hall, Inc.; ISBN 0-13-616830-2.
- OUSTERHOUT, JOHN K.: **Tcl and the Tk Toolkit**; © 1997 Addison-Wesley Publishing Company; ISBN 0-201-6337-X.

Gerd Neugebauer added support for Tcl/Tk.

```
6912 (*lang2)
6913 %%
6914 %% Tcl/Tk definition (c) Gerd Neugebauer
6915 %%
6916 \lst@definlanguage{tk}{tcl}[]{}{tcl}%
6917 {morekeywords={activate,add,separator,radiobutton,checkboxbutton,%
6918   command,cascade,all,bell,bind,bindtags,button,canvas,canvasx,%
6919   canvasy,cascade,cget,checkboxbutton,config,configu,configur,%
```

```

6920 configure,clipboard,create,arc,bitmap,image,line,oval,polygon,%
6921 rectangle,text,textwindow,curseselection,delete,destroy,end,entry,%
6922 entrycget,event,focus,font,actual,families,measure,metrics,names,%
6923 frame,get,grab,current,release,status,grid,columnconfigure,%
6924 rowconfigure,image,image,create,bitmap,photo,delete,height,types,%
6925 width,names,index,insert,invoke,itemconfigure,label,listbox,lower,%
6926 menu,menubutton,message,move,option,add,clear,get,readfile,pack,%
6927 photo,place,radiobutton,raise,scale,scroll,scrollbar,search,see,%
6928 selection,send,stdin,stdout,stderr,tag,bind,text,tk,tkerror,%
6929 tkwait>window,variable,visibility,toplevel,unknown,update,winfo,%
6930 class,exists,ismapped,parent,reqwidth,reqheight,rootx,rooty,%
6931 width,height,wm,aspect,client,command,deiconify,focusmodel,frame,%
6932 geometry,group,iconbitmap,iconify,iconmask,iconname,iconposition,%
6933 iconwindow,maxsize,minsize,overrideredirect,positionfrom,%
6934 protocol,sizefrom,state,title,transient,withdraw,xview,yview,%
6935 yposition,%
6936 -accelerator,-activebackground,-activeborderwidth,%
6937 -activeforeground,-after,-anchor,-arrow,-arrowshape,-aspect,%
6938 -async,-background,-before,-bg,-bigincrement,-bitmap,-bordermode,%
6939 -borderwidth,-button,-capstyle,-channel,-class,-closeenough,%
6940 -colormap,-column,-columnspan,-command,-confine,-container,%
6941 -count,-cursor,-data,-default,-detail,-digits,-direction,%
6942 -displayof,-disableforeground,-elementborderwidth,-expand,%
6943 -exportselection,-extend,-family,-fg,-file,-fill,-focus,-font,%
6944 -fontmap,-foreground,-format,-from,-gamma,-global,-height,%
6945 -highlightbackground,-highlightcolor,-highlightthickness,-icon,%
6946 -image,-in,-insertbackground,-insertborderwidth,-insertofftime,%
6947 -insertontime,-insertwidth,-ipadx,-ipady,-joinstyle,-jump,%
6948 -justify,-keycode,-keysym,-label,-lastfor,-length,-maskdata,%
6949 -maskfile,-menu,-message,-mode,-offvalue,-onvalue,-orient,%
6950 -outlien,-outlinestipple,-overstrike,-override,-padx,-pady,%
6951 -pageanchor,-pageheight,-pagewidth,-pagey,-pagey,-palette,%
6952 -parent,-place,-postcommand,-relheight,-relief,-relwidth,-relx,%
6953 -rely,-repeatdelay,-repeatinterval,-resolution,-root,-rootx,%
6954 -rooty,-rotate,-row,-rowspan,-screen,-selectcolor,-selectimage,%
6955 -sendevent,-serial,-setgrid,-showvalue,-shrink,-side,-size,%
6956 -slant,-sliderlength,-sliderrelief,-smooth,-splinesteps,-state,%
6957 -sticky,-stipple,-style,-subsample,-subwindow,-tags,-takefocus,%
6958 -tearoff,-tearoffcommand,-text,-textvariable,-tickinterval,-time,%
6959 -title,-to,-troughcolor,-type,-underline,-use,-value,-variable,%
6960 -visual,-width,-wrap,-wraplength,-x,-xscrollcommand,-y,%
6961 -bgstipple,-fgstipple,-lmargin1,-lmargin2,-rmargin,-spacing1,%
6962 -spacing2,-spacing3,-tabs,-yscrollcommand,-zoom,%
6963 activate,add,addtag,bbox,cget,clone,configure,coords,%
6964 curseselection,debug,delete,delta,deselect,dlineinfo,dtag,dump,%
6965 entrycget,entryconfigure,find,flash,fraction,get,gettext,handle,%
6966 icursor,identify,index,insert,invoke,itemcget,itemconfigure,mark,%
6967 moveto,own,post,postcascade,postscript,put,redither,ranges,%
6968 scale,select,show,tag,type,unpost,xscrollcommand,xview,%
6969 yscrollcommand,yview,yposition}%

```

```

6970 }%
6971 \lst@definelanguage[] {tcl}%
6972 {alsoletter={.:,*=&-},%
6973 morekeywords={after,append,array, names,exists, anymore,donesearch,%
6974 get,nextelement,set,size,startsearch,auto_mkindex,binary,break,%
6975 case,catch,cd,clock,close,concat,console,continue,default,else,%
6976 elseif,eof,error,eval,exec,-keepnewline,exit,expr,fblocked,%
6977 fconfigure,fcopy,file,atime,dirname,executable,exists,extension,%
6978 isdirectory,isfile,join,lstat,mtime,owned,readable,readlink,%
6979 rootname,size,stat,tail,type,writable,-permissions,-group,-owner,%
6980 -archive,-hidden,-readonly,-system,-creator,-type,-force,%
6981 fileevent,flush,for,foreach,format,gets,glob,global,history,if,%
6982 incr,info,argsbody,cmdcount,commands,complete,default,exists,%
6983 globals,level,library,locals,patchlevel,procs,script,tclversion,%
6984 vars,interp,join,lappend,lindex,linsert,list,llength,lrange,%
6985 lreplace,lsearch,-exact,-regex,-glob,lsort,-ascii,-integer,%
6986 -real,-dictionary,-increasing,-decreasing,-index,-command,load,%
6987 namespace,open,package,forget,ifneeded,provide,require,unknown,%
6988 vcompare,versions,vsatisfies,pid,proc,puts,-nonewline,pwd,read,%
6989 regex,-indices,regsub,-all,-nocasereaname,return,scan,seek,set,%
6990 socket,source,split,string,compare,first,index,last,length,match,%
6991 range,tolower,toupper,trim,trimleft,trimright,subst,switch,tell,%
6992 time,trace,variable,vdelete,vinfo,unknown,unset,uplevel,upvar,%
6993 vwait,while,acos,asin,atan,atan2,ceil,cos,cosh,exp,floor,fmod,%
6994 hypot,log,log10,pow,sin,sinh,sqrt,tan,tanh,abs,double,int,round%
6995 },%
6996 morestring=[d]",%
6997 morecomment=[f]\#,%
6998 morecomment=[l]{;\#},%
6999 morecomment=[l]{[\#},%
7000 morecomment=[l]{\{\#}%
7001 }[keywords,comments,strings]

