

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

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Abstract

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

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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 }
42
43
44 \ifToplevel{
45 \Msg{*}
46 \Msg{* You probably need to move all created ‘.sty’ and ‘.cfg’}
47 \Msg{* files into a directory searched by TeX.}
48 \Msg{*}
49 \Msg{* Run ‘lstdrvrs.dtx’ through LaTeX2e to get the documentation.}
50 \Msg{*}
51 }
52
53 \endbatchfile
54 </install>
55 <*config>

```

We mainly define default dialects.

```

56 \ProvidesFile{listings.cfg}[2024/02/21 1.10 listings configuration]
57 \def\lstlanguagefiles
58   {lstlang0.sty,lstlang1.sty,lstlang2.sty,lstlang3.sty}
59 \lstset{defaultdialect=[R/3 6.10]ABAP,
60         defaultdialect=[2005]Ada,
61         defaultdialect=[68]Algol,
62         defaultdialect=[gnu]Awk,
63         defaultdialect=[ANSI]C,
64         defaultdialect=[light]Caml,
65         defaultdialect=[1985]Cobol,
66         defaultdialect=[WinXP]command.com,
67         defaultdialect=[ISO]C++,
68         defaultdialect=[95]Fortran,
69         defaultdialect=[11.0]Mathematica,
70         defaultdialect=[OMG]OCL,
71         defaultdialect=[Standard]Pascal,
72         defaultdialect=[67]Simula,
73         defaultdialect=[plain]TeX,
74         defaultdialect=[97]VRML}
75 \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.

```

76 \lstalias[6.1]{ABAP}[R/3 6.10]{ABAP}
77 \lstalias[3.1]{ABAP}[R/3 3.1C]{ABAP}
78 \lstalias[4.6]{ABAP}[R/3 4.6C]{ABAP}
79 </config>

80 (+lang1)\ProvidesFile{lstlang1.sty}
81 (+lang2)\ProvidesFile{lstlang2.sty}
82 (+lang3)\ProvidesFile{lstlang3.sty}
83 (+acm-prf)\ProvidesFile{listings-acm.prf}
84 (+bash-prf)\ProvidesFile{listings-bash.prf}
85 (+fortran-prf)\ProvidesFile{listings-fortran.prf}
86 (+hansl-prf)\ProvidesFile{listings-hansl.prf}
87 (+lua-prf)\ProvidesFile{listings-lua.prf}
88 (+python-prf)\ProvidesFile{listings-python.prf}
89 <-config> [2024/02/21 1.10 listings language file]

```

2 Language drivers

2.1 Abap

Knut Lickert added support for Abap.¹

```

90 (*lang2)
91 %%
92 %% Abap definition by Knut Lickert
93 %%

```

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.

```

94 \lst@definelanguage[R/3 6.10]{ABAP}[R/3 4.6C]{ABAP}%
95   {morekeywords={try,endtry},%
96   }[keywords,comments,strings]

97 \lst@definelanguage[R/3 4.6C]{ABAP}[R/3 3.1]{ABAP}%
98   {morekeywords={method,ref,class,create,object,%
99   methods,endmethod,private,protected,public,section,%
100   catch,system-exceptions,endcatch,%
101   },%
102   moreprocnamekeys={class},%
103   literate={->}{\rightarrow}1{=>}{\Rrightarrow}1,%
104   }[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.

```

105 \lst@definelanguage[R/3 3.1]{ABAP}[R/2 5.0]{ABAP}{}%

```

¹In this section 'I' is Knut Lickert.

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.

```

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

```

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

```

141 \lst@definelanguage[R/2 4.3]{ABAP}[R/2 5.0]{ABAP}%
142   {deletekeywords={function,importing,exporting,changing,exceptions,%
143     raise,raising}%
144   }[keywords,comments,strings]
145 </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”.

```
146 (*lang2)
147 %%
148 %% ACM and ACMscript definition
149 %% (c) 2013 Stefan Pinnow
150 %%
151 \lst@definlanguage{ACM}{%
152  morekeywords={ abs, After, acos, And, As, asin, atan, At, Call,%
153    Compatibility, Connect, cos, cosh, Create, Delay, Description,%
154    Difference, Do, Else, ElseIf, End, EndFor, EndIf, EndParallel,%
155    EndState, EndSwitch, EndText, EndWith, exp, External, Fixed, For,%
156    ForEach, Free, Global, Hidden, If, Implementation, In, Initial, Input,%
157    InterSection, IntegerSet, Invoke, Is, Language, Library, Link, Log10,%
158    LogE, Max, Min, Model, Of, Once, Options, Output, Parallel, Parameter,%
159    Pause, Port, Print, Private, Procedure, Product, Ramp, Repeat, Restart,%
160    Return, Round, Runs, Sigma, sin, sinh, Size, SnapShot, sqr, sqrt,%
161    SRamp, State, Stream, StringSet, Structure, Switch, SubRoutine,%
162    SymDiff, tan, tanh, Task, Text, Time, Then, Truncate, Union, Until,%
163    Uses, Variable, Wait, When, With, WithIn, WorkSpace},%
164  sensitive=false,%
165  morecomment=[l]{//},%
166  morecomment=[s]{/*}{*/},%
167  string=[b]{"},%
168 }[keywords,comments,strings]%
169 </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.

```
170 (*lang2)
171 \lst@definlanguage{ACMscript}[] {VBScript}{%
172  morekeywords={%
173    ElseIf,False,In,Resume,True%
174  },%
175  deletekeywords={%
176    Abs,Array,Clear,CreateObject,CStr,Err,ForReading,ForWriting,%
177    OpenTextFile,Replace,WriteLine%
178  }%
179 }[keywords,comments,strings]%
180 </lang2>
```

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

```
181 (*acm-prf)
```

```

182 \usepackage[rgb, x11names]{xcolor}
183
184 \definecolor{Comments}{rgb}{0.00,0.50,0.00}
185 \definecolor{KeyWords}{rgb}{0.00,0.00,0.63}
186 \definecolor{Strings}{rgb}{0.84,0.00,0.00}
187
188 \lstdefinestyle{ACM}{%
189   basicstyle=\scriptsize\ttfamily,%
190   keywordstyle=\color{KeyWords},%
191   showstringspaces=false,%
192   identifierstyle=\color{black},%
193   commentstyle=\color{Comments},%
194   stringstyle=\color{Strings},%
195   frame=shadowbox,%           % for ACM-Code scrartcl commented out
196 %   frame=1,%                 % line on the left side
197   rulesepcolor=\color{black},%
198   numbers=left,%             % left
199   firstnumber=1,%
200   stepnumber=5,%
201   columns=fixed,%           % to prevent inserting spaces
202   fontadjust=true,%
203   basewidth=0.5em,%
204   captionpos=t,%
205   abovecaptionskip=\smallskipamount,% same amount as default
206   belowcaptionskip=\smallskipamount,% in caption package
207 }%

```

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

```
208 \end{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.

```

209 \begin{language}
210 %%
211 %% ACSL definition (c) 2000 by Andreas Matthias
212 %%
213 \lst@definlanguage{ACSL}[90]{Fortran}%
214   {morekeywords={algorithm,cinterval,constant,derivative,discrete,%
215     dynamic,errtag,initial,interval,maxterval,mininterval,%
216     merror,xerror,nsteps,procedural,save,schedule,sort,%
217     table,terminal,termt,variable},%
218     sensitive=false,%
219     morecomment=[1]!%
220   }[keywords, comments]%
221 \end{language}

```

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.

```
222 (*lang1)
223 %%
224 %% Ada 95 definition (c) Torsten Neuer
225 %%
226 %% Ada 2005 definition (c) 2006 Santiago Urue~{n}a Pascual
227 %%                               <Santiago.Uruena@upm.es>
228 %%
229 \lst@definlanguage[2005]{Ada}[95]{Ada}%
230 {morekeywords={interface,overriding,synchronized}}%
231 \lst@definlanguage[95]{Ada}[83]{Ada}%
232 {morekeywords={abstract,aliased,protected,requeue,tagged,until}}%
233 \lst@definlanguage[83]{Ada}%
234 {morekeywords={abort,abs,accept,access,all,and,array,at,begin,body,%
235     case,constant,declare,delay,delta,digits,do,else,elsif,end,entry,%
236     exception,exit,for,function,generic,goto,if,in,is,limited,loop,%
237     mod,new,not,null,of,or,others,out,package,pragma,private,%
238     procedure,raise,range,record,rem,renames,return,reverse,select,%
239     separate,subtype,task,terminate,then,type,use,when,while,with,%
240     xor},%
241     sensitive=f,%
242     morecomment=[1]--, %
243     morestring=[m]", % percent not defined as stringizer so far
244     morestring=[m]' %
245 }[keywords,comments,strings]%
246 (/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 .

```
247 (*lang3)
```

```

248 \lst@definlanguage[68]{Algol}%
249 % ??? should 'i' be a keyword
250 {morekeywords={abs,and,arg,begin,bin,bits,bool,by,bytes,case,channel,%
251     char,co,comment,compl,conj,divab,do,down,elem,elif,else,empty,%
252     end,entier,eq,esac,exit,false,fi,file,flex,for,format,from,ge,%
253     goto,gt,heap,if,im,in,int,is,isnt,le,leng,level,loc,long,lt,lwb,%
254     minusab,mod,modab,mode,ne,nil,not,od,odd,of,op,or,ouse,out,over,%
255     overab,par,plusab,plusto,pr,pragmat,prio,proc,re,real,ref,repr,%
256     round,sema,shl,short,shorten,shr,sign,skip,string,struct,then,%
257     timesab,to,true,union,up,upb,void,while},%
258     sensitive=f,% ???
259     morecomment=[s]{\#}{\#},%
260     keywordcomment={co,comment}%
261 }[keywords,comments,keywordcomments]%

262 \lst@definlanguage[60]{Algol}%
263 {morekeywords={array,begin,Boolean,code,comment,div,do,else,end,%
264     false,for,goto,if,integer,label,own,power,procedure,real,step,%
265     string,switch,then,true,until,value,while},%
266     sensitive=f,% ???
267     keywordcommentsemicolon={end}{else,end}{comment}%
268 }[keywords,keywordcomments]%
269 </lang3>

```

2.6 Assembler

Credits go to Michael Franke.

```

270 <*lang3>
271 %%
272 %% Motorola 68K definition (c) 2006 Michael Franke
273 %%
274 \lst@definlanguage[Motorola68k]{Assembler}{%
275     morekeywords={ABCD,ADD,%
276         ADDA,ADDI,ADDQ,ADDX,AND,ANDI,ASL,ASR,BCC,BLS,BCS,BLT,BEQ,BMI,BF,BNE,%
277         BGE,BPL,BGT,BT,BHI,BVC,BLE,BVS,BCHG,BCLR,BRA,BSET,BSR,BTST,CHK,CLR,%
278         CMP,CMPA,CMPI,CMPM,DBCC,DBLS,DBCS,DBLT,DBEQ,DBMI,DBF,DBNE,DBGE,DBPL,%
279         DBG,DBGT,DBT,DBHI,DBVC,DBLE,DBVS,DIVS,DIVU,EOR,EORI,EXG,EXT,ILLEGAL,JMP,%
280         JSR,LEA,LINK,LSL,LSR,MOVE,MOVEA,MOVEM,MOVEP,MOVEQ,MULS,MULU,NBCD,NEG,%
281         NEGX,NOP,NOT,OR,ORI,PEA,RESET,ROL,ROR,ROXL,ROXR,RTE,RTR,RTS,SBCD,%
282         SCC,SLS,SCS,SLT,SEQ,SMI,SF,SNE,SGE,SPL,SGT,ST,SHI,SVC,SLE,SVS,STOP,%
283         SUB,SUBA,SUBI,SUBQ,SUBX,SWAP,TAS,TRAP,TRAPV,TST,UNLK},%
284     sensitive=false,%
285     morecomment=[l]*,%
286     morecomment=[l];%
287 }[keywords,comments,strings]
288 </lang3>

```

Credits go to Andrew Zabolotny.

```

289 <*lang3>
290 %%

```

```

291 %% x86masm definition (c) 2002 Andrew Zabolotny
292 %%
293 \lst@definelanguage[x86masm]{Assembler}%
294 {morekeywords={al,ah,ax,eax,bl,bh,bx,ebx,cl,ch,cx,ecx,d1,dh,dx,edx,%
295     si,esi,di,edi,bp,ebp,sp,esp,cs,ds,es,ss,fs,gs,cr0,cr1,cr2,cr3,%
296     db0,db1,db2,db3,db4,db5,db6,db7,tr0,tr1,tr2,tr3,tr4,tr5,tr6,tr7,%
297     st,aaa,aad,aam,aas,adc,add,and,arpl,bound,bsf,bsr,bswap,bt,btc,%
298     btr,bts,call,cbw,cdq,clc,cld,cli,clts,cmc,cmp,cmps,cmpsb,cmpsw,%
299     cmpsd,cmpxchg,cwd,cwde,daa,das,dec,div,enter,hlt,ldiv,imul,in,%
300     inc,ins,int,into,invd,invlpg,iret,ja,jae,jb,jbe,jc,jcxz,jecz,%
301     je,jg,jge,jl,jle,jna,jnae,jnb,jnbe,jnc,jne,jng,jnge,jnl,jnle,%
302     jno,jnp,jns,jnz,jo,jp,jpe,jpo,js,jz,jmp,lahf,lar,lea,leave,lgdt,%
303     lidt,lldt,lmsw,lock,lods,lodsb,lodsw,lodsd,loop,loopz,loopnz,%
304     loope,loopne,lds,les,lfs,lgs,lss,lsl,ltr,mov,movs,movsb,movsw,%
305     movsd,movsx,movzx,mul,neg,nop,not,or,out,outs,pop,popa,popad,%
306     popf,popfd,push,pusha,pushad,pushf,pushfd,rcl,rcr,rep,repb,%
307     repne,repz,repnz,ret,retf,rol,ror,sahf,sal,sar,sbb,scas,seta,%
308     setae,setb,setbe,setc,sete,setg,setge,setl,setle,setna,setnae,%
309     setnb,setnbe,setnc,setne,setng,setnge,setnl,setnle,setno,setnp,%
310     setns,setnz,seto,setp,setpe,setpo,sets,setsz,sgdt,shl,shld,shr,%
311     shrd,sidt,sldt,smsw,stc,std,sti,stos,stosb,stosw,stosd,str,sub,%
312     test,verr,verw,wait,wbinvd,xadd,xchg,xlatb,xor,fabs,fadd,fbld,%
313     fbstp,fchs,fclex,fcom,fcos,fdecstp,fdiv,fdivr,ffree,fiadd,ficom,%
314     fidiv,fidivr,fild,fimul,fincstp,finit,fist,fisub,fisubr,fld,fld1,%
315     fldl2e,fldl2t,fldlg2,fldln2,fldpi,fldz,fldcw,fldenv,fmul,fnop,%
316     fpatan,fprem,fprem1,fptan,frndint,frstor,fsave,fscale,fsetpm,%
317     fsin,fsincos,fsqrt,fst,fstcw,fstenv,fstsw,fsub,fsubr,ftst,fucom,%
318     fwait,fxam,fxch,extract,fyl2x,fyl2xp1,f2xm1},%
319     morekeywords=[2]{.align,.alpha,assume,byte,code,comm,comment,.const,%
320     .cref,.data,.data?,db,dd,df,dosseg,dq,dt,dw,dword,else,end,endif,%
321     endm,endp,ends,eq,equ,.err,.err1,.err2,.errb,.errdef,.errdif,%
322     .erre,.erridn,.errnb,.errndef,.errnz,event,exitm,extrn,far,%
323     .fardata,.fardata?,fword,ge,group,gt,high,if,if1,if2,ifb,ifdef,%
324     ifdif,ife,ifidn,ifnb,ifndef,include,includelib,irp,irpc,label,%
325     .lall,le,length,.lfcond,.list,local,low,lt,macro,mask,mod,.model,%
326     name,ne,near,offset,org,out,page,proc,ptr,public,purge,qword,.%
327     radix,record, rept,.sall,seg,segment,.seq,.sfcond,short,size,%
328     .stack,struct,subttl,tbyte,.tfcond,this,title,type,.type,width,%
329     word,.xall,.xcref,.xlist},%
330     alsoletter=.,alsodigit=?,%
331     sensitive=f,%
332     morestring=[b]" ,%
333     morestring=[b]' ,%
334     morecomment=[1];%
335 }[keywords,comments,strings]
336 </lang3>

```

2.7 Awk

Thanks to Dr. Christoph Giess for providing these definitions.

```
337 <*\lang1
338 %%
339 %% awk definitions (c) Christoph Giess
340 %%
341 \lst@definlanguage[gnu]{Awk}[POSIX]{Awk}%
342 {morekeywords={and,asort,bindtextdomain,compl,dcgettext,gsub,%
343     lshift,mktime,or,rshift,strftime,strtonum,system,xor,extension}%
344 }%
345 \lst@definlanguage[POSIX]{Awk}%
346 {keywords={BEGIN,END,close,getline,next,nextfile,print,printf,%
347     system,fflush,atan2,cos,exp,int,log,rand,sin,sqrt,srand,gsub,%
348     index,length,match,split,sprintf,strtonum,sub,substr,tolower,%
349     toupper,if,while,do,for,break,continue,delete,exit,function,%
350     return},%
351     sensitive,%
352     morecomment=[l]\#,%
353     morecomment=[l]//,%
354     morecomment=[s]{/*}{*/},%
355     morestring=[b]"%
356 }[keywords,comments,strings]%
357 </\lang1
```

2.8 Basic

Credits go to Robert Frank.

```
358 <*\lang1
359 %%
360 %% Visual Basic definition (c) 2002 Robert Frank
361 %%
362 \lst@definlanguage[Visual]{Basic}
363 {morekeywords={Abs,Array,Asc,AscB,AscW,Atn,Avg,CBool,CByte,CCur,%
364     CDate,CDBl,Cdec,Choose,Chr,ChrB,ChrW,CInt,CLng,Command,Cos,%
365     Count,CreateObject,CSng,CStr,CurDir,CVar,CVDate,CVErr,Date,%
366     DateAdd,DateDiff,DatePart,DateSerial,DateValue,Day,DDB,Dir,%
367     DoEvents,Environ,EOF,Error,Exp,FileAttr,FileDateTime,FileLen,%
368     Fix,Format,FreeFile,FV,GetAllStrings,GetAttr,%
369     GetAutoServerSettings,GetObject,GetSetting,Hex,Hour,IIf,%
370     IMEStatus,Input,InputB,InputBox,InStr,InstB,Int,Integer,IPmt,%
371     IsArray,IsDate,IsEmpty,IsError,IsMissing,IsNull,IsNumeric,%
372     IsObject,LBound,LCase,Left,LeftB,Len,LenB,LoadPicture,Loc,LOF,%
373     Log,Ltrim,Max,Mid,MidB,Min,Minute,MIRR,Month,MsgBox,Now,NPer,%
374     NPV,Oct,Partition,Pmt,PPmt,PV,QBColor,Rate,RGB,Right,RightB,Rnd,%
375     Rtrim,Second,Seek,Sgn,Shell,Sin,SLN,Space,Spc,Sqr,StDev,StDevP,%
376     Str,StrComp,StrConv,String,Switch,Sum,SYD,Tab,Tan,Time,Timer,%
377     TimeSerial,TimeValue,Trim,TypeName,UBound,Ucase,Val,Var,VarP,%
378     VarType,Weekday,Year},% functions
```

```

379 morekeywords=[2]{Accept,Activate,Add,AddCustom,AddFile,AddFromFile,%
380 AddFromTemplate,AddItem,AddNew,AddToAddInToolbar,%
381 AddToolboxProgID,Append,AppendChunk,Arrange,Assert,AsyncRead,%
382 BatchUpdate,BeginTrans,Bind,Cancel,CancelAsyncRead,CancelBatch,%
383 CancelUpdate,CanPropertyChange,CaptureImage,CellText,CellValue,%
384 Circle,Clear,ClearFields,ClearSel,ClearSelCols,Clone,Close,Cls,%
385 ColContaining,ColumnSize,CommitTrans,CompactDatabase,Compose,%
386 Connect,Copy,CopyQueryDef,CreateDatabase,CreateDragImage,%
387 CreateEmbed,CreateField,CreateGroup,CreateIndex,CreateLink,%
388 CreatePreparedStatement,CreateProperty,CreateQuery,%
389 CreateQueryDef,CreateRelation,CreateTableDef,CreateUser,%
390 CreateWorkspace,Customize>Delete>DeleteColumnLabels,%
391 DeleteColumns>DeleteRowLabels>DeleteRows>DoVerb>Drag>Draw>Edit,%
392 EditCopy>EditPaste>EndDoc>EnsureVisible>EstablishConnection,%
393 Execute>ExtractIcon>Fetch>FetchVerbs>Files>FillCache>Find,%
394 FindFirst>FindItem>FindLast>FindNext>FindPrevious>Forward,%
395 GetBookmark>GetChunk>GetClipString>GetData>GetFirstVisible,%
396 GetFormat>GetHeader>GetLineFromChar>GetNumTicks>GetRows,%
397 GetSelectedPart>GetText>GetVisibleCount>GoBack>GoForward>Hide,%
398 HitTest>HoldFields>Idle>InitializeLabels>InsertColumnLabels,%
399 InsertColumns>InsertObjDlg>InsertRowLabels>InsertRows>Item,%
400 KillDoc>Layout>Line>LinkExecute>LinkPoke>LinkRequest>LinkSend,%
401 Listen>LoadFile>LoadResData>LoadResPicture>LoadResString,%
402 LogEvent>MakeCompileFile>MakeReplica>MoreResults>Move>MoveData,%
403 MoveFirst>MoveLast>MoveNext>MovePrevious>NavigateTo>NewPage,%
404 NewPassword>NextRecordset>OLEDrag>OnAddinsUpdate>OnConnection,%
405 OnDisconnection>OnStartupComplete>Open>OpenConnection,%
406 OpenDatabase>OpenQueryDef>OpenRecordset>OpenResultset>OpenURL,%
407 Overlay>PaintPicture>Paste>PastSpecialDlg>PeekData>Play>Point,%
408 PopulatePartial>PopupMenu>Print>PrintForm>PropertyChanged>Pset,%
409 Quit>Raise>RandomDataFill>RandomFillColumns>RandomFillRows,%
410 rdoCreateEnvironment>rdoRegisterDataSource>ReadFromFile,%
411 ReadProperty>Rebind>ReFill>Refresh>RefreshLink>RegisterDatabase,%
412 Reload>Remove>RemoveAddInFromToolbar>RemoveItem>Render,%
413 RepairDatabase>Reply>ReplyAll>Requery>ResetCustom,%
414 ResetCustomLabel>ResolveName>RestoreToolbar>Resync>Rollback,%
415 RollbackTrans>RowBookmark>RowContaining>RowTop>Save>SaveAs,%
416 SaveFile>SaveToFile>SaveToolbar>SaveToOle1File>Scale>ScaleX,%
417 ScaleY>Scroll>Select>SelectAll>SelectPart>SelPrint>Send,%
418 SendData>Set>SetAutoServerSettings>SetData>SetFocus>SetOption,%
419 SetSize>SetText>SetViewport>Show>ShowColor>ShowFont>ShowHelp,%
420 ShowOpen>ShowPrinter>ShowSave>ShowWhatsThis>SignOff>SignOn>Size,%
421 Span>SplitContaining>StartLabelEdit>StartLogging>Stop,%
422 Synchronize>TextHeight>TextWidth>ToDefaults>TwipsToChartPart,%
423 TypeByChartType>Update>UpdateControls>UpdateRecord>UpdateRow,%
424 Upto>WhatsThisMode>WriteProperty>ZOrder},% methods
425 morekeywords=[3]{AccessKeyPress>AfterAddFile>AfterChangeFileName,%
426 AfterCloseFile>AfterColEdit>AfterColUpdate>AfterDelete,%
427 AfterInsert>AfterLabelEdit>AfterRemoveFile>AfterUpdate,%
428 AfterWriteFile>AmbienChanged>ApplyChanges>Associate,%

```