```

And after receiving a bug report from Vitaly A. Repin I converted the version 0.21 contents of MoreSelectCharTable to version 1.0.

```
7002 </lang2>
```

2.80 Statistical languages

These languages have been added by Winfried Theis. Robert Denham contributed the additional string delimiter '.

```
7003 (*lang3)
```

```

7004 \lst@definelanguage{S}[] {R}-{ }
7005 \lst@definelanguage[PLUS]{S}[] {R}-{ }
7006 \lst@definelanguage{R}%
7007 {keywords={abbreviate,abline,abs,acos,acosh,action,add1,add,%
7008 aggregate,alias,Alias,alist,all,anova,any,aov,aperm,append,apply,%
7009 approx,approxfun,apropos,Arg,args,array,arrows,as,asin,asinh,%

```

```

7010 atan,atan2,atanh,attach,attr,attributes,autoload,autoloader,ave,%
7011 axis,backsolve,barplot,basename,besselI,besselJ,besselK,besselY,%
7012 beta,binomial,body,box,boxplot,break,browser,bug,builtins,bxp,by,%
7013 c,C,call,Call,case,cats,category,cbind,ceiling,character,char,%
7014 charmatch,check,chol,chol2inv,choose,chull,class,close,cm,codes,%
7015 coef,coefficients,co,col,colnames,colors,colours,commandArgs,%
7016 comment,complete,complex,conflicts,Conj,contents,contour,%
7017 contrasts,contr,control,helmert,contrib,convolve,cooks,coords,%
7018 distance,coplot,cor,cos,cosh,count,fields,cov,covratio,wt,CRAN,%
7019 create,crossprod,cummax,cummin,cumprod,cumsum,curve,cut,cycle,D,%
7020 data,dataentry,date,dbeta,dbinom,dcauchy,dchisq,de,debug,%
7021 debugger,Defunct,default,delay,delete,deltat,demo,de,density,%
7022 deparse,dependencies,Deprecated,deriv,description,detach,%
7023 dev2bitmap,dev,cur,deviance,off,prev,,dexp,df,dfbetas,dfits,%
7024 dgamma,dgeom,dget,dhyper,diag,diff,digamma,dim,dimnames,dir,%
7025 dirname,dlnorm,dlogis,dnbinom,dnchisq,dnorm,do,dotplot,double,%
7026 download,dpois,dput,drop,drop1,dsignrank,dt,dummy,dump,dunif,%
7027 duplicated,dweibull,dwilcox,dyn,edit,eff,effects,eigen,else,%
7028 emacs,end,environment,env,erase,eval,equal,evalq,example,exists,%
7029 exit,exp,expand,expression,External,extract,extractAIC,factor,%
7030 fail,family,fft,file,filled,find,fitted,fivenum,fix,floor,for,%
7031 For,formals,format,formatC,formula,Fortran,forwardsolve,frame,%
7032 frequency,ftable,ftable2table,function,gamma,Gamma,gammaCody,%
7033 gaussian,gc,gcinfo,gctorture,get,getenv,geterrmessage,getOption,%
7034 getwd,gl,glm,globalenv,gnome,GNOME,graphics,gray,grep,greys,grid,%
7035 gsub,hasTsp,hats,heat,help,hist,home,hsv,httpClient,I,identify,if,%
7036 ifelse,Im,image,\%in\%,index,influence,measures,inherits,install,%
7037 installed,integer,interaction,interactive,Internal,intersect,%
7038 inverse,invisible,IQR,is,jitter,kappa,kronecker,labels,lapply,%
7039 layout,lbeta,lchoose,lcm,legend,length,levels,lgamma,library,%
7040 licence,license,lines,list,lm,load,local,locator,log,log10,log1p,%
7041 log2,logical,loglin,lower,lowess,ls,lsfit,lsf,ls,machine,Machine,%
7042 mad,mahalanobis,make,link,margin,match,Math,matlines,mat,matplot,%
7043 matpoints,matrix,max,mean,median,memory,menu,merge,methods,min,%
7044 missing,Mod,mode,model,response,mosaicplot,mtext,mvfft,na,nan,%
7045 names,omit,nargs,nchar,ncol,NCOL,new,next,NextMethod,nextn,%
7046 nlevels,nlm,noquote,NotYetImplemented,NotYetUsed,nrow,NROW,null,%
7047 numeric,\%o\%,objects,offset,old,on,Ops,optim,optimise,optimize,%
7048 options,or,order,ordered,outer,package,packages,page,pairlist,%
7049 pairs,palette,panel,par,parent,parse,paste,path,pbeta,pbinom,%
7050 pcauchy,pchisq,pentagamma,persp,pexp,pf,pgamma,pgeom,phyper,pico,%
7051 pictex,piechart,Platform,plnorm,plogis,plot,pmatch,pmax,pmin,%
7052 pnbinom,pnchisq,pnorm,points,poisson,poly,polygon,polyroot,pos,%
7053 postscript,power,ppoints,ppois,predict,preplot,pretty,Primitive,%
7054 print,prmatrix,proc,prod,profile,proj,prompt,prop,provide,%
7055 psignrank,ps,pt,ptukey,punif,pweibull,pwilcox,q,qbeta,qbinom,%
7056 qcauchy,qchisq,qexp,qf,qgamma,qgeom,qhyper,qlnorm,qlogis,qnbinom,%
7057 qnchisq,qnorm,qpois,qqline,qqnrm,qqplot,qf,Q,qty,qy,qsingrank,%
7058 qt,qtukey,quantile,quasi,quit,qunif,quote,qweibull,qwilcox,%
7059 rainbow,range,rank,rbeta,rbind,rbinom,rcauchy,rchisq,Re,read,csv,%

```

```

7060     csv2,fwf,readline,socket,real,Recall,rect,reformulate,regexpr,%
7061     relevel,remove,rep,repeat,replace,replications,report,require,%
7062     resid,residuals,restart,return,rev,exp,rf,rgamma,rgb,rgeom,R,%
7063     rhyper,rle,rlnorm,rlogis,rm,rnbinom,RNGkind,rnorm,round,row,%
7064     rownames,rowsum,rpois,rsignrank,rstandard,rstudent,rt,rug,runif,%
7065     rweibull,rwilcox,sample,sapply,save,scale,scan,scan,screen,sd,se,%
7066     search,searchpaths,segments,seq,sequence,setdiff,setequal,set,%
7067     setwd,show,sign,signif,sin,single,sinh,sink,solve,sort,source,%
7068     spline,splinefun,split,sqrt,stars,start,stat,stem,step,stop,%
7069     storage,strsrheight,stripplot,strsplit,structure,strwidth,sub,%
7070     subset,substitute,substr,substring,sum,summary,sunflowerplot,svd,%
7071     sweep,switch,symbol,symbols,symnum,sys,status,system,t,table,%
7072     tabulate,tan,tanh,tapply,tempfile,terms,terrain,tetragamma,text,%
7073     time,title,topo,trace,traceback,transform,tri,trigamma,trunc,try,%
7074     ts,tsp,typeof,unclass,undebug,undoc,union,unique,uniroot,unix,%
7075     unlink,unlist,unname,untrace,update,upper,url,UseMethod,var,%
7076     variable,vector,Version,vi,warning,warnings,weighted,weights,%
7077     which,while>window,write,\%x\%,x11,X11,xedit,xemacs,xinch,xor,%
7078     xpdrows,xy,xyinch,yinch,zapsmall,zip},%
7079     otherkeywords={!,!=,~, $,*,\&,\%/\%,\%*\%,\%\/%,<-,<<-,_,/},%
7080     alsoother={._$},%
7081     sensitive,%
7082     morecomment=[l]\#,%
7083     morestring=[d]" ,%
7084     morestring=[d]'% 2001 Robert Denham
7085 }%

```

Benjamin Janson got a `prockeywords undefined error`, which was removed by Heiko Oberdiek.

```

7086 \lst@definelanguage{SAS}{%
7087   procnamekeys={proc},%
7088   morekeywords={DATA, AND, OR, NOT, EQ, GT, LT, GE, LE, NE, INFILE, INPUT,%
7089     DO, BY, TO, SIN, COS, OUTPUT, END, PLOT, RUN, LIBNAME, VAR, TITLE,%
7090     FIRSTOBS, OBS, DELIMITER, DLM, EOF, ABS, DIM, HBOUND, LBOUND, MAX, MIN,%
7091     MOD, SIGN, SQRT, CEIL, FLOOR, FUZZ, INT, ROUND, TRUNC, DIGAMMA, ERF,%
7092     ERFC, EXP, GAMMA, LGAMMA, LOG, LOG2, LOG10, ARCOS, ARSIN, ATAN, COSH,%
7093     SINH, TANH, TAN, POISSON, PROBBETA, PROBBNML, PROBCHI, PROBF, PROBGAM,%
7094     PROBHYP, PROBNEGB, PROBNORM, PROBT, BETAINV, CINV, FINV, GAMINV,%
7095     PROBIT, TINV, CSS, CV, KURTOSIS, MEAN, NMISS, RANGE, SKEWNESS, STD,%
7096     STDERR, SUM, USS, NORMAL, RANBIN, RANCAU, RANEXP, RANGAM, RANNOR,%
7097     RANPOI, RANTBL, RANTRI, RANUNI, UNIFORM, IF, THEN, ELSE, WHILE, UNTIL,%
7098     DROP, KEEP, LABEL, DEFAULT, ARRAY, MERGE, CARDS, CARDS4, PUT, SET,%
7099     UPDATE, ABORT, DELETE, DISPLAY, LIST, LOSTCARD, MISSING, STOP, WHERE,%
7100     ARRAY, DROP, KEEP, WINDOW, LENGTH, RENAME, RETAIN, MEANS, UNIVARIATE,%
7101     SUMMARY, TABULATE, CORR, FREQ, FOOTNOTE, NOTE, SHOW},%
7102   otherkeywords={!,!=,~, $,*,\&,_/,<,>=,<,>},%
7103   morestring=[d]'%
7104 }[keywords,comments,strings,procnames]%
7105 \end{lang3}

```

2.81 TeX

I extracted the data from `plain.tex`, `latex.ltx`, and `size10.clo`. Dr. Peter Leibner reported that some keywords are missing and also added a couple.

```

7106 (*lang3)
7107 \lst@definlanguage[AllLaTeX]{TeX}[LaTeX]{TeX}%
7108   {moretexcs={AtBeginDocument,AtBeginDvi,AtEndDocument,AtEndOfClass,%
7109             AtEndOfPackage,ClassError,ClassInfo,ClassWarning,%
7110             ClassWarningNoLine,CurrentOption,DeclareErrorFont,%
7111             DeclareFixedFont,DeclareFontEncoding,DeclareFontEncodingDefaults,%
7112             DeclareFontFamily,DeclareFontShape,DeclareFontSubstitution,%
7113             DeclareMathAccent,DeclareMathAlphabet,DeclareMathAlphabet,%
7114             DeclareMathDelimiter,DeclareMathRadical,DeclareMathSizes,%
7115             DeclareMathSymbol,DeclareMathVersion,DeclareOldFontCommand,%
7116             DeclareOption,DeclarePreloadSizes,DeclareRobustCommand,%
7117             DeclareSizeFunction,DeclareSymbolFont,DeclareSymbolFontAlphabet,%
7118             DeclareTextAccent,DeclareTextAccentDefault,DeclareTextCommand,%
7119             DeclareTextCommandDefault,DeclareTextComposite,%
7120             DeclareTextCompositeCommand,DeclareTextFontCommand,%
7121             DeclareTextSymbol,DeclareTextSymbolDefault,ExecuteOptions,%
7122             GenericError,GenericInfo,GenericWarning,IfFileExists,%
7123             InputIfFileExists,LoadClass,LoadClassWithOptions,MessageBreak,%
7124             OptionNotUsed,PackageError,PackageInfo,PackageWarning,%
7125             PackageWarningNoLine,PassOptionsToClass,PassOptionsToPackage,%
7126             ProcessOptionsProvidesClass,ProvidesFile,ProvidesFile,%
7127             ProvidesPackage,ProvideTextCommand,RequirePackage,%
7128             RequirePackageWithOptions,SetMathAlphabet,SetSymbolFont,%
7129             TextSymbolUnavailable,UseTextAccent,UseTextSymbol},%
7130   morekeywords={array,center,displaymath,document,enumerate,eqnarray,%
7131               equation,flushleft,flushright,itemize,list,lrbox,math,minipage,%
7132               picture,sloppypar,tabbing,tabular,trivlist,verbatim}%
7133   }%
7134 \lst@definlanguage[LaTeX]{TeX}[common]{TeX}%
7135   {moretexcs={a,AA,aa,addcontentsline,addpenalty,addtocontents,%
7136             addtocounter,addtolength,addtoversion,advspace,alpha,Alph,and,%
7137             arabic,array,arraycolsep,arrayrulewidth,arraystretch,author,%
7138             baselinestretch,begin,bezier,bfseries,bibcite,bibdata,bibitem,%
7139             bibliography,bibliographystyle,bibstyle,bigskip,boldmath,%
7140             botfigrule,bottomfraction,Box,caption,center,CheckCommand,circle,%
7141             citation,cite,cleardoublepage,clearpage,cline,columnsep,%
7142             columnseprule,columnwidth,contentsline,dashbox,date,dblfigrule,%
7143             dblfloatpagefraction,dblfloatsep,dbltextfloatsep,dbltopfraction,%
7144             defaultscriptratio,defaultscriptscriptratio,depth,Diamond,%
7145             displaymath,document,documentclass,documentstyle,doublerulesep,%
7146             em,emph,endarray,endcenter,endedisplaymath,endedocument,%
7147             endenumerate,endeqnarray,endequation,endflushleft,endflushright,%
7148             enditemize,endlist,endlrbox,endmath,endminipage,endpicture,%
7149             endsloppypar,endtabbing,endtabular,endtrivlist,endverbatim,%
7150             enlargethispage,ensuremath,enumerate,eqnarray,equation,%