```

429 AsyncReadComplete,AxisActivated,AxisLabelActivated,%
430 AxisLabelSelected,AxisLabelUpdated,AxisSelected,%
431 AxisTitleActivated,AxisTitleSelected,AxisTitleUpdated,%
432 AxisUpdated,BeforeClick,BeforeColEdit,BeforeColUpdate,%
433 BeforeConnect,BeforeDelete,BeforeInsert,BeforeLabelEdit,%
434 BeforeLoadFile,BeforeUpdate,ButtonClick,ButtonCompleted,%
435 ButtonGotFocus,ButtonLostFocus,Change,ChartActivated,%
436 ChartSelected,ChartUpdated,Click,ColEdit,Collapse,ColResize,%
437 ColumnClick,Compare,ConfigChangeCancelled,ConfigChanged,%
438 ConnectionRequest,DataArrival,DataChanged,DataUpdated,Db1Click,%
439 Deactivate,DeviceArrival,DeviceOtherEvent,DeviceQueryRemove,%
440 DeviceQueryRemoveFailed,DeviceRemoveComplete,DeviceRemovePending,%
441 DevModeChange,Disconnect,DisplayChanged,Dissociate,%
442 DoGetNewFileName,Done,DonePainting,DownClick,DragDrop,DragOver,%
443 DropDown,EditProperty,EnterCell,EnterFocus,Event,ExitFocus,%
444 Expand,FootnoteActivated,FootnoteSelected,FootnoteUpdated,%
445 GotFocus,HeadClick,InfoMessage,Initialize,IniProperties,%
446 ItemActivated,ItemAdded,ItemCheck,ItemClick,ItemReloaded,%
447 ItemRemoved,ItemRenamed,ItemSeletected,KeyDown,KeyPress,KeyUp,%
448 LeaveCell,LegendActivated,LegendSelected,LegendUpdated,%
449 LinkClose,LinkError,LinkNotify,LinkOpen,Load,LostFocus,%
450 MouseDown,MouseMove,MouseUp,NodeClick,ObjectMove,%
451 OLECompleteDrag,OLEDragDrop,OLEDragOver,OLEGiveFeedback,%
452 OLESetData,OLEStartDrag,OnAddNew,OnComm,Paint,PanelClick,%
453 PanelDb1Click,PathChange,PatternChange,PlotActivated,%
454 PlotSelected,PlotUpdated,PointActivated,PointLabelActivated,%
455 PointLabelSelected,PointLabelUpdated,PointSelected,%
456 PointUpdated,PowerQuerySuspend,PowerResume,PowerStatusChanged,%
457 PowerSuspend,QueryChangeConfig,QueryComplete,QueryCompleted,%
458 QueryTimeout,QueryUnload,ReadProperties,Reposition,%
459 RequestChangeFileName,RequestWriteFile,Resize,ResultsChanged,%
460 RowColChange,RowCurrencyChange,RowResize,RowStatusChanged,%
461 SelChange,SelectionChanged,SendComplete,SendProgress,%
462 SeriesActivated,SeriesSelected,SeriesUpdated,SettingChanged,%
463 SplitChange,StateChanged,StatusUpdate,SysColorsChanged,%
464 Terminate,TimeChanged,TitleActivated,TitleSelected,%
465 TitleActivated,UnboundAddData,UnboundDeleteRow,%
466 UnboundGetRelativeBookmark,UnboundReadData,UnboundWriteData,%
467 Unload,UpClick,Updated,Validate,ValidationError,WillAssociate,%
468 WillChangeData,WillDissociate,WillExecute,WillUpdateRows,%
469 WithEvents,WriteProperties},% VB-events
470 morekeywords=[4]{AppActivate,Base,Beep,Call,Case,ChDir,ChDrive,%
471 Const,Declare,DefBool,DefByte,DefCur,DefDate,DefDb1,DefDec,%
472 DefInt,DefLng,DefObj,DefSng,DefStr,Deftype,DefVar,DeleteSetting,%
473 Dim,Do,Else,ElseIf,End,Enum,Erase,Event,Exit,Explicit,FileCopy,%
474 For,ForEach,Friend,Function,Get,GoSub,GoTo,If,Implements,Kill,%
475 Let,LineInput,Lock,Lset,MkDir,Name,Next,OnError,On,Option,%
476 Private,Property,Public,Put,RaiseEvent,Randomize,ReDim,Rem,%
477 Reset,Resume,Return,Rmdir,Rset,SavePicture,SaveSetting,%
478 SendKeys,SetAttr,Static,Sub,Then,Type,Unlock,Wend,While,Width,%

```

```

479     With,Write},% statements
480     sensitive=false,%
481     keywordcomment=rem,%
482     MoreSelectCharTable=\def\lst@BeginKC@{% chmod
483         \lst@ResetToken
484         \lst@BeginComment\lst@GPmode{{\lst@commentstyle}%
485             \lst@Lmodetrue\lst@modetrue}\@empty},%
486     morecomment=[l]{'},%
487     morecomment=[s]{/*}{*/},%
488     morestring=[b]" ,%
489     }[keywords,comments,strings,keywordcomments]
490 </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.

```

491 (*lang3)
492 %%
493 %% Clean definition (c) 1999 Jos'e Romildo Malaquias
494 %%
495 %% Clean 1.3 : some standard functional language: pure, lazy,
496 %%             polymorphic type system, modules, type classes,
497 %%             garbage collection, functions as first class citizens
498 %%
499 \lst@definelanguage{Clean}%
500 {otherkeywords={:,:=:,::=,=:,>,->,<-,<-:,\{,\},\{|,\|},\#,\#!,|,\&,%
501     [,],!,.,\\,;,;_,}%
502     morekeywords={from,definition,implementation,import,module,system,%
503         case,code,if,in,let,let!,of,where,with,infix,infixl,infixr},%
504     moreendkeywords={True,False,Start,Int,Real,Char,Bool,String,World,%
505         File,ProcId},%
506     sensitive,%
507     morecomment=[l]//,% missing comma: Markus Pahlow
508     morecomment=[n]{/*}{*/},%
509     morestring=[b]"%
510     }[keywords,comments,strings]%
511 </lang3>

```

2.10 Corba IDL

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

```

512 (*lang2)
513 %%
514 %% Corba IDL definition (c) 1999 Jens T. Berger Thielemann
515 %%

```

```

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

```

2.11 C, C++, et al

```
531 \lang1
```

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

```

532 \lst@definelanguage[11]{C++}[ISO]{C++}%
533   {morekeywords={alignas,alignof,char16_t,char32_t,constexpr,%
534     decltype,noexcept,nullptr,static_assert,thread_local},%
535   }%

```

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

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

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

```

537 \lst@definelanguage[GNU]{C++}[ISO]{C++}%
538   {morekeywords={__attribute__,__extension__,__restrict,__restrict__,%
539     typeof,__typeof__},%
540   }%
541 \lst@definelanguage[Visual]{C++}[ISO]{C++}%
542   {morekeywords={__asm,__based,__cdecl,__declspec,dlllexport,%
543     dllimport,__except,__fastcall,__finally,__inline,__int8,__int16,%
544     __int32,__int64,naked,__stdcall,thread,__try,__leave},%
545   }%
546 \lst@definelanguage[ISO]{C++}[ANSI]{C}%
547   {morekeywords={and,and_eq,asm,bad_cast,bad_typeid,bitand,bitor,bool,%
548     catch,class,compl,const_cast,delete,dynamic_cast,explicit,export,%
549     false,friend,inline,mutable,namespace,new,not,not_eq,operator,or,%
550     or_eq,private,protected,public,reinterpret_cast,static_cast,%
551     template,this,throw,true,try,typeid,type_info,typename,using,%
552     virtual,wchar_t,xor,xor_eq},%
553   }%
554 \lang1

```

Objective-C is due to Detlev Dröge.

```

555 (*lang1)
556 %%
557 %% Objective-C definition (c) 1997 Detlev Droege
558 %%
559 \lst@definlanguage[Objective]{C}[ANSI]{C}
560 {morekeywords={bycopy,id,in,inout,oneway,out,self,super,%
561     @class,@defs,@encode,@end,@implementation,@interface,@private,%
562     @protected,@protocol,@public,@selector},%
563   moredirectives={import}%
564 }%
565 
    Jörg Viermann provided the keywords for Handel-C.
566 (*lang1)
567 %%
568 %% Handel-C definition, refer http://www.celoxica.com
569 %%
570 \lst@definlanguage[Handel]{C}[ANSI]{C}
571 {morekeywords={assert,chan,chanin,chanout,clock,delay,expr,external,%
572     external_divide,family,ifselect,in,inline,interface,internal,%
573     internal_divid,intwidth,let,macro,mpram,par,part,prialt,proc,ram,%
574     releasesema,reset,rom,select,sema,set,seq,shared,signal,try,%
575     reset,trysema,typeof,undefined,width,with,wom},%
576 }%
577 
578 (*lang1)
579 \lst@definlanguage[ANSI]{C}%
580 {morekeywords={auto,break,case,char,const,continue,default,do,double,%
581     else,enum,extern,float,for,goto,if,int,long,register,return,%
582     short,signed,sizeof,static,struct,switch,typedef,union,unsigned,%
583     void,volatile,while},%
584   sensitive,%
585   morecomment=[s]{/*}{*/},%
586   morecomment=[l]//,% nonstandard
587   morestring=[b]" ,%
588   morestring=[b]' ,%
589   moredelim=[directive]\#,%
590   moredirectives={define,elif,else,endif,error,if,ifdef,ifndef,line,%
591     include,pragma,undef,warning}%
592 }[keywords,comments,strings,directives]%
593 
594 (*lang1)
    Thanks go to Martin Brodbeck.
595 %%
596 %% C-Sharp definition (c) 2002 Martin Brodbeck
597 %%

```

```

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

```

2.12 Caml and Objective Caml

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

```

614 <*lang2>
615 %%
616 %% (Objective) Caml definition (c) 1999 Patrick Cousot
617 %%
618 %% Objective CAML and Caml light are freely available, together with a
619 %% reference manual, at URL ftp.inria.fr/lang/caml-light for the Unix,
620 %% Windows and Macintosh OS operating systems.
621 %%
622 \lst@definlanguage[Objective]{Caml}[light]{Caml}
623   {deletekeywords={not,prefix,value,where},%
624     morekeywords={assert,asr,class,closed,constraint,external,false,%
625       functor,include,inherit,land,lazy,lor,lsl,lsr,lxor,method,mod,%
626       module,new,open,parser,private,sig,struct,true,val,virtual,when,%
627       object,ref},% TH
628   }%
629 \lst@definlanguage[light]{Caml}
630   {morekeywords={and,as,begin,do,done,downto,else,end,exception,for,%
631     fun,function,if,in,let,match,mutable,not,of,or,prefix,rec,then,%
632     to,try,type,value,where,while,with},%
633     sensitive,%
634     morecomment=[n]{(*)}{(*)},%
635     morestring=[b]" ,%
636     moredelim=[*directive]\#,%
637     moredirectives={open,close,include}%
638   }[keywords,comments,strings,directives]%
639 </lang2>

```

2.13 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`.

```
640 (*lang3)
641 \lst@definelanguage{CIL}{%
642   morekeywords=[1]{assembly, beforefieldinit, class, default, cdecl, cil,%
643     corflags, culture, custom, data, entrypoint, fastcall, field, file,%
644     hidebysig, hash, il, imagebase, locals, managed, marshall, maxstack,%
645     mresource, method, module, namespace, publickey, stdcall, subsystem,%
646     thiscall, unmanaged, vararg, ver, vtfixup,%
647     % types
648     bool, char, float32, float64, int, int8, int16, int32, int64, method,%
649     native, object, string, modopt, modreq, pinned, typedref, valuetype,%
650     unsigned, void,%
651     % defining types
652     abstract, ansi, auto, autochar, beforefieldinit, boxed, class,%
653     explicit, extends, implements, interface, famandassem, family,%
654     famorassem, inherits, nested, override, pack, private, property,%
655     public, rtspecialname, sealed, sequential, serializable, size,%
656     specialname, static, unicode,%
657     % postfix
658     algorithm, alignment, extern, init, from, nometadata, with},%
659   morekeywords=[2]{add, and, arglist, beq, bge, bgt, ble, blt, bne, br,%
660     break, brfalse, brtrue, call, calli, ceq, cgt, ckfinite, clt, conv,%
661     cpblk, div, dup, endfilter, endfinally, initblk, jmp, ldarg, ldarga,%
662     ldc, ldftn, ldind, ldloc, ldloca, ldnull, leave, localloc, mul, neg,%
663     nop, not, or, pop, rem, ret, shl, shr, starg, stind, stloc, sub,%
664     switch, xor,%
665     % prefix
666     tail, unaligned, volatile,
667     % postfix
668     un, s, ovf,
669     % object
670     box, callvirt, castclass, cpobj, ctor, ctor, initobj, isinst, ldelem,%
671     ldelema, ldfld, ldfla, ldlen, ldobj, ldsfld, ldsflda, ldstr, ldtoken,%
672     ldvirtftn, mkrefany, newarr, newobj, refanytype, refanyval, rethrow,%
673     sizeof, stelem, stfld, stobj, stsfld, throw, unbox},%
674   sensitive=true,%
675   morecomment=[1]{//},%
676   morestring=[b]"%
677 }[keywords,comments,strings]%
678 (/lang3)
```