```

7151 evensidemargin,extracolsep,fbox,fboxrule,fboxsep,filecontents,%
 7152 fill,floatpagefraction,floatsep,flushbottom,flushleft,flushright,%
 7153 fnsymbol,fontencoding,fontfamily,fontseries,fontshape,fontsize,%
 7154 fontsubfuzz,footnotemark,footnotesep,footnotetext,footskip,frac,%
 7155 frame,framebox,fussy,glossary,headheight,headsep,height,hline,%
 7156 hspace,I,include,includeonly,index,inputlineno,intextsep,%
 7157 itemindent,itemize,itemsep,iterate,itshape,Join,kill,label,%
 7158 labelsep,labelwidth,LaTeX,LaTeXe,leadsto,lefteqn,leftmargin,%
 7159 leftmargini,leftmarginii,leftmarginiii,leftmarginiv,leftmarginv,%
 7160 leftmarginvi,leftmark,lhd,lim,linebreak,linespread,linethickness,%
 7161 linewidth,list,listfiles,listfiles,listparindent,lrbox,%
 7162 makeatletter,makeatother,makebox,makeglossary,makeindex,%
 7163 makelabel,MakeLowercase,MakeUppercase,marginpar,marginparpush,%
 7164 marginparsep,marginparwidth,markboth,markright,math,mathbf,%
 7165 mathellipsis,mathgroup,mathit,mathrm,mathsf,mathsterling,mathtt,%
 7166 mathunderscore,mathversion,mbox,mdseries,mho,minipage,%
 7167 multicolumn,multiput,NeedsTeXFormat,newcommand,newcounter,%
 7168 newenvironment,newfont,newhelp,newlabel,newlength,newline,%
 7169 newmathalphabet,newpage,newsavebox,newtheorem,nobreakspace,%
 7170 nobreakspace,nocite,nocorr,nocorrlist,nofiles,nolinebreak,%
 7171 nonumber,nopagebreak,normalcolor,normalfont,normalmarginpar,%
 7172 numberline,obeycr,oddsidemargin,oldstylenums,onecolumn,oval,%
 7173 pagebreak,pagenumbering,pageref,pagestyle,paperheight,paperwidth,%
 7174 paragraphmark,parbox,parsep,partopsep,picture,poptabs,pounds,%
 7175 protect,pushtabs,put,qbezier,qbeziermax,r,raggedleft,raisebox,%
 7176 ref,refstepcounter,renewcommand,renewenvironment,restorecr,%
 7177 reversemarginpar,rhd,rightmargin,rightmark,rmfamily,roman,Roman,%
 7178 rootbox,rule,samepage,sbox,scshape,secdef,section,sectionmark,%
 7179 selectfont,setcounter,settodepth,settoheight,settowidth,sffamily,%
 7180 shortstack,showoutput,showoverfull,sloppy,sloppypar,slshape,%
 7181 smallskip,sqsubset,sqsupset,SS,stackrel,stepcounter,stop,stretch,%
 7182 subparagraphmark,subsectionmark,subsubsectionmark,sum,%
 7183 suppressfloats,symbol,tabbing,tabbingsep,tabcolsep,tabular,%
 7184 tabularnewline,textasciicircum,textasciitilde,textbackslash,%
 7185 textbar,textbf,textbraceleft,textbraceright,textbullet,%
 7186 textcircled,textcompwordmark,texdagger,texdaggerdbl,texdollar,%
 7187 textellipsis,temdash,textendash,teTeXclamdown,teXfloatsep,%
 7188 textfraction,textgreater,textheight,txtit,textless,txtmd,%
 7189 textnormal,teXparagraph,teXperiodcentered,teXquestiondown,%
 7190 textquotedblleft,teXquotedblright,teXquoteleft,teXquoteright,%
 7191 textregistered,teXrm,teXsc,teXsection,teXtsf,teXtsl,%
 7192 textsterling,teXsuperscript,teXtrademark,teXttt,teXunderscore,%
 7193 textup,teXvisiblespace,teXwidth,thanks,the footnote,thempfn,%
 7194 thempfn,thempfootnote,the page,the page,thicklines,thinlines,%
 7195 thispagestyle,title,today,topfigrule,topfraction,topmargin,%
 7196 topsep,totalheight,tracingfonts,trivlist,ttfamily,twocolumn,%
 7197 typein,typeout,unboldmath,unitlength,unlhd,unrhd,upshape,usebox,%
 7198 usecounter,usefont,usepackage,value,vector,verb,verbatim,vline,%
 7199 vspace,width,%
 7200 normalsize,small,footnotesize,scriptsize,tiny,large,Large,LARGE,%

```

7201     huge,Huge}%
7202 }%
7203 \lst@definelanguage[plain]{TeX}[common]{TeX}%
7204 {moretexcs={advancepageno,beginsection,bf,bffam,bye,cal,cleartabs,%
7205     columns,dosupereject,endinsert,ealign,ealignno,fiverm,fivebf,%
7206     fivei,fivesy,folio,footline,hang,headline,it,itemitem,itfam,%
7207     lealignno,magnification,makefootline,makeheadline,midinsert,mit,%
7208     mscount,nopagenumbers,normalbottom,of,oldstyle,pagebody,%
7209     pagecontents,pageinsert,pageno,plainoutput,preloaded,proclaim,rm,%
7210     settabs,sevenbf,seveni,sevensy,sevenrm,sl,slfam,supereject,%
7211     tabalign,tabs,tabsdone,tabsyet,tenbf,tenex,teni,tenit,tenrm,%
7212     tensl,tensy,tentt,textindent,topglue,topins,topinsert,tt,ttfam,%
7213     ttraggedright,vfootnote}%
7214 }%

```

The following language is only a helper.

```

7215 \lst@definelanguage[common]{TeX}[primitive]{TeX}
7216 {moretexcs={active,acute,ae,AE,aleph,allocationnumber,allowbreak,%
7217     alpha,amalg,angle,approx,arccos,arcsin,arctan,arg,arrowvert,%
7218     Arrowvert,ast,asyp,b,backslash,bar,beta,bgroup,big,Big,bigbreak,%
7219     bigcap,bigcirc,bigcup,bigg,Bigg,biggl,Biggl,biggm,Biggm,bigr,%
7220     Biggr,bigl,Bigl,bigm,Bigm,bigodot,bigoplus,bigotimes,bigr,Bigr,%
7221     bigskip,bigskipamount,bigsqcup,bigtriangledown,bigtriangleup,%
7222     biguplus,bigvee,bigwedge,bmod,bordermatrix,bot,bowtie,brace,%
7223     bracehd,bracelu,bracerd,braceru,bracevert,brack,break,breve,%
7224     buildrel,bullet,c,cap,cases,cdot,cdotp,cdots,centering,%
7225     centerline,check,chi,choose,circ,clubsuit,colon,cong,coprod,%
7226     copyright,cos,cosh,cot,coth,csc,cup,d,dag,dagger,dashv,ddag,%
7227     ddagger,ddot,ddots,deg,delta,Delta,det,diamond,diamondsuit,dim,%
7228     displaylines,div,do,dospecials,dot,doteq,dotfill,dots,downarrow,%
7229     Downarrow,downbracefill,egroup,eject,ell,empty,emptyset,endgraf,%
7230     endline,enskip,enspace,epsilon,equiv,eta,exists,exp,filbreak,%
7231     flat,fmtname,fmtversion,footins,footnote,footnoterule,forall,%
7232     frenchspacing,frown,gamma,Gamma,gcd,ge,geq,gets,gg,goodbreak,%
7233     grave,H,h,hbar,heartsuit,hglue,hideskip,hidewidth,hom,%
7234     hookleftarrow,hookrightarrow,hphantom,hrulefill,i,ialign,iff,Im,%
7235     imath,in,inf,infty,int,interdisplaylinepenalty,%
7236     interfootnotelinepenalty,intop,iota,item,j,jmath,joinrel,jot,%
7237     kappa,ker,l,L,lambd,Lambda,land,lang,lbrace,lbrack,lceil,%
7238     ldotp,ldots,le,leavevmode,leftarrow,Leftarrow,leftarrowfill,%
7239     leftharpoonup,leftharpoonup,leftharpoonup,leftharpoonup,%
7240     Leftrightarrow,leq,lfloor,lg,lgroup,lhook,lim,liminf,limsup,line,%
7241     ll,llap,lmoustache,ln,lnot,log,longleftarrow,Longleftarrow,%
7242     longleftrightarrow,Longleftrightarrow,longmapsto,longrightarrow,%
7243     Longrightarrow,loop,lor,lq,magstep,magstep,magstephalf,mapsto,%
7244     mapstochar,mathhexbox,mathpalette,mathstrut,matrix,max,maxdimen,%
7245     medbreak,medskip,medskipamount,mid,min,models,mp,mu,multispan,%
7246     nabla,narrower,natural,ne,nearrow,neg,negthinspace,neq,newbox,%
7247     newcount,newdimen,newfam,newif,newinsert,newlanguage,newmuskip,%
7248     newread,newskip,newtoks,newwrite,next,ni,nobreak,nointerlineskip,%

```



```

7249 nonfrenchspacing,normalbaselines,normalbaselineskip,%
7250 normallineskip,normallineskiplimit,not,notin,nu,null,nwarrow,o,O,%
7251 oalign,obeylines,obeyspaces,odot,oe,OE,offinterlineskip,oint,%
7252 ointop,omega,Omega,ominus,oalign,openup,oplus,oslash,otimes,%
7253 overbrace,overleftarrow,overrightarrow,owns,P,parallel,partial,%
7254 perp,phantom,phi,Phi,pi,Pi,pm,pmatrix,pmod,Pr,prec,preceq,prime,%
7255 prod,propto,psi,Psi,qquad,quad,raggedbottom,raggedright,rangle,%
7256 rbrace,rbrack,rceil,Re,relbar,Relbar,removelastskip,repeat,%
7257 rfloor,rgroup,rho,rhook,rightarrow,Rightarrow,rightarrowfill,%
7258 rightharpoondown,rightharpoonup,rightleftharpoons,linewidth,rlap,%
7259 rmoustache,root,rq,S,sb,searrow,sec,setminus,sharp,showhyphens,%
7260 sigma,Sigma,sim,simeq,sin,sinh,skew,slash,smallbreak,smallint,%
7261 smallskip,smallskipamount,smash,smile,sp,space,spadesuit,sqcap,%
7262 sqcup,sqrt,sqsubseteq,sqsupseteq,ss,star,strut,strutbox,subset,%
7263 subseteq,succ,succeq,sum,sup,supset,supseteq,surd,swarrow,t,tan,%
7264 tanh,tau,TeX,theta,Theta,thinspace,tilde,times,to,top,tracingall,%
7265 triangle,triangleleft,triangleright,u,underbar,underbrace,%
7266 uparrow,Uparrow,upbracefill,updownarrow,Updownarrow,uplus,%
7267 upsilon,Upsilon,v,varepsilon,varphi,varpi,varrho,varsigma,%
7268 vartheta,vdash,vdots,vec,vee,vert,Vert,vglue,vphantom,wedge,%
7269 widehat,widetilde,wlog,wp,wr,xi,Xi,zeta}%
7270 }%

```

Herbert Voss pointed to a typo: the \TeX primitive is `lineskiplimit` instead of `lineskiplimits`.

```

7271 \lst@definelanguage[primitive]{TeX}%
7272 {moretexcs={above,abovedisplayshortskip,abovedisplayskip,aftergroup,%
7273   abovewithdelims,accent,adjdemerits,advance,afterassignment,atop,%
7274   atopwithdelims,badness,baselineskip,batchmode,begingroup,%
7275   belowdisplayshortskip,belowdisplayskip,binoppenalty,botmark,box,%
7276   boxmaxdepth,brokenpenalty,catcode,char,chardef,cleaders,closein,%
7277   closeout,clubpenalty,copy,count,countdef,cr,crcr,csname,day,%
7278   deadcycles,def,defaultshyphenchar,defaultsskewchar,delcode,%
7279   delimiter,delimiterfactor,delimitershortfall,dimen,dimendef,%
7280   discretionary,displayindent,displaylimits,displaystyle,%
7281   displaywidowpenalty,displaywidth,divide,doublehyphenemerits,dp,%
7282   edef,else,emergencystretch,end,endcsname,endgroup,endinput,%
7283   endlinedchar,eqno,errhelp,errmessage,errorcontextlines,%
7284   errorstopmode,escapechar,everycr,everydisplay,everyhbox,everyjob,%
7285   everymath,everypar,everyvbox,exhyphenpenalty,expandafter,fam,fi,%
7286   finalhyphenemerits,firstmark,floatingpenalty,font,fontdimen,%
7287   fontname,futurelet,gdef,global,globaldefs,halign,hangafter,%
7288   hangindent,hbadness,hbox,hfil,hfill,hfilneg,hfuzz,hoffset,%
7289   holdinginserts,hrule,hsize,hskip,hss,ht,hyphenation,hyphenchar,%
7290   hyphenpenalty,if,ifcase,ifcat,ifdim,ifeof,iffalse,ifhbox,ifhmode,%
7291   ifinner,ifmmode,ifnum,ifodd,iftrue,ifvbox,ifvmode,ifvoid,ifx,%
7292   ignorespaces,immediate,indent,input,insert,insertpenalties,%
7293   interlinepenalty,jobname,kern,language,lastbox,lastkern,%
7294   lastpenalty,lastskip,lccode,leaders,left,lefthyphenmin,leftskip,%
7295   leqno,let,limits,linepenalty,lineskip,lineskiplimit,long,%