2.14 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.

```
679 (*lang2)

680 \lst@definlanguage[ibm]{Cobol}[1985]{Cobol}%
681   {morekeywords={ADDRESS,BEGINNING,COMP-3,COMP-4,COMPUTATIONAL,%
682     COMPUTATIONAL-3,COMPUTATIONAL-4,DISPLAY-1,EGCS,EJECT,ENDING,%
683     ENTRY,GOBACK,ID,MORE-LABELS,NULL,NULLS,PASSWORD,RECORDING,%
684     RETURN-CODE,SERVICE,SKIP1,SKIP2,SKIP3,SORT-CONTROL,SORT-RETURN,%
685     SUPPRESS,TITLE,WHEN-COMPILED},%
686   }%

687 \lst@definlanguage[1985]{Cobol}[1974]{Cobol}%
688   {morekeywords={ALPHABET,ALPHABETIC-LOWER,ALPHABETIC-UPPER,%
689     ALPHANUMERIC,ALPHANUMERIC-EDITED,ANY,CLASS,COMMON,CONTENT,%
690     CONTINUE,DAY-OF-WEEK,END-ADD,END-CALL,END-COMPUTE,END-DELETE,%
691     END-DIVIDE,END-EVALUATE,END-IF,END-MULTIPLY,END-PERFORM,END-READ,%
692     END-RECEIVE,END-RETURN,END-REWRITE,END-SEARCH,END-START,%
693     END-STRING,END-SUBTRACT,END-UNSTRING,END-WRITE,EVALUATE,EXTERNAL,%
694     FALSE,GLOBAL,INITIALIZE,NUMERIC-EDITED,ORDER,OTHER,%
695     PACKED-DECIMAL,PADDING,PURGE,REFERENCE,RELOAD,REPLACE,STANDARD-1,%
696     STANDARD-2,TEST,THEN,TRUE},%
697   }%

698 \lst@definlanguage[1974]{Cobol}%
699   {morekeywords={ACCEPT,ACCESS,ADD,ADVANCING,AFTER,ALL,ALPHABETIC,ALSO,%
700     ALTER,ALTERNATE,AND,ARE,AREA,AREAS,ASCENDING,ASSIGN,AT,AUTHOR,%
701     BEFORE,BINARY,BLANK,BLOCK,BOTTOM,BY,CALL,CANCEL,CD,CF,CH,%
702     CHARACTER,CHARACTERS,CLOCK-UNITS,CLOSE,COBOL,CODE,CODE-SET,%
703     COLLATING,COLUMN,COMMA,COMMUNICATION,COMP,COMPUTE,CONFIGURATION,%
704     CONTAINS,CONTROL,CONTROLS,CONVERTING,COPY,CORR,CORRESPONDING,%
705     COUNT,CURRENCY,DATA,DATE,DATE-COMPILED,DATE-WRITTEN,DAY,DE,%
706     DEBUG-CONTENTS,DEBUG-ITEM,DEBUG-LINE,DEBUG-NAME,DEBUG-SUB1,%
707     DEBUG-SUB2,DEBUG-SUB3,DEBUGGING,DECIMAL-POINT,DECLARATIVES,%
708     DELETE,DELIMITED,DELIMITER,DEPENDING,DESCENDING,DESTINATION,%
709     DETAIL,DISABLE,DISPLAY,DIVIDE,DIVISION,DOWN,DUPLICATES,DYNAMIC,%
710     EGI,ELSE,EMI,ENABLE,END,END-OF-PAGE,ENTER,ENVIRONMENT,EOP,EQUAL,%
711     ERROR,ESI,EVERY,EXCEPTION,EXIT,EXTEND,FD,FILE,FILE-CONTROL,%
712     FILLER,FINAL,FIRST,FOOTING,FOR,FROM,GENERATE,GIVING,GO,GREATER,%
713     GROUP,HEADING,HIGH-VALUE,HIGH-VALUES,I-O,I-O-CONTROL,%
714     IDENTIFICATION,IF,IN,INDEX,INDEXED,INDICATE,INITIAL,INITIATE,%
715     INPUT,INPUT-OUTPUT,INSPECT,INSTALLATION,INTO,INVALID,IS,JUST,%
716     JUSTIFIED,KEY,LABEL,LAST,LEADING,LEFT,LENGTH,LESS,LIMIT,LIMITS,%
717     LINAGE,LINAGE-COUNTER,LINE,LINE-COUNTER,LINES,LINKAGE,LOCK,%
718     LOW-VALUE,LOW-VALUES,MEMORY,MERGE,MESSAGE,MODE,MODULES,MOVE,%
719     MULTIPLE,MULTIPLY,NATIVE,NEGATIVE,NEXT,NO,NOT,NUMBER,NUMERIC,%
720     OBJECT-COMPUTER,OCCURS,OF,OFF,OMITTED,ON,OPEN,OPTIONAL,OR,%
```

```

721 ORGANIZATION, OUTPUT, OVERFLOW, PAGE, PAGE-COUNTER, PERFORM, PF, PH, PIC, %
722 PICTURE, PLUS, POINTER, POSITION, PRINTING, POSITIVE, PRINTING, %
723 PROCEDURE, PROCEDURES, PROCEED, PROGRAM, PROGRAM-ID, QUEUE, QUOTE, %
724 QUOTES, RANDOM, RD, READ, RECEIVE, RECORD, RECORDING, RECORDS, REDEFINES, %
725 REEL, REFERENCES, RELATIVE, RELEASE, REMAINDER, REMOVAL, RENAMES, %
726 REPLACING, REPORT, REPORTING, REPORTS, RERUN, RESERVE, RESET, RETURN, %
727 REVERSED, REWIND, REWRITE, RF, RH, RIGHT, ROUNDED, RUN, SAME, SD, SEARCH, %
728 SECTION, SECURITY, SEGMENT, SEGMENT-LIMIT, SELECT, SEND, SENTENCE, %
729 SEPARATE, SEQUENCE, SEQUENTIAL, SET, SIGN, SIZE, SORT, SORT-MERGE, %
730 SOURCE, SOURCE-COMPUTER, SPACE, SPACES, SPECIAL-NAMES, STANDARD, START, %
731 STATUS, STOP, STRING, SUB-QUEUE-1, SUB-QUEUE-2, SUB-QUEUE-3, SUBTRACT, %
732 SUM, SYMBOLIC, SYNC, SYNCHRONIZED, TABLE, TALLYING, TAPE, TERMINAL, %
733 TERMINATE, TEXT, THAN, THROUGH, THRU, TIME, TIMES, TO, TOP, TRAILING, TYPE, %
734 UNIT, UNSTRING, UNTIL, UP, UPON, USAGE, USE, USING, VALUE, VALUES, VARYING, %
735 WHEN, WITH, WORDS, WORKING-STORAGE, WRITE, ZERO, ZEROES, ZEROS}, %
736 alsodigit=-, %
737 sensitive=f, % ???
738 morecomment=[f][commentstyle][6]*, %
739 morestring=[d]"% ??? doubled
740 }[keywords, comments, strings]%

```

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

```
741 </lang2>
```

2.15 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.

```

742 (*lang3)
743 \lstdefinlanguage{Comal 80}%
744 {morekeywords={AND,AUTO,CASE,DATA,DEL,DIM,DIV,DO,ELSE,ENDCASE,ENDIF,%
745 ENDPROC,ENDWHILE,EOD,EXEC,FALSE,FOR,GOTO,IF,INPUT,INT,LIST,LOAD,%
746 MOD,NEW,NEXT,NOT,OF,OR,PRINT,PROC,RANDOM,RENUM,REPEAT,RND,RUN,%
747 SAVE,SELECT,STOP,TAB,THEN,TRUE,UNTIL,WHILE,ZONE},%
748 sensitive=f,% ???
749 morecomment=[l]//,%
750 morestring=[d]"%
751 }[keywords, comments, strings]%
752 </lang3>

```

2.16 COMMAND.COM Batch Files

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

```

753 (*lang3)
754 \lst@definelanguage[WinXP]{command.com}%
755   {morekeywords={assoc,at,attrib,bootcfg,break,cacls,call,cd,cdcp,.chdir,%
756     chkdsk,chkntfs,cls,cmd,cmdextversion,color,comp,compact,convert,copy,%
757     date,defined,del,dir,diskcomp,diskcopy,do,doskey,echo,else,endlocal,%
758     erase,errorlevel,exist,exit,fc,find,findstr,for,format,ftype,goto,%
759     graftabl,help,if,in,label,md,mkdir,mode,more,move,not,off,path,%
760     pause,popd,print,prompt,pushd,rd,recover,ren,rename,replace,rmdir,%
761     set,setlocal,shift,sort,start,subst,time,title,tree,type,ver,%
762     verify,vol,xcopy},%
763   sensitive=false,%
764   alsoother={@},%
765   alsoletter={\%~:~/},%
766   morecomment=[1]{rem},%
767   morecomment=[1]{reM},%
768   morecomment=[1]{rEm},%
769   morecomment=[1]{rEM},%
770   morecomment=[1]{Rem},%
771   morecomment=[1]{ReM},%
772   morecomment=[1]{REm},%
773   morecomment=[1]{REM},%
774   morestring=[d]"%
775 }[keywords,comments,strings]%
776 </lang3)

```

2.17 Cmsol Multiphysics

Cmsol 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 Cmsol is case-insensitive, whereas Matlab is case-sensitive; listings does not currently support different case-sensitivities in the same listing.

```

777 (*lang3)
778 \lst@definelanguage{Cmsol}%
779   {morekeywords={%
780     adaption,arc1,arc2,arrayr,assemble,aseminit,beziercurve2,block2,%
781     block3,bsplinecurve2,bsplinecurve3,bsplinesurf3,bypassplot,cardg,%
782     ccoeffgroup,chamfer,checkgeom,circ1,circ2,coeff2cell,comsol,%
783     cone2,cone3,Contents,createhexes,createprisms,createquads,csgbl2,%
784     csgbl3,csgcmpbz,csgimplbz,csginitaux,csginitnr,csgproputil,%
785     csgrbconv,csgunique3,csguniquep,csgversion,csgvvovl,curve2,%
786     curve3,cylinder2,cylinder3,dat2str,defastget,display,drawgetobj,%
787     drawreobj,drawsetobj,dst,duplicate,dxflayers,dxfread,dxfwrite,%
788     econe2,econe3,eigloop,elcconstr,elcplbnd,elcplextr,elcplproj,%
789     elcplscalar,elempty,elemreobj,eleqc,eleqw,elevate,elgeom,ellip1,%
790     ellip2,ellipsoid2,ellipsoid3,ellipsoidgen_f123,elmat,elovar,%
791     elpconstr,elshape,elvar,elvarm,embed,extrude,face3,faceprim3,%
792     fastsetop,fem2jxfem,femblocksu,femdiff,femeig,femexport,femgui,%

```

```

793 femimport,femiter,femlab,femlin,femmesh,femmeshexp,femnlin,%
794 femplot,femsfun,femsim,femsimlowlevel,femsimserver,femsol,%
795 femsolver,femstate,femstruct,femtime,femwave,festyle,fielnames,%
796 fillet,fl1d,fl2d,fl3d,flaction,flafun,flapconvert,flapobj,%
797 flaxisequal,flbase,flbinary,flc1hs,flc2hs,flcanpnt,flcell2draw,%
798 flclear,flcolorbar,flcompact,flconeplot,flcontour2mesh,%
799 flcontour2meshaux,flconvreact,flconvreact1d,flconvreact2d,%
800 flconvreact3d,flcyl,fldc1hs,fldc2hs,fldegree,fldegreer3,%
801 fldegreet3,fldimvarset,fldisp,fldraw2cell,fldrawnow,fldsmhs,%
802 fldsmhsign,flevalmat,flexch,flexchprop,flfastgeom,flform,flgc,%
803 flgcbo,flgdconv,flgeom2cellstr,flgeomadj,flgeomarcize,flgeomec,%
804 flgeomed,flgeomepol,flgeomes,flgeomfc,flgeomfd,flgeomfdp,%
805 flgeomff1,flgeomff2,flgeomfn,flgeomfs,flgeomgetlocalsys,%
806 flgeominit,flgeominitprop,flgeomitransform,flgeomloft,flgeommesh,%
807 flgeomnbs,flgeomnes,flgeomnmr,flgeomnv,flgeompsinv,flgeomrmsing,%
808 flgeomrotp,flgeomsd,flgeomssdim,flgeomse,flgeomsf2,flgeomspm,%
809 flgeomtransform,flgeomud,flgeomvtx,flgetdraw,flheat,flheat1d,%
810 flheat2d,flheat3d,flhelmholtz,flhelmholtz1d,flhelmholtz2d,%
811 flhelmholtz3d,flim2curve,flinterp1,fliscont,flismember,%
812 flisnumeric,fljaction,fllaplace,fllaplace1d,fllaplace2d,%
813 fllaplace3d,flload,flloadfl,flloadmatfile,flloadmfile,%
814 fllobj2cellstr,flmakeevalstr,flmapsoljac,flmat2str,flmatch,%
815 flmesh2spline,flmesh2splineaux,flml65setup,flngdof,flnull,%
816 flnullorth,flpde,flpdeac,flpdec,flpdec1d,flpdec2d,flpdec3d,%
817 flpdedc,flpdedc2d,flpdedc3d,flpdedf,flpdedf1d,flpdedf2d,%
818 flpdedf3d,flpdees,flpdees2d,flpdees3d,flpdeg,flpdeg1d,flpdeg2d,%
819 flpdeg3d,flpdeht,flpdeht1d,flpdeht2d,flpdeht3d,flpdems,flpdems2d,%
820 flpdems3d,flpdens,flpdens2d,flpdens3d,flpdepn,flpdeps,flpdesm3d,%
821 flpdew,flpdew1d,flpdew2d,flpdew3d,flpdewb,flpdewb1d,flpdewb2d,%
822 flpdewb3d,flpdewc,flpdewc1d,flpdewc2d,flpdewc3d,flpdewe,%
823 flpdewe3d,flpdewp,flpdewp2d,flpdewp3d,flplot,flpoisson,%
824 flpoisson1d,flpoisson2d,flpoisson3d,flpric2,flpric3,flreobj,%
825 flreport,flresolvepath,flsave,flschrodinger,flschrodinger1d,%
826 flschrodinger2d,flschrodinger3d,flsde,flsdp,flsdt,flsetalpha,%
827 flsetdraw,flsmhs,flsmhsign,flspnull,fltherm_cond1,fltrg,flversion,%
828 flversions,flverver,flwave,flwave1d,flwave2d,flwave3d,%
829 flwriteghist,formstr,gdsread,gencyl2,gencyl3,genextrude,%
830 genextrudeaux,geom,geom0,geom0get,geom1,geom1get,geom2,geom2get,%
831 geom3,geom3get,geom3j2m,geom3m2j,geomaddlblmargin,geomanalyze,%
832 geomarrayr,geomassign,geomcoerce,geomcomp,geomconnect,geomcopy,%
833 geomcsg,geomdel,geomedit,geomexport,geomfile,geomget,%
834 geomgetlabels,geomgetwrkpln,geomimport,geominfo,geominfoaux,%
835 geomlblplot,geomload,geomnumparse,geomobject,geomparse,geomplot,%
836 geomplot1,geomplot2,geomplot3,geomposition,geompropoutil,%
837 geomreconstruct,geomreobj,geomserver,geomspline,geomsurf,%
838 geomupdate,get,getfemgeom,getisocurve,getjptr,getmesh,getsdim,%
839 getvmatrixexch,handlesolnumstr,helix1,helix2,helix3,hexahedron2,%
840 hexahedron3,histfrommat,idst,igesread,importplotdata,isempty,%
841 isfield,isfunc,isscript,javaclass,jpropoutil,jptr2geom,jptrgeom1,%
842 jptrgeom1_fl23,jptrgeom2,jptrgeom2_fl23,jptrgeom3,jptrgeom3_fl23,%

```

```

843 keiter,line1,line2,loadobj,loft,matlabinterpdata,mesh2geom,%
844 meshassign,meshcaseadd,meshcasedel,meshcaseutil,meshcheck,%
845 meshembed,meshenrich,meshenrich1,meshenrich2,meshenrich3,%
846 meshexport,meshextend,meshextrude,meshget,meshimport,meshinit,%
847 meshintegrate,meshmap,meshoptim,meshparse,meshplot,meshplot1,%
848 meshplot2,meshplot3,meshplotpropoutil,meshpoi,meshpropoutil,%
849 meshptplot,meshqual,meshrefine,meshrevolve,meshsmooth,%
850 meshsmooth2,meshsweep,meshvolume,minus,mirror,mkreflparams,%
851 mmsolve,modetype,move,moveglobalfields,mphpropoutil,mtimes,%
852 multiphysics,mypostinterp,notscript,onlyelsconstr,outassign,%
853 parangeom,pde2draw,pde2equ,pde2fem,pde2geom,pdeblxpd,plus,point1,%
854 point2,point3,poisson,poly1,poly2,postanim,postapplysettings,%
855 postarrow,postarrowbnd,postcolorbar,postcont,postcontdomind,%
856 postcoord,postcopyprop,postcrossplot,postdistrprops,posteval,%
857 postflow,postfnd,postgeomplot,postgetfem,postgetstylecolor,%
858 postglobaleval,postglobalplot,postgp,postinit,postint,postinterp,%
859 postiso,postlin,postmakecontcol,postmax,postmaxmin,postmin,%
860 postmkcontbar,postmknormexpr,postmovie,postnewplot,%
861 postoldmaxminprops,postpd2pm,postplot,postplotconstants,%
862 postpm2pd,postprinc,postprincbnd,postprocgui,postpropoutil,%
863 postslice,postsurf,posttet,posttitle,print2file,pyramid2,%
864 pyramid3,rect1,rect2,restorefields,revolve,rmfield,rotate,%
865 rotmatrix,scale,serialize,set,setmesh,sh2str,sharg_2_5,shbub,%
866 shdisc,shdiv,shherm,shlag,shvec,simplecoerce,simreobj,slblocks,%
867 solassign,solid0,solid1,solid2,solid3,solidprim3,solpropoutil,%
868 solsize,solveraddcases,sphere2,sphere3,spiceimport,splineaux,%
869 split,splitprim,square1,square2,stylread,submode,submodes,%
870 subsasgn,subsref,tangent,taucs,tetrahedron2,tetrahedron3,%
871 tobsplines,torus2,torus3,transform,update,updateassoc,%
872 updateassocinfo,updatefem,updateguistruct,updateobj,vrmlread,%
873 xmeshinfo,xmeshinit},%
874 sensitive=false,%
875 morecomment=[1]\%,%
876 morestring=[m]’%
877 }[keywords,comments,strings]%
878  $\langle$ /lang3

```

2.18 bash, csh, and sh

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

```

879  $\langle$ *lang1
880 %%
881 %% csh definition (c) 1998 Kai Below
882 %%
883 \lst@definlanguage{csh}
884 {morekeywords={alias,awk,cat,echo,else,end,endif,endsw,exec,exit,%
885     foreach,glob,goto,history,if,logout,nice,nohup,onintr,repeat,sed,%

```

```

886     set,setenv,shift,source,switch,then,time,while,umask,unalias,%
887     unset,wait,while,@,env,argv,child,home,ignoreeof,noclobber,%
888     noglob,nomatch,path,prompt,shell,status,verbose,print,printf,%
889     sqrt,BEGIN,END},%
890     morecomment=[l]\#,%
891     morestring=[d]"%
892 }[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.

```

893 %%
894 %% bash,sh definition (c) 2003 Riccardo Murri <riccardo.murri@gmx.it>
895 %%
896 \lst@definlanguage{bash}[]{}%
897 {morekeywords={alias,bg,bind,builtin,caller,command,compgen,compopt,%
898     complete,coproc,declare,disown,dirs,enable,fc,fg,help,history,%
899     jobs,let,local,logout,mapfile,printf,pushd,popd,readarray,select,%
900     set,suspend,shopt,source,times,type,typeset,ulimit,unalias,wait},%
901 }%
902 \lst@definlanguage{sh}%
903 {morekeywords={awk,break,case,cat,cd,continue,do,done,echo,elif,else,%
904     env,esac,eval,exec,exit,export,expr,false,fi,for,function,getopts,%
905     hash,history,if,in,kill,login,newgrp,nice,nohup,ps,pwd,read,%
906     readonly,return,set,sed,shift,test,then,times,trap,true,type,%
907     ulimit,umask,unset,until,wait,while},%
908     morecomment=[l]\#,%
909     morestring=[d]"%,%
910     morestring=[d]'%
911 }[keywords,comments,strings]%
912 </lang1>

```

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

```

913 (*bash-prf)
914 \usepackage[rgb, x11names]{xcolor}
915
916 % common settings
917 \lstset{%
918     frame=tlb,%           the frame is open on the right side
919     resetmargins=false,%
920     rulesepcolor=\color{black},%
921     numbers=left,%           % left
922     numberstyle=\tiny,%
923     numbersep=5pt,%
924     firstnumber=1,%

```

```

925 stepnumber=5,%
926 columns=fixed,%           % to prevent inserting spaces
927 fontadjust=true,%
928 keepspaces=true,%
929 basewidth=0.5em,%
930 captionpos=t,%
931 abovecaptionskip=\smallskipamount,% same amount as default
932 belowcaptionskip=\smallskipamount,% in caption package
933 }
934 % settings for colored printing
935 \lstdefinestyle{bash}{%
936   backgroundcolor=\color{yellow!10},%
937   basicstyle=\small\ttfamily,%
938   identifierstyle=\color{black},%
939   keywordstyle=\color{blue},%
940   keywordstyle=[2]\color{cyan},%
941   keywordstyle=[3]\color{olive},%
942   stringstyle=\color{teal},%
943   commentstyle=\itshape\color{orange},%
944 }%
945 % settings for back and white printing
946 \lstdefinestyle{bashbw}{%
947   backgroundcolor={},%
948   basicstyle=\small\ttfamily,%
949   identifierstyle={},%
950   keywordstyle=\bfseries,%
951   stringstyle=\itshape,%
952   commentstyle=\slshape,%
953   rulesepcolor=\color{black},%
954 }%

```

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

```
955 </bash-prf>
```

2.19 Delphi

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

```

956 <*lang2>
957 \lst@definelanguage{Delphi}%
958   {morekeywords={and,as,asm,array,begin,case,class,const,constructor,%
959     destructor,div,do,downto,else,end,except,exports,file,finally,%
960     for,function,goto,if,implementation,in,inherited,inline,%
961     initialization,interface,is,label,library,mod,nil,not,object,of,%
962     or,packed,procedure,program,property,raise,record,repeat,set,%
963     shl,shr,string,then,to,try,type,unit,until,uses,var,while,with,%
964     xor,%
965     absolute,abstract,assembler,at,cdecl,default,dynamic,export,%

```

```

966     external, far, forward, index, name, near, nodefault, on, override, %
967     private, protected, public, published, read, resident, storedDir, %
968     virtual, write}, %
969     moreendkeywords={Abs, AddExitProc, Addr, AllocMem, AnsiCompareStr, %
970     AnsiCompareText, AnsiLowerCase, AnsiUpperCase, Append, AppendStr, %
971     ArcTan, AssignCrt, Assigned, AssignFile, BlockRead, BlockWrite, Break, %
972     ChangeFileExt, ChDir, Chr, CloseFile, ClrEol, ClrScr, Concat, Continue, %
973     Copy, Cos, CSeg, CursorTo, Date, DateTimeToFileDate, DateTimeToStr, %
974     DateTimeToString, DateToStr, DayOfWeek, Dec, DecodeDate, DecodeTime, %
975     Delete, DeleteFile, DiskFree, DiskSize, Dispose, DisposeStr, %
976     DoneWinCrt, DSeg, EncodeDate, EncodeTime, Eof, Eoln, Erase, Exclude, %
977     Exit, Exp, ExpandFileName, ExtractFileExt, ExtractFileName, %
978     ExtractFilePath, FileAge, FileClose, FileDateToDateTime, FileExists, %
979     FileGetAttr, FileGetDate, FileOpen, FilePos, FileRead, FileSearch, %
980     FileSeek, FileSetAttr, FileSetDate, FileSize, FillChar, FindClose, %
981     FindFirst, FindNext, FloatToDecimal, FloatToStrF, FloatToStr, %
982     FloatToText, FloatToTextFmt, Flush, FmtLoadStr, FmtStr, Format, %
983     FormatBuf, FormatDateTime, FormatFloat, Frac, Free, FreeMem, GetDir, %
984     GetMem, GotoXY, Halt, Hi, High, Inc, Include, InitWinCrt, Insert, Int, %
985     IntToHex, IntToStr, IOResult, IsValidIdent, KeyPressed, Length, Ln, Lo, %
986     LoadStr, Low, LowerCase, MaxAvail, MemAvail, Mkdir, Move, New, NewStr, %
987     Now, Odd, Ofs, Ord, ParamCount, ParamStr, Pi, Pos, Pred, Ptr, Random, %
988     Randomize, Read, ReadBuf, ReadKey, Readln, ReAllocMem, Rename, %
989     RenameFile, Reset, Rewrite, Rmdir, Round, RunError, ScrollTo, Seek, %
990     SeekEof, SeekEoln, Seg, SetTextBuf, Sin, SizeOf, SPtr, Sqr, Sqrt, SSeg, %
991     Str, StrCat, StrComp, StrCopy, StrDispose, StrECopy, StrEnd, StrFmt, %
992     StrLCat, StrIComp, StrLComp, StrLCopy, StrLen, StrLFmt, StrLIComp, %
993     StrLower, StrMove, StrNew, StrPas, StrPCopy, StrPos, StrScan, StrRScan, %
994     StrToDate, StrToDateTime, StrToFloat, StrToInt, StrToIntDef, %
995     StrToTime, StrUpper, Succ, Swap, TextToFloat, Time, TimeToStr, %
996     TrackCursor, Trunc, Truncate, TypeOf, UpCase, UpperCase, Val, WhereX, %
997     WhereY, Write, WriteBuf, WriteChar, WriteLn}, %
998     sensitive=f, %
999     morecomment=[s]{(*){(*)}, %
1000     morecomment=[s]{\{\}\{\}}, %
1001     morecomment=[l]{//}, % 2001 Christian Gudrian
1002     morestring=[d]'%
1003 } [keywords, comments, strings] %
1004 </lang2>

```

2.20 Eiffel

Data is from

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

```

1005 (*lang2)
1006 \lst@definlanguage{Eiffel}%

```

```

1007 {morekeywords={alias,all,and,as,BIT,BOOLEAN,CHARACTER,check,class,%
1008   creation,Current,debug,deferred,do,DOUBLE,else,elseif,end,%
1009   ensure,expanded,export,external,false,feature,from,frozen,if,%
1010   implies,indexing,infix,inherit,inspect,INTEGER,invariant,is,%
1011   like,local,loop,NONE,not,obsolete,old,once,or,POINTER,prefix,%
1012   REAL,redefine,rename,require,rescue,Result,retry,select,%
1013   separate,STRING,strip,then,true,undefine,unique,until,variant,%
1014   when,xor},%
1015   sensitive,%
1016   morecomment=[1]--,%
1017   morestring=[d]"%,%
1018 }[keywords,comments,strings]%

```

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

```
1019 </lang2>
```

2.21 Elan

The data come from

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

```

1020 (*lang3)
1021 \lst@definlanguage{Elan}%
1022 {morekeywords={ABS,AND,BOOL,CAND,CASE,CAT,COLUMNS,CONCR,CONJ,CONST,%
1023   COR,DECR,DEFINES,DET,DIV,DOWNTO,ELIF,ELSE,END,ENDIF,ENDOP,%
1024   ENDPACKET,ENDPROC,ENDREP,ENDSELECT,FALSE,FI,FILE,FOR,FROM,IF,%
1025   INCR,INT,INV,LEAVE,LENGTH,LET,MOD,NOT,OF,OP,OR,OTHERWISE,PACKET,%
1026   PROC,REAL,REP,REPEAT,ROW,ROWS,SELECT,SIGN,STRUCT,SUB,TEXT,THEN,%
1027   TRANSP,TRUE,TYPE,UNTIL,UPTO,VAR,WHILE,WITH,XOR,%
1028   maxint,sign,abs,min,max,random,initializerandom,subtext,code,%
1029   replace,text,laenge,pos,compress,change,maxreal,smallreal,floor,%
1030   pi,e,ln,log2,log10,sqrt,exp,tan,tand,sin,sind,cos,cosd,arctan,%
1031   arctand,int,real,lastconversionok,put,putline,line,page,get,%
1032   getline,input,output,sequentialfile,maxlinelaenge,reset,eof,%
1033   close,complexzero,complexone,complexi,complex,realpart,imagpart,%
1034   dphi,phi,vector,norm,replace,matrix,idn,row,column,sub,%
1035   replacerow,replacecolumn,replaceelement,transp,errorsstop,stop},%
1036   sensitive,%
1037   morestring=[d]"%,%
1038 }[keywords,strings]%
1039 </lang3>

```

2.22 Erlang

Thanks to Daniel Gazard.