```

```

7296     looseness, lower, lowercase, mag, mark, mathaccent, mathbin, mathchar, %
7297     mathchardef, mathchoice, mathclose, mathcode, mathinner, mathop, %
7298     mathopen, mathord, mathpunct, mathrel, mathsurround, maxdeadcycles, %
7299     maxdepth, meaning, medmuskip, message, mkern, month, moveleft, %
7300     moveright, mskip, multiply, muskip, muskipdef, newlinechar, noalign, %
7301     noboundary, noexpand, noindent, nolimits, nonscript, nonstopmode, %
7302     nulldelimiterspace, nullfont, number, omit, openin, openout, or, outer, %
7303     output, outputpenalty, over, overfullrule, overline, overwithdelims, %
7304     pagedepth, pagefilllstretch, pagefillstretch, pagefilstretch, %
7305     pagegoal, pageshrink, pagestretch, pagetotal, par, parfillskip, %
7306     parindent, parshape, parskip, patterns, pausing, penalty, %
7307     postdisplaypenalty, predisplaypenalty, predisplaysize, pretolerance, %
7308     prevdepth, prevgraf, radical, raise, read, relax, relpenalty, right, %
7309     righthyphenmin, rightskip, romannumeral, scriptfont, %
7310     scriptscriptfont, scriptscriptstyle, scriptspace, scriptstyle, %
7311     scrollmode, setbox, setlanguage, sfcode, shipout, show, showbox, %
7312     showboxbreadth, showboxdepth, showlists, showthe, skewchar, skip, %
7313     skipdef, spacefactor, spaceskip, span, special, splitbotmark, %
7314     splitfirstmark, splitmaxdepth, splittopskip, string, tabskip, %
7315     textfont, textstyle, the, thickmuskip, thinmuskip, time, toks, toksdef, %
7316     tolerance, topmark, topskip, tracingcommands, tracinglostchars, %
7317     tracingmacros, tracingonline, tracingoutput, tracingpages, %
7318     tracingparagraphs, tracingrestores, tracingstats, uccode, uchyp, %
7319     underline, unhbox, unhcopy, unkern, unpenalty, unskip, unvbox, unvcopy, %
7320     uppercase, vadjust, valign, vbadness, vbox, vcenter, vfil, vfill, %
7321     vfilneg, vfuzz, voffset, vrule, vsize, vskip, vsplit, vss, vtop, wd, %
7322     widowpenalty, write, xdef, xleaders, xspaceskip, year}, %
7323     sensitive, %
7324     alsoother={0123456789$_}, %$ to make Emacs fontlocking happy
7325     morecomment=[1]\%%
7326 }[keywords, tex, comments]%
7327 (/lang3)

```

2.82 VBScript

Sonja Weidmann VBScript sent me this language definition.

```

7328 (*lang2)
7329 %%
7330 %% VBScript definition (c) 2000 Sonja Weidmann
7331 %%
7332 \lst@definlanguage{VBScript}%
7333 {morekeywords={Call, Case, Const, Dim, Do, Each, Else, End, Erase, Error, Exit, %
7334     Explicit, For, Function, If, Loop, Next, On, Option, Private, Public, %
7335     Randomize, ReDim, Rem, Select, Set, Sub, Then, Wend, While, Abs, Array, Asc, %
7336     Atn, CBool, CByte, CCur, CDate, CDb, Chr, CInt, CLng, Cos, CreateObject, %
7337     CSng, CStr, Date, DateAdd, DateDiff, DatePart, DateSerial, DateValue, %
7338     Day, Exp, Filter, Fix, FormatCurrency, FormatDateTime, FormatNumber, %
7339     FormatPercent, GetObject, Hex, Hour, InputBox, InStr, InStrRev, Int, %

```

```

7340     IsArray, IsDate, IsEmpty, IsNull, IsNumeric, IsObject, Join, LBound, %
7341     LCase, Left, Len, LoadPicture, Log, LTrim, Mid, Minute, Month, MonthName, %
7342     MsgBox, Now, Oct, Replace, RGB, Right, Rnd, Round, RTrim, ScriptEngine, %
7343     ScriptEngineBuildVersion, ScriptEngineMajorVersion, %
7344     ScriptEngineMinorVersion, Second, Sgn, Sin, Space, Split, Sqr, StrComp, %
7345     StrReverse, String, Tan, Time, TimeSerial, TimeValue, Trim, TypeName, %
7346     UBound, UCase, VarType, Weekday, WeekdayName, Year, And, Eqv, Imp, Is, %
7347     Mod, Not, Or, Xor, Add, BuildPath, Clear, Close, Copy, CopyFile, %
7348     CopyFolder, CreateFolder, CreateTextFile, Delete, DeleteFile, %
7349     DeleteFolder, Dictionary, Drive, DriveExists, Drives, Err, Exists, File, %
7350     FileExists, FileSystemObject, Files, Folder, FolderExists, Folders, %
7351     GetAbsolutePathName, GetBaseName, GetDrive, GetDriveName, %
7352     GetExtensionName, GetFile, GetFileName, GetFolder, %
7353     GetParentFolderName, GetSpecialFolder, GetTempName, Items, Keys, Move, %
7354     MoveFile, MoveFolder, OpenAsTextStream, OpenTextFile, Raise, Read, %
7355     ReadAll, ReadLine, Remove, RemoveAll, Skip, SkipLine, TextStream, Write, %
7356     WriteBlankLines, WriteLine, Alias, Archive, CDROM, Compressed, %
7357     Directory, Fixed, ForAppending, ForReading, ForWriting, Hidden, Normal, %
7358     RAMDisk, ReadOnly, Remote, Removable, System, SystemFolder, %
7359     TemporaryFolder, TristateFalse, TristateTrue, TristateUseDefault, %
7360     Unknown, Volume, WindowsFolder, vbAbortRetryIgnore, %
7361     vbApplicationModal, vbArray, vbBinaryCompare, vbBlack, vbBlue, %
7362     vbBoolean, vbByte, vbCr, vbCrLf, vbCritical, vbCurrency, vbCyan, %
7363     vbDataObject, vbDate, vbDecimal, vbDefaultButton1, vbDefaultButton2, %
7364     vbDefaultButton3, vbDefaultButton4, vbDouble, vbEmpty, vbError, %
7365     vbExclamation, vbFirstFourDays, vbFirstFullWeek, vbFirstJan1, %
7366     vbFormFeed, vbFriday, vbGeneralDate, vbGreen, vbInformation, %
7367     vbInteger, vbLf, vbLong, vbLongDate, vbLongTime, vbMagenta, vbMonday, %
7368     vbNewLine, vbNull, vbNullChar, vbNullString, vbOKC,ancel, vbOKOnly, %
7369     vbObject, vbObjectError, vbQuestion, vbRed, vbRetryCancel, vbSaturday, %
7370     vbShortDate, vbShortTime, vbSingle, vbString, vbSunday, vbSystemModal, %
7371     vbTab, vbTextCompare, vbThursday, vbTuesday, vbUseSystem, %
7372     vbUseSystemDayOfWeek, vbVariant, vbVerticalTab, vbWednesday, vbWhite, %
7373     vbYellow, vbYesNo, vbYesNoCancel}, %
7374     sensitive=f, %
7375     morecomment=[l] ', %
7376     morestring=[d] "%
7377 }[keywords, comments, strings]
7378 </lang2>

```

2.83 Verilog

Thanks to Cameron H. G. Wright for providing the definition. After a bug report by George M. Georgiou I changed the declaration of directives to use normal keywords.

```

7379 (*lang3)
7380 %%
7381 %% Verilog definition (c) 2003 Cameron H. G. Wright <c.h.g.wright@ieee.org>