```
1040 (*lang3)
```

```

1041 %%
1042 %% Erlang definition (c) 2003 Daniel Gazard
1043 %%
1044 \lst@definlanguage{erlang}%
1045 {morekeywords={abs,after,and,apply,atom,atom_to_list,band,binary,%
1046     binary_to_list,binary_to_term,bor,bsl,bsr,bxor,case,catch,%
1047     date,div,element,erase,end,exit,export,float,float_to_list,%
1048     get,halt,hash,hd,if,info,import,integer,integer_to_list,%
1049     length,link,list,list_to_atom,list_to_float,list_to_integer,%
1050     list_to_tuple,module,node,nodes,now,of,or,pid,port,ports,%
1051     processes,put,receive,reference,register,registered,rem,%
1052     round,self,setelement,size,spawn,throw,time,tl,trace,trunc,%
1053     tuple,tuple_to_list,unlink,unregister,whereis,error,false,%
1054     infinity,nil,ok,true,undefined,when},%
1055 otherkeywords={->,!,[,],\{,\}},%
1056 morecomment=[l]\%,%
1057 morestring=[b]" ,%
1058 morestring=[b]' %
1059 }[keywords,comments,strings]%
1060 </lang3>

```

2.23 Euphoria

Detlef Reimers sent me the language definition.

```

1061 (*lang2)
1062 %%
1063 %% Euphoria definition (c) 1998 Detlef Reimers
1064 %%
1065 \lst@definlanguage{Euphoria}%
1066 % for Euphoria 2.0, Rapid Deployment Software, Kanada
1067 {morekeywords={abort,and,and_bits,append,arctan,atom,by,call,%
1068     call_proc,call_func,c_proc,c_func,clear_screen,close,%
1069     command_line,compare,constant,cos,do,date,else,elsif,end,exit,%
1070     find,floor,for,function,getc,getenv,get_key,gets,global,%
1071     get_pixel,if,include,integer,length,log,match,machine_func,%
1072     machine_proc,mem_copy,mem_set,not,not_bits,or,object,open,%
1073     or_bits,procedure,puts,position,prepend,print,printf,power,peek,%
1074     poke,pixel,poke4,peek4s,peek4u,return,rand,repeat,remainder,%
1075     routine_id,sequence,sqrt,sin,system,sprintf,then,type,to,time,%
1076     trace,tan,while,with,without,xor,xor_bits},%
1077 sensitive,%
1078 morecomment=[l]--,%
1079 morestring=[d]' ,%
1080 morestring=[d]"%
1081 }[keywords,comments,strings]%
1082 </lang2>

```

2.24 Fortran

Took things from

- KARL HANS MÜLLER: **Fortran 77: Programmierungsanleitung**; 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.

```
1083 (*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

```
1084 \lst@definlanguage[18]{Fortran}[08]{Fortran}{%
1085   morekeywords={FAIL, IMAGE, NON_RECURSIVE},%
```

and procedures:

```
1086   morekeywords=[3]{GET_TEAM, TEAM_NUMBER, IMAGE_TEAMS, NUM_IMAGES,
1087     THIS_IMAGE, FAILED_IMAGES, STOPPED_IMAGES, IMAGES_STATUS, CO_BROADCAST,
1088     CO_MAX, CO_MIN, CO_SUM, CO_REDUCE, ATOMIC_ADD, ATOMIC_AND, ATOMIC_OR,
1089     ATOMIC_XOR, ATOMIC_FETCH_ADD, ATOMIC_FETCH_AND, ATOMIC_FETCH_OR,
1090     ATOMIC_FETCH_XOR, ATOMIC_FETCH_CAS, IEEE_GET_MODES, IEEE_SET_MODES,
1091     IEEE_FMA, IEEE_SIGNBIT, IEEE_INT, IEEE_REM, IEEE_MAX_NUM,
1092     IEEE_MAX_NUM_MAG,
1093     IEEE_MIN_NUM, IEEE_MAX_NUM_MAG, IEEE_NEXT_DOWN, IEEE_NEXT_UP,
1094     IEEE_SUPPORT_DATATYPE, IEEE_QUIET_EQ, IEEE_QUIET_GE, IEEE_QUIET_GT,
1095     IEEE_QUIET_LE, IEEE_QUIET_LT, IEEE_QUIET_NE, IEEE_SIGNALING_EQ,
1096     IEEE_SIGNALING_GE, IEEE_SIGNALING_GT, IEEE_SIGNALING_LE,
1097     IEEE_SIGNALING_LT, IEEE_SIGNALING_NE}%
1098 }%
```

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.

```
1099 \lst@definlanguage[08]{Fortran}[03]{Fortran}{%
1100   morekeywords={ALL, BLOCK, CODIMENSION, CONCURRENT, CONTIGUOUS, CRITICAL,%
1101     ERROR, IMAGES, LOCK, MEMORY, SUBMODULE, SYNC, UNLOCK},%
```

New procedures in Fortran 2008:

```
1102   morekeywords=[3]{ACOSH, ASINH, ATANH, ATOMIC_DEFINE, ATOMIC_REF,%
1103     BESSEL_J0, BESSEL_J1, BESSEL_JN, BESSEL_Y0, BESSEL_Y1, BESSEL_YN,%
1104     BGE, BGT, BLE, BLT, C_SIZEOF, COMPILER_OPTIONS, COMPILER_VERSION,%
1105     DSHIFTL, DSHIFTR, ERF, ERFC, ERFC_SCALED, EXECUTE_COMMAND_LINE,%
```

```

1106   FINDLOC, GAMMA, HYPOT, IALL, IANY, IMAGE_INDEX, IPARITY, LCOBOUND,%
1107   LEADZ, LOG_GAMMA, MASKL, MASKR, MERGE_BITS, NORM2, NUM_IMAGES,%
1108   PARITY, POPCNT, POPPAR, SHIFTA, SHIFTL, SHIFTR, STORAGE_SIZE,%
1109   THIS_IMAGE, TRAILZ, UCBOUND}%
1110 }%

```

Fortran 2003 introduces the following keywords:

```

1111 \lst@definelanguage[03]{Fortran}[95]{Fortran}{%
1112   morekeywords={ABSTRACT, ASSOCIATE, ASYNCHRONOUS, BIND, CLASS, DEFERRED,%
1113     ENUM, ENUMERATOR, EXTENDS, FINAL, FLUSH, GENERIC, IMPORT,%
1114     NON_OVERRIDABLE, NOPASS, PASS, PROTECTED, VALUE, VOLATILE, WAIT},%

```

These are new options/specifiers:

```

1115   morekeywords=[2]{DECIMAL, ENCODING, IOMSG, ROUND},%

```

And also some new procedures:

```

1116   morekeywords=[3]{C_ASSOCIATED, C_F_POINTER, C_F_PROCPONTER, C_FUNLOC,%
1117     C_LOC, COMMAND_ARGUMENT_COUNT, EXTENDS_TYPE_OF, GET_COMMAND,%
1118     GET_COMMAND_ARGUMENT, GET_ENVIRONMENT_VARIABLE, IS_IOSTAT_END,%
1119     MOVE_ALLOC,NEW_LINE,SAME_TYPE_AS, SELECTED_CHAR_KIND}%
1120 }%

```

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

```

1121 \lst@definelanguage[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.

```

1122 \lst@definelanguage[95]{Fortran}[77]{Fortran}{%
1123   deletekeywords=SAVE,%
1124   morekeywords={ALLOCATABLE, ALLOCATE, ASSIGNMENT, CASE, CONTAINS, CYCLE,%
1125     DEALLOCATE, DEFAULT, EXIT, INCLUDE, IN, NONE, OUT, INTENT, INTERFACE,%
1126     MODULE, NAMELIST, NULLIFY, ONLY, OPERATOR, OPTIONAL, OUT, POINTER,%
1127     PRIVATE, PUBLIC, RECURSIVE, RESULT, SELECT, SEQUENCE, TARGET, TYPE,%
1128     USE, WHERE, WHILE, BLOCKDATA, DOUBLEPRECISION, ENDBLOCKDATA, ENDFILE,%
1129     ENDFUNCTION, ENDINTERFACE, ENDMODULE, ENDPROGRAM, ENDSELECT,%
1130     ENDSUBROUTINE, ENDTYPE, ENDWHERE, INOUT, SELECTCASE},%

```

Theses keys were missing from the 1.4 version of listings:

```

1131   ELEMENTAL, ELSEWHERE, FORALL, PURE,%

```

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

```

1132   PROCEDURE},%

```

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

```

1133   morekeywords=[2]{ACTION, ADVANCE, DELIM, IOLENGTH, LEN, NAME, NML, PAD,%
1134     POSITION, READWRITE, SIZE, STAT},% corrected NML from NMT

```

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

```

1135   morekeywords=[3]{ACHAR, ADJUSTL, ADJUSTR, ALL, ALLOCATED, ANY, ASSOCIATED,%
1136     BIT_SIZE, BTEST, CEILING, COUNT, CPU_TIME, CSHIFT, DATE_AND_TIME, DIGITS,%
1137     DOT_PRODUCT, EOSHIFT, EPSILON, EXPONENT, FLOOR, FRACTION, HUGE, IACHAR,%
1138     IAND, IBCLR, IBITS, IBSET, ICHAR, IEOR, IOR, ISHFT, ISHFTC, KIND, LBOUND,%

```

```

1139   LEN_TRIM,% left out LOGICAL
1140   MATMUL, MAXEXPONENT, MAXLOC, MAXVAL, MERGE, MINEXPONENT, MINLOC, MINVAL,%
1141   MODULO, MVBITS, NEAREST, NOT, NULL, PACK, PRECISION, PRESENT, PRODUCT,%
1142   RADIX, RANDOM_NUMBER, RANDOM_SEED, RANGE, RANK, REPEAT, RESHAPE,%
1143   RRSPPACING, SCALE, SCAN, SELECTED_INT_KIND, SELECTED_REAL_KIND,%
1144   SET_EXPONENT, SHAPE, SINH, SIZE, SPACING, SPREAD, SUM, SYSTEM_CLOCK,%
1145   TINY, TRANSFER, TRANSPOSE, TRIM, UBOUND, UNPACK, VERIFY},%
1146   deletacomment=[f],% no fixed comment line: 1998 Magne Rudshaug
1147   morecomment=[l]!%
1148 }%

```

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’).

```

1149 \lst@definelanguage[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.

```

1150   morekeywords={ASSIGN, BACKSPACE, CALL, CHARACTER, %
1151   CLOSE, COMMON, COMPLEX, CONTINUE, DATA, DIMENSION, DO, DOUBLE, %
1152   ELSE, ELSEIF, END, ENDDO, ENTRY, EQUIVALENCE, EXTERNAL, %
1153   FILE, FORMAT, FUNCTION, GO, TO, GOTO, IF, IMPLICIT, %
1154   INQUIRE, INTEGER, INTRINSIC, LOGICAL, %
1155   OPEN, PARAMETER, PAUSE, PRECISION, PRINT, PROGRAM, READ, REAL, %
1156   RETURN, REWIND, SAVE, STOP, SUBROUTINE, THEN, %
1157   WRITE},%
1158   morekeywords=[2]{ACCESS, BLANK, BLOCK, DIRECT, EOF, ERR, EXIST,%
1159   FMT, FORM, FORMATTED, IOSTAT, NAMED, NEXTREC, NUMBER, OPENED,%
1160   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!)

```

1161   morekeywords=[3]{INT, DBLE, CMPLX, ICHAR, CHAR, AINT, ANINT,% left out real
1162   NINT, ABS, MOD, SIGN, DIM, DPROD, MAX, MIN, AIMAG, CONJG, SQRT,%
1163   EXP, LOG, LOG10, SIN, COS, TAN, ASIN, ACOS, ATAN, ATAN2, SINH,%
1164   COSH, TANH, LGE, LGT, LLE, LLT, LEN, INDEX},%

```

And here is the last list: fortran operators:

```

1165   morekeywords=[4]{AND, EQ, EQV, FALSE, GE, GT, OR, LE, LT, NE, NEQV,%
1166   NOT, TRUE},%
1167   sensitive=f,%% not Fortran-77 standard, but allowed in Fortran-95 %%
1168   morecomment=[f]*,%
1169   morecomment=[f]C,%
1170   morecomment=[f]c,%
1171   morestring=[d]" ,%% not Fortran-77 standard, but allowed in Fortran-95 %%
1172   morestring=[d]' %
1173   }[keywords,comments,strings]%
1174 </lang1>

```

Jobst Hoffmann supplied a definition of a style for printing Fortran code:

```

1175 (*fortran-prf)
1176 \usepackage[rgb, x11names]{xcolor}
1177
1178 % common settings
1179 \lstset{%
1180   frame=tlb,%           the frame is open on the right side
1181   resetmargins=false,%
1182   rulesepcolor=\color{black},%
1183   numbers=left,%       % left
1184   numberstyle=\tiny,%
1185   numbersep=5pt,%
1186   firstnumber=1,%
1187   stepnumber=5,%
1188   columns=fixed,%      % to prevent inserting spaces
1189   fontadjust=true,%
1190   keepspaces=true,%
1191   basewidth=0.5em,%
1192   captionpos=t,%
1193   abovcaptionskip=\smallskipamount,% same amount as default
1194   belowcaptionskip=\smallskipamount,% in caption package
1195 }
1196 % settings for colored printing
1197 \lstdefinestyle{fortran}{%
1198   backgroundcolor=\color{yellow!10},%
1199   basicstyle=\small\ttfamily,%
1200   identifierstyle=\color{black},%
1201   keywordstyle=\color{blue},%
1202   keywordstyle={[2]\color{cyan}},%
1203   keywordstyle={[3]\color{olive}},%
1204   stringstyle=\color{teal},%
1205   commentstyle=\itshape\color{orange},%
1206 }%
1207 % settings for back and white printing
1208 \lstdefinestyle{fortranbw}{%
1209   backgroundcolor={},%
1210   basicstyle=\small\ttfamily,%
1211   identifierstyle={},%
1212   keywordstyle=\bfseries,%
1213   stringstyle=\itshape,%
1214   commentstyle=\slshape,%
1215   rulesepcolor=\color{black},%
1216 }%

```

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

```
1217 </fortran-prf>
```

2.25 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.

```
1218 (*lang2)

1219 %%
1220 %% GAP definition
1221 %% (c) 2013 Heiko Oberdiek
1222 %%
1223 \lst@definelanguage{GAP}{%
1224   morekeywords={%
1225     Assert,Info,IsBound,QUIT,%
1226     TryNextMethod,Unbind,and,break,%
1227     continue,do,elif,%
1228     else,end,false,fi,for,%
1229     function,if,in,local,%
1230     mod,not,od,or,%
1231     quit,rec,repeat,return,%
1232     then,true,until,while%
1233   },%
1234   sensitive,%
1235   morecomment=[l]\#,%
1236   morestring=[b]" ,%
1237   morestring=[b]' ,%
1238 }[keywords,comments,strings]
1239 </lang2>
```

2.26 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.

```
1240 (*lang3)

1241 %%
1242 %% Go definition
1243 %% (c) 2018 Christian Maurer
1244 %%
1245 \lst@definelanguage{Go}{%
1246   morekeywords={append,bool,break,byte,cap,case,chan,close,complex,%
1247     complex128,complex64,const,continue,copy,default,defer,delete,%
1248     else,error,fallthrough,false,float32,float64,for,func,go,goto,%
```

```

1249   if, imag, import, int, int16, int32, int64, int8, interface, iota, len, %
1250   make, map, new, nil, package, panic, print, println, range, real, %
1251   recover, return, rune, select, string, struct, switch, true, type, %
1252   uint, uint16, uint32, uint64, uint8, uintptr, var}, %
1253   sensitive, %
1254   morecomment=[s]{/*}{*/}, %
1255   morecomment=[l]//, %
1256   morestring=[b]', %
1257   morestring=[b]", %
1258   morestring=[s]{'}{'}, %
1259 }[keywords, comments, strings]%
1260 </lang3>

```

2.27 Guarded Command Language (GCL)

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

```

1261 <*lang2>
1262 %%
1263 %% Guarded Command Language (GCL) definition
1264 %% (c) 2002 Mark van Eijk
1265 %%
1266 \lst@definelanguage{GCL}%
1267 {morekeywords={const, con, var, array, of, skip, if, fi, do, od, div, mod}, %
1268   literate={| []{\ensuremath{|\hspace -0.1em[]}}2%
1269             {}|{\ensuremath{|\hspace -0.1em|}}2%
1270             {}|{\ensuremath{[\hspace -0.1em]}}2%
1271             {->}{\ensuremath{\rightarrow}}2%
1272             {==}{\ensuremath{\equiv}}2%
1273             {>=}{\ensuremath{\geq}}2%
1274             {<=}{\ensuremath{\leq}}2%
1275             {/\}\{\ensuremath{\land}}2%
1276             {\}\{\ensuremath{\lor}}2%
1277             {!}{\ensuremath{\lnot}}1%
1278             {!=}{\ensuremath{\neq}}2%
1279             {max}{\ensuremath{\uparrow}}1%
1280             {min}{\ensuremath{\downarrow}}1, %
1281   sensitive=f, %
1282   morecomment=[s]{\{\}\}, %
1283   morestring=[d]}' %
1284 }[keywords, comments, strings]%
1285 </lang2>

```

2.28 Gnuplot

Thanks to Dr. Christoph Giess for providing this definition.

```

1286 <*lang2>
1287 %%
1288 %% gnuplot definition (c) Christoph Giess

```

```

1289 %%
1290 \lst@definelanguage{Gnuplot}%
1291 {keywords={abs,acos,acosh,arg,asin,asinh,atan,atan2,atanh,besj0,%
1292     besj1,besy0,besy1,ceil,cos,cosh,erf,erfc,exp,floor,gamma,ibeta,%
1293     inverf,igamma,imag,invnorm,int,lgamma,log,log10,norm,rand,real,%
1294     sgn,sin,sinh,sqrt,tan,tanh,column,tm_hour,tm_mday,tm_min,tm_mon,%
1295     tm_sec,tm_wday,tm_yday,tm_year,valid,cd,call,clear,exit,fit,%
1296     help,if,load,pause,plot,print,pwd,quit,replot,reread,reset,save,%
1297     set,show,shell,spot,test,update,angles,arrow,autoscale,border,%
1298     boxwidth,clabel,clip,cntrparam,contour,data,dgrid3d,dummy,%
1299     format,function,functions,grid,hidden3d,isosamples,key,keytitle,%
1300     label,logscale,mapping,offsets,output,parametric,pointsize,%
1301     polar,rrange,samples,size,style,surface,terminal,tics,time,%
1302     timefmt,title,trange,urange,variables,view,vrange,xdata,xlabel,%
1303     xmargin,xrange,xtics,mxtics,mytics,xdtics,xmtics,xzeroaxis,%
1304     ydata,ylabel,yrange,ytics,ydtics,ymtics,yzeroaxis,zdata,zero,%
1305     zeroaxis,zlabel,zrange,ztics,zdtics,zmtics,timefm,using,title,%
1306     with,index,every,thru,smooth},%
1307     sensitive,%
1308     comment=[l]\#,%
1309     morestring=[b]" ,%
1310     morestring=[b]' ,%
1311 }[keywords,comments,strings]%
1312 </lang2>

```

2.29 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>).

```

1313 <*lang2>
1314 \lst@definelanguage{hansl}{%
1315     showstringspaces = false, %
1316     morekeywords={ % hansl commands:
1317         add, adf, anova, append, ar, ar1, arbond, arch, arima, biprobit, break,%
1318         boxplot, chow, clear, coeffsum, coint, coint2, corr, corrgm, cusum,%
1319         data, dataset, delete, diff, difftest, discrete, dpanel, dummify,%
1320         duration, elif, else, end, endif, endloop, eqnprint, equation,%
1321         estimate, eval, fcast, flush, foreign, fractint, freq, function,%
1322         funcerr, garch, genr, gmm, gnuplot, graphpg, hausman, heckit, help,%
1323         hfplot, hsk, hurst, if, include, info, intreg, join, kpss, labels, lad,%
1324         lags, ldiff, leverage, levinlin, logistic, logit, logs, loop, mahal,%
1325         makepkg, markers, meantest, midasreg, mle, modeltab, modprint, modtest,%
1326         mpi, mpols, negbin, nls, normtest, nulldata, ols, omit, open, orthdev,%
1327         outfile, panel, pca, pergm, plot, poisson, print, printf, probit,%
1328         pvalue, quantreg, qlrtest, qqplot, quit, rename, reset, restrict,%
1329         rmpplot, run, runs, scatters, sdiff, set, setinfo, setobs, setopt,%
1330         setmiss, smpl, spearman, square, store,%
1331         summary, system, tabprint, textplot, tobit, tsls, var, varlist,%

```

```

1332   vartest, vecm, vif, wls, xcorr, xtab, debug, return, catch, pkg,%
1333   arma, deriv, params, hessian, for, foreach, while, const},%
1334 morekeywords=[2]{ % accessors:
1335   \ $nobs, \ $nvars, \ $pd, \ $t1, \ $t2, \ $tmax, \ $datatype, \ $test,%
1336   \ $pvalue, \ $qlrbreak, \ $rlnl, \ $stopwatch, \ $unit, \ $obsmajor,%
1337   \ $obsminor, \ $obsmicro, \ $obsdate, \ $windows, \ $version, \ $error,%
1338   \ $seed, \ $huge, \ $ess, \ $T, \ $rsq, \ $sigma, \ $df, \ $ncoeff, \ $lnl,%
1339   \ $gmmcrit, \ $aic, \ $bic, \ $hqc, \ $trs, \ $dw, \ $dwpval, \ $Fstat,%
1340   \ $chisq, \ $diagtest, \ $diagpval, \ $pmanteau, \ $uhat, \ $yhat, \ $llt,%
1341   \ $ahat, \ $sample, \ $h, \ $coeff, \ $stderr, \ $vcv, \ $rho, \ $compan,%
1342   \ $xtxin, \ $vecGamma, \ $vma, \ $fevd, \ $evals, \ $jalpha, \ $jbeta,%
1343   \ $jvbeta, \ $s00, \ $s11, \ $s01, \ $sec, \ $hausman, \ $sargan, \ $sysGamma,%
1344   \ $sysA, \ $sysB, \ $fcast, \ $fcse, \ $coeff_ci, \ $ehat, \ $mnlprobs,%
1345   \ $xlist, \ $ylist, \ $command, \ $devar, \ $model, \ $system, \ $sysinfo},%
1346 morekeywords=[3]{ % functions
1347   BFGSmax, BFGSmax, GSSmax, I, NMmax, NRmax, abs, acos, acosh,%
1348   aggregate, argname, array, asin, asinh, atan, atanh, atof, bessel,%
1349   bkfilt, bootci, bootpval, boxcox, bread, bwfilt, bwrite, cdemean, cdf,%
1350   cdiv, cdummify, ceil, cholesky, chowlin, cmult, cnameget, cnameset,%
1351   cnorm, cnumber, cols, corr, corr, corr, cos, cosh, cov, critical, cum,%
1352   curl, dayspan, defarray, defbundle, deflist, deseas, det, diag,%
1353   diagcat, diff, digamma, dnorm, dropcoll, dsort, dummify, easterday,%
1354   ecdf, eigengen, eigensym, eigsolve, epochday, errmsg, exists, exp,%
1355   fcstats, fdjac, feval, fevd, fft, ffti, filter, firstobs, fixname,%
1356   floor, fracdiff, fraclag, freq, gammafun, genseries, getenv, getinfo,%
1357   getkeys, getline, ghk, gini, ginv, grab, halton, hdprod, hdiff,%
1358   hflags, hldiff, hflist, hpfilt, imaxc, imaxr, imhof, iminc, iminr,%
1359   inbundle, infnorm, inlist, instr, int, inv, invcdf, invmills, invpd,%
1360   irf, irr, isconst, isdiscrete, isdummy, isnan, isoconv, isodate,%
1361   iwishart, jsonget, jsongetb, juldate, kdensity, ksmooth, kfilter,%
1362   kmeier, kpssc, ksetup, ksimdata, ksimul, ksmooth, kurtosis, lags,%
1363   lastobs, ldet, ldiff, lincomb, linearize, ljungbox, lngamma, loess,%
1364   log, log10, log2, logistic, lower, lrcovar, lrvar, max, maxc, maxr,%
1365   mcorr, mcov, mcover, mean, meanc, meanr, median, mexp, mgradient, min,%
1366   minc, minr, missing, misszero, mlag, mlincomb, mnormal, mols, monthlen,%
1367   movavg, mpiallred, mpibcast, mpirecv, mpireduce, mpiscatter, mpisend,%
1368   mpols, mrandgen, mread, mreverse, mrls, mshape, msortby, uniform,%
1369   mweights, mwrite, mxtab, naalen, nadarwat, nelem, ngetenv, nlines,%
1370   nobs, normal, normtest, npcov, npv, nullspace, numhess, obslabel,%
1371   obsnum, ok, onenorm, ones, orthdev, pdf, pergm, pexpand, pmax, pmean,%
1372   pmin, pnobs, polroots, polyfit, princomp, printf, prodc, prodr, psd,%
1373   psdroot, pshrink, psum, pvalue, pxnobs, pxsum, qform, qlrpval, qnorm,%
1374   qrdecomp, quadtable, quantile, randgen, randgen1, randint, rank,%
1375   ranking, rcond, readfile, regsub, remove, replace, resample, rnameget,%
1376   rnameset, round, rows, sd, sdc, sdiff, seasonals, selifc, selifr, seq,%
1377   setnote, simann, sin, sinh, skewness, sleep, smpls, sort, sortby,%
1378   sprintf, sqrt, square, sscanf, sst, stringify, strlen, strncmp,%
1379   strsplit, strstr, strip, strsub, strvals, substr, sum, sumall, sumc,%
1380   sumr, svd, svm, tan, tanh, toepsolv, tolower, toupper, tr, transp,%
1381   trimr, typeof, typestr, uniform, uniq, unvec, upper, urcpval, values,%

```