```

```

7382 %% Based on the IEEE 1364-2001 Verilog HDL standard
7383 %% Ref: S. Palnitkar, "Verilog HDL: A Guide to Digital Design and Synthesis,"
7384 %%       Prentice Hall, 2003. ISBN: 0-13-044911-3
7385 %%
7386 \lst@definlanguage{Verilog}%
7387 {morekeywords={% reserved keywords
7388     always,and,assign,automatic,begin,buf,bufif0,bufif1,case,casex,%
7389     casez,cell,cmos,config,deassign,default,defparam,design,disable,%
7390     edge,else,end,endcase,endconfig,endfunction,endgenerate,%
7391     endmodule,endprimitive,endspecify,endtable,endtask,event,for,%
7392     force,forever,fork,function,generate,genvar,highz0,highz1,if,%
7393     ifnone,incdir,include,initial,inout,input,instance,integer,join,%
7394     large,liblist,library,localparam,macromodule,medium,module,nand,%
7395     negedge,nmos,nor,noshowcancelled,not,notif0,notif1,or,output,%
7396     parameter,pmos,posedge,primitive,pull0,pull1,pulldown,pullup,%
7397     pulsestyle_onevent,pulsestyle_ondetect,rcmos,real,realtime,reg,%
7398     release,repeat,rnmos,rpmos,rtran,rtranif0,rtranif1,scalared,%
7399     showcancelled,signed,small,specify,specparam,strong0,strong1,%
7400     supply0,supply1,table,task,time,tran,tranif0,tranif1,tri,tri0,%
7401     tri1,triand,trior,triereg,unsigned,use,vectored,wait,wand,weak0,%
7402     weak1,while,wire,wor,xnor,xor},%
7403 morekeywords=[2]{% system tasks and functions
7404     $bitstoreal,$countdrivers,$display,$fclose,$fdisplay,$fmonitor,%
7405     $fopen,$fstrobe,$fwrite,$finish,$getpattern,$history,$incsave,%
7406     $input,$itor,$key,$list,$log,$monitor,$monitoroff,$monitoron,%
7407     $nokey},%
7408 morekeywords=[3]{% compiler directives
7409     'accelerate','autoexpand_vectornets','celldefine','default_nettype,%
7410     'define','else','elsif','endcelldefine','endif','endprotect,%
7411     'endprotected','expand_vectornets','ifdef','ifndef','include,%
7412     'no_accelerate','noexpand_vectornets','noremove_gatenames,%
7413     'nounconnected_drive','protect','protected','remove_gatenames,%
7414     'remove_netnames','resetall','timescale','unconnected_drive},%
7415 alsoletter='\',%
7416 sensitive,%
7417 morecomment=[s]{/*}{*/},%
7418 morecomment=[1]//,% nonstandard
7419 morestring=[b]"%
7420 }[keywords,comments,strings]
7421 </lang3>

```

2.84 VHDL

This language is due to Kai WollenweberVHDL. I've done conversion to version 0.19 only. Gaurav Aggarwal reported that VHDL is case insensitive and Arnaud Tisserand added three keywords.

```

7422 (*lang1)
7423 %%

```

```

7424 %% VHDL definition (c) 1997 Kai Wollenweber
7425 %%
7426 \lst@definelanguage{VHDL}%
7427   {morekeywords={ALL,ARCHITECTURE,ABS,AND,ASSERT,ARRAY,AFTER,ALIAS,%
7428     ACCESS,ATTRIBUTE,BEGIN,BODY,BUS,BLOCK,BUFFER,CONSTANT,CASE,%
7429     COMPONENT,CONFIGURATION,DOWNTO,ELSE,ELSIF,END,ENTITY,EXIT,%
7430     FUNCTION,FOR,FILE,GENERIC,GENERATE,GUARDED,GROUP,IF,IN,INOUT,IS,%
7431     INERTIAL,IMPURE,LIBRARY,LOOP,LABEL,LITERAL,LINKAGE,MAP,MOD,NOT,%
7432     NOR,NAND,NULL,NEXT,NEW,OUT,OF,OR,OTHERS,ON,OPEN,PROCESS,PORT,%
7433     PACKAGE,PURE,PROCEDURE,POSTPONED,RANGE,REM,ROL,ROR,REPORT,RECORD,%
7434     RETURN,REGISTER,REJECT,SIGNAL,SUBTYPE,SLL,SRL,SLA,SRA,SEVERITY,%
7435     SELECT,THEN,TYPE,TRANSPORT,TO,USE,UNITS,UNTIL,VARIABLE,WHEN,WAIT,%
7436     WHILE,XOR,XNOR,%
7437     DISCONNECT,ELIF,WITH},% Arnaud Tisserand
7438   sensitive=f,% 1998 Gaurav Aggarwal
7439   morecomment=[l]--,%
7440   morestring=[d]{"}%
7441   }[keywords,comments,strings]

```

The VHDL-AMS dialect has been added by Steffen Klupsch.

```

7442 %%
7443 %% VHDL-AMS definition (c) Steffen Klupsch
7444 %%
7445 \lst@definelanguage[AMS]{VHDL}[] {VHDL}%
7446   {morekeywords={ACROSS,ARRAY,BREAK,DISCONNECT,NATURE,NOISE,PORT,%
7447     PROCEDURAL,QUANTITY,SHARED,SPECTRUM,SUBNATURE,TERMINAL,THROUGH,%
7448     TOLERANCE,UNAFFECTED,UNITS}}
7449 </lang1>

```

2.85 VRML

This language is due to Oliver BaumVRML.

```

7450 <(*lang2)
7451 %%
7452 %% VRML definition (c) 2001 Oliver Baum
7453 %%
7454 \lst@definelanguage[97]{VRML}{%
7455   morekeywords={DEF,EXTERNPROTO,FALSE,IS,NULL,PROTO,ROUTE,TO,TRUE,%
7456     USE,eventIn,eventOut,exposedField,field,Introduction,Anchor,%
7457     Appearance,AudioClip,Background,Billboard,Box,Collision,Color,%
7458     ColorInterpolator,Cone,Coordinate,CoordinateInterpolator,Cylinder,%
7459     CylinderSensor,DirectionalLight,ElevationGrid,Extrusion,Fog,%
7460     FontStyle,Group,ImageTexture,IndexedFaceSet,IndexedLineSet,Inline,%
7461     LOD,Material,MovieTexture,NavigationInfo,Normal,%
7462     NormalInterpolator,OrientationInterpolator,PixelTexture,PlaneSensor,%
7463     PointLight,PointSet,PositionInterpolator,ProximitySensor,%
7464     ScalarInterpolator,Script,Shape,Sound,Sphere,SphereSensor,%
7465     SpotLight,Switch,Text,TextureCoordinate,TextureTransform,%
7466     TimeSensor,TouchSensor,Transform,Viewpoint,VisibilitySensor,%

```

```

7467     WorldInfo},%
7468     morecomment=[l]\#,% bug: starts comment in the first column
7469     morestring=[b]"%
7470 }[keywords,comments,strings]
7471 </lang2>

```

2.86 XML et al

Bernhard Walle provided the following two definitions.

```

7472 <(*lang1)
7473 \lst@definelanguage{XSLT}[] {XML}%
7474     {morekeywords={%
7475         % main elements
7476         xsl:stylesheet, xsl:transform,%
7477         % childs of the main element
7478         xsl:apply-imports, xsl:attribute-set, xsl:decimal-format, xsl:import,%
7479         xsl:include, xsl:key, xsl:namespace-alias, xsl:output, xsl:param,%
7480         xsl:preserve-space, xsl:strip-space, xsl:template, xsl:variable,%
7481         % 21 directives
7482         xsl:apply-imports, xsl:apply-templates, xsl:attribute,%
7483         xsl:call-template, xsl:choose, xsl:comment, xsl:copy, xsl:copy-of,%
7484         xsl:element, xsl:fallback, xsl:for-each, xsl:if, xsl:message,%
7485         xsl:number, xsl:otherwise, xsl:processing-instruction, xsl:text,%
7486         xsl:value-of, xsl:variable, xsl:when, xsl:with-param},%
7487     alsodigit={-},%
7488     }%
7489 \lst@definelanguage{Ant}[] {XML}{%
7490     morekeywords={%
7491         project, target, patternset, include, exclude, excludesfile,%
7492         includesfile, filterset, filter, filtersfile, libfilesset, custom,%
7493         classpath, filesset, none, depend, mapper, filename, not, date,%
7494         contains, selector, depth, or, and, present, majority, size, dirset,%
7495         filelist, pathelement, path, param, filterreader, extension,%
7496         filterchain, linecontainsregexp, regexp, classconstants, headfilter,%
7497         tabstospaces, striplinebreaks, tailfilter, stripjavacomments,%
7498         expandproperties, linecontains, replacetokens, token,%
7499         striplinecomments, comment, prefixlines, classfilesset, rootfilesset,%
7500         root, description, xmllcatalog, entity, dtd, substitution, extensionSet,%
7501         propertyfile, entry, vsscheckin, sql, transaction, cvspass, csc,%
7502         dirname, wlrn, wlclasspath, p4label, replaceregexp, get, jjtree,%
7503         sleep, jarlib, dependset, targetfilesset, srcfilesset, srcfilelist,%
7504         targetfilelist, zip, zipgroupfilesset, zipfilesset, patch, jspc, webapp,%
7505         style, test, arg, jvmarg, sysproperty, testlet, env, tstamp, format,%
7506         unwar, vsshhistory, icontract, cvschangelog, user, p4submit, ccmcheckin,%
7507         p4change, bzip2, vssadd, javadoc, bottom, source, doctitle, header,%
7508         excludepackage, bootclasspath, doclet, taglet, packageset, sourcepath,%
7509         link, footer, package, group, title, tag, translate, signjar, vajload,%
7510         vajproject, jarlib, extensionset, WsdlToDotnet, buildnumber,%

```

```

7511 jpcovmerge, tomcat, ejbjar, weblogictoplink, jboss, borland, weblogic,%
7512 iplanet, jonas, support, websphere, wasclasspath, war, manifest,%
7513 attribute, section, metainf, lib, classes, webinf, rename, sequential,%
7514 serverdeploy, generic, property, move, copydir, cccheckin, wljspc,%
7515 fixcrlf, sosget, pathconvert, map, record, p4sync, exec, p4edit,%
7516 maudit, rulespath, searchpath, antlr, netrexxc, jpcovreport, reference,%
7517 filters, coveragepath, execon, targetfile, srcfile, ccmcheckout, ant,%
7518 xmlvalidate, xslt, iplanet, ccmcheckintask, gzip, native2ascii,%
7519 starteam, ear, archives, input, rmic, extdirs, compilerarg, checksum,%
7520 mail, bcc, message, cc, to, from, loadfile, vsscheckout, stylebook,%
7521 soscheckin, mimemail, stlabel, gunzip, concat, cab, touch, parallel,%
7522 splash, antcall, cccheckout, typedef, p4have, xmlproperty, copy,%
7523 tomcat, antstructure, ccmcreatetask, rpm, delete, replace,%
7524 replacefilter, replacetoken, replacevalue, mmetrics, waitfor, isfalse,%
7525 equals, available, filepath, os, filesmatch, istru, isset, socket,%
7526 http, uptodate, srcfiles, untar, loadproperties, echoproperties,%
7527 vajexport, stcheckout, bunzip2, copyfile, vsscreate, ejbc, unjar,%
7528 tomcat, wsdltodotnet, mkdir, condition, cvs, commandline, marker,%
7529 argument, tempfile, junitreport, report, taskdef, echo, ccupdate, java,%
7530 renameext, vsslabel, basename, javadoc2, vsscp, tar, tarfileset,%
7531 tomcat, vajimport, setproxy, wlstop, p4counter, ilasm, soscheckout,%
7532 apply, cccheckout, jarlib, location, url, cvstagdiff, jlink,%
7533 mergefiles, addfiles, javacc, pvcs, pvcsproject, jarlib, options,%
7534 depends, chmod, jar, sound, fail, success, mpars, blgenclient, genkey,%
7535 dname, javah, class, ccmreconfigure, unzip, javac, src, p4add,%
7536 soslabel, jpcovmerge, triggers, method, vssget, deltree, ddcreator},%
7537 deletekeywords={default},%
7538 }
7539 </lang1>

```

This is my first attempt to support XML. It is from 2000/07/18.

```

7540 (*lang1)
7541 \lst@definlanguage{XML}%
7542 {keywords={,CDATA,DOCTYPE,ATTLIST,termdef,ELEMENT,EMPTY,ANY,ID,%
7543 IDREF,IDREFS,ENTITY,ENTITIES,NMTOKEN,NMTOKENS,NOTATION,%
7544 INCLUDE,IGNORE,SYSTEM,PUBLIC,NDATA,PUBLIC,%
7545 PCDATA,REQUIRED,IMPLIED,FIXED,%%% preceded by #
7546 xml,xml:space,xml:lang,version,standalone,default,preserve},%
7547 alsoother=$,%
7548 alsoletter=:,%
7549 tag=**[s]<>,%
7550 morestring=[d]",% ??? doubled
7551 morestring=[d]',% ??? doubled
7552 MoreSelectCharTable=%
7553 \lst@CArgX--\relax\lst@DefDelimB{}{}%
7554 {\ifnum\lst@mode=\lst@tagmode\else
7555 \expandafter\@gobblethree
7556 \fi}%
7557 \lst@BeginComment\lst@commentmode{{\lst@commentstyle}}%

```

```

7558     \lst@CArgX--\relax\lst@DefDelimE{}{}{}%
7559         \lst@EndComment\lst@commentmode
7560     \lst@CArgX[CDATA[\relax\lst@CDef{}]%
7561         {\ifnum\lst@mode=\lst@tagmode
7562             \expandafter\lst@BeginCDATA
7563             \else \expandafter\lst@CArgEmpty
7564             \fi}%
7565         \@empty
7566     \lst@CArgX]]\relax\lst@CDef{}%
7567         {\ifnum\lst@mode=\lst@GPmode
7568             \expandafter\lst@EndComment
7569             \else \expandafter\lst@CArgEmpty
7570             \fi}%
7571         \@empty
7572 }[keywords,comments,strings,html]%

```

And after receiving a bug report from Michael Niedermair I converted the version 0.21 contents of MoreSelectCharTable to version 1.0.

```

7573 </lang1>

```