```

1382   var, varname, varnames, varnum, varsimul, vec, vech, weekday, wmean,%
1383   wsd, wvar, xmax, xmin, xmlget, zeromiss, zeros, NMmin, GSSmin,%
1384   BFGScmin, BFGSmin },%
1385 morekeywords=[4]{ % genr aliases:
1386   null, series, scalar, matrix, string, list, bundle, strings, matrices,%
1387   bundles, lists%
1388 },%
1389 sensitive=t,%
1390 morecomment=[1]{\#},%
1391 morecomment=[s]{/*}{*/},%
1392 morestring=[b]{"}%
1393 }%
1394 \lstalias{gret1}{hans1}
1395 

```

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

```

1396 (*hansl-prf)
1397 \usepackage[rgb, x11names]{xcolor}
1398
1399 % settings for black and white
1400 \lstdefinestyle{hanslbw}{%
1401   keywordstyle = \bfseries,
1402   keywordstyle = [2]\bfseries,
1403   keywordstyle = [3]\itshape,
1404   keywordstyle = [4]\underbar,
1405   commentstyle = \ttfamily,
1406   stringstyle = \ttfamily
1407 }
1408 % settings for colored printing
1409 \lstdefinestyle{hanslcolor}{%
1410   basicstyle = \small\ttfamily,
1411   keywordstyle = \color{red},
1412   keywordstyle = [2]\color{green},
1413   keywordstyle = [3]\color{cyan},
1414   keywordstyle = [4]\color{olive},
1415   commentstyle = \color{blue}\rmfamily, %
1416   stringstyle = \color{magenta},
1417   moredelim = [1][\color{green}]{--}
1418 }%

```

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

```
1419 

```

2.30 Haskell

Thanks to Peter Bartke for providing the new definition.

```
1420 (*lang2)
```

```

1421 %%
1422 %% Haskell98 as implemented in Hugs98. See http://www.haskell.org
1423 %% All keywords from Prelude and Standard Libraries
1424 %% (c) 1999 Peter Bartke
1425 %%
1426 \lst@definelanguage{Haskell}%
1427   {otherkeywords={=>},%
1428   morekeywords={abstype,if,then,else,case,class,data,default,deriving,%
1429   hiding,if,in,infix,infixl,infixr,import,instance,let,module,%
1430   newtype,of,qualified,type,where,do,AbsoluteSeek,AppendMode,%
1431   Array,BlockBuffering,Bool,BufferMode,Char,Complex,Double,Either,%
1432   FilePath,Float,Int,Integer,IO,IOError,Ix,LineBuffering,Maybe,%
1433   Ordering,NoBuffering,ReadMode,ReadWriteMode,ReadS,RelativeSeek,%
1434   SeekFromEnd,SeekMode,ShowS,StdGen,String,Void,Bounded,Enum,Eq,%
1435   Eval,ExitCode,exitFailure,exitSuccess,Floating,Fractional,%
1436   Functor,Handle,HandlePosn,IOMode,Integral,List,Monad,MonadPlus,%
1437   MonadZero,Num,Numeric,Ord,Random,RandomGen,Ratio,Rational,Read,%
1438   Real,RealFloat,RealFrac,Show,System,Prelude,EQ,False,GT,Just,%
1439   Left,LT,Nothing,Right,WriteMode,True,abs,accum,accumArray,%
1440   accumulate,acos,acosh,all,and,any,ap,appendFile,applyM,%
1441   approxRational,array,asTypeOf,asin,asinh,assoc,atan,atan2,atanh,%
1442   bounds,bracket,bracket_,break,catch,catMaybes,ceiling,chr,cis,%
1443   compare,concat,concatMap,conjugate,const,cos,cosh,curry,cycle,%
1444   decodeFloat,delete,deleteBy,deleteFirstBy,denominator,%
1445   digitToInt,div,divMod,drop,dropWhile,either,elem,elems,elemIndex,%
1446   elemIndices,encodeFloat,enumFrom,enumFromThen,enumFromThenTo,%
1447   enumFromTo,error,even,exitFailure,exitWith,exp,exponent,fail,%
1448   filter,filterM,find,findIndex,findIndices,flip,floatDigits,%
1449   floatRadix,floatRange,floatToDigits,floor,foldl,foldM,foldl1,%
1450   foldr,foldr1,fromDouble,fromEnum,fromInt,fromInteger,%
1451   fromIntegral,fromJust,fromMaybe,fromRat,fromRational,%
1452   fromRealFrac,fst,gcd,genericLength,genericTake,genericDrop,%
1453   genericSplitAt,genericIndex,genericReplicate,getArgs,getChar,%
1454   getContents,getEnv,getLine,getProgName,getStdGen,getStdRandom,%
1455   group,groupBy,guard,hClose,hFileSize,hFlush,hGetBuffering,%
1456   hGetChar,hGetContents,hGetLine,hGetPosn,hIsClosed,hIsEOF,hIsOpen,%
1457   hIsReadable,hIsSeekable,hIsWritable,hLookAhead,hPutChar,hPutStr,%
1458   hPutStrLn,hPrint,hReady,hSeek,hSetBuffering,hSetPosn,head,%
1459   hugsIsEOF,hugsHIsEOF,hugsIsSearchErr,hugsIsNameErr,%
1460   hugsIsWriteErr,id,ioError,imagPart,index,indices,init,inits,%
1461   inRange,insert,insertBy,interact,intersect,intersectBy,%
1462   intersperse,intToDigit,ioeGetErrorString,ioeGetFileName,%
1463   ioeGetHandle,isAlreadyExistsError,isAlreadyInUseError,isAlpha,%
1464   isAlphaNum,isAscii,isControl,isDenormalized,isDoesNotExistError,%
1465   isDigit,isEOF,isEOFError,isFullError,isHexDigit,isIEEE,%
1466   isIllegalOperation,isInfinite,isJust,isLower,isNaN,%
1467   isNegativeZero,isNothing,isOctDigit,isPermissionError,isPrefixOf,%
1468   isPrint,isSpace,isSuffixOf,isUpper,isUserError,iterate,ixmap,%
1469   join,last,lcm,length,lex,lexDigits,lexLitChar,liftM,liftM2,%
1470   liftM3,liftM4,liftM5,lines,listArray,listToMaybe,log,logBase,%

```

```

1471 lookup,magnitude,makePolar,map,mapAccumL,mapAccumR,mapAndUnzipM,%
1472 mapM,mapM_,mapMaybe,max,maxBound,maximum,maximumBy,maybe,%
1473 maybeToList,min,minBound,minimum,minimumBy,mkPolar,mkStdGen,%
1474 mplus,mod,msum,mzero,negate,next,newStdGen,not,notElem,nub,nubBy,%
1475 null,numerator,odd,openFile,or,ord,otherwise,partition,phase,pi,%
1476 polar,pred,print,product,properFraction,putChar,putStr,putStrLn,%
1477 quot,quotRem,random,randomIO,randomR,randomRIO,randomRs,randoms,%
1478 rangeSize,read,readDec,readFile,readFloat,readHex,readInt,readIO,%
1479 readList,readLitChar,readLn,readParen,readOct,readSigned,reads,%
1480 readsPrec,realPart,realToFrac,recip,rem,repeat,replicate,return,%
1481 reverse,round,scaleFloat,scanl,scanl1,scanr,scanr1,seq,sequence,%
1482 sequence_,setStdGen,show,showChar,showEFloat,showFFloat,%
1483 showFloat,showGFloat,showInt,showList,showLitChar,showParen,%
1484 showSigned,showString,shows,showsPrec,significand,signum,sin,%
1485 sinh,snd,sort,sortBy,span,split,splitAt,sqrt,stderr,stdin,stdout,%
1486 strict,subtract,succ,sum,system,tail,tails,take,takeWhile,tan,%
1487 tanh,toEnum,toInt,toInteger,toLower,toRational,toUpper,transpose,%
1488 truncate,try,uncurry,undefined,unfoldr,union,unionBy,unless,%
1489 unlines,until,unwords,unzip,unzip3,unzip4,unzip5,unzip6,unzip7,%
1490 userError,when,words,writeFile,zero,zip,zip3,zip4,zip5,zip6,zip7,%
1491 zipWith,zipWithM,zipWithM_,zipWith3,zipWith4,zipWith5,zipWith6,%
1492 zipWith7},%
1493 sensitive,%
1494 morecomment=[l]--,%
1495 morecomment=[n]{\{-}\{-\}},%
1496 morestring=[b]"%
1497 }[keywords,comments,strings]%
1498 </lang2>

```

2.31 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.

```

1499 <*lang1>
1500 \lst@definelanguage{HTML}%
1501 {morekeywords={A, ABBR, ACRONYM, ADDRESS, APPLET, AREA, B, BASE, BASEFONT, %
1502 BDO, BIG, BLOCKQUOTE, BODY, BR, BUTTON, CAPTION, CENTER, CITE, CODE, COL, %
1503 COLGROUP, DD, DEL, DFN, DIR, DIV, DL, DOCTYPE, DT, EM, FIELDSET, FONT, FORM, %
1504 FRAME, FRAMESET, HEAD, HR, H1, H2, H3, H4, H5, H6, HTML, I, IFRAME, IMG, INPUT, %
1505 INS, ISINDEX, KBD, LABEL, LEGEND, LH, LI, LINK, LISTING, MAP, META, MENU, %
1506 NOFRAMES, NOSCRIPT, OBJECT, OPTGROUP, OPTION, P, PARAM, PLAINTEXT, PRE, %
1507 OL, Q, S, SAMP, SCRIPT, SELECT, SMALL, SPAN, STRIKE, STRING, STRONG, STYLE, %
1508 SUB, SUP, TABLE, TBODY, TD, TEXTAREA, TFOOT, TH, THEAD, TITLE, TR, TT, U, UL, %
1509 VAR, XMP, %
1510 accesskey, action, align, alink, alt, archive, axis, background, bgcolor, %
1511 border, cellpadding, cellspacing, charset, checked, cite, class, classid, %
1512 code, codebase, codetype, color, cols, colspan, content, coords, data, %
1513 datetime, defer, disabled, dir, event, error, for, frameborder, headers, %

```

```

1514     height,href,hreflang,hspace,http-equiv,id,ismap,label,lang,link,%
1515     longdesc,marginwidth,marginheight,maxlength,media,method,multiple,%
1516     name,nohref,noresize,noshade,nowrap,onblur,onchange,onclick,%
1517     ondblclick,onfocus,onkeydown,onkeypress,onkeyup,onload,onmousedown,%
1518     profile,readonly,onmousemove,onmouseout,onmouseover,onmouseup,%
1519     onselect,onunload,rel,rev,rows,rowspan,scheme,scope,scrolling,%
1520     selected,shape,size,src,standby,style,tabindex,text,title,type,%
1521     units,usemap,valign,value,valuetype,vlink,vspace,width,xmlns},%
1522     tag=**[s]<>,%
1523     sensitive=f,%
1524     morestring=[d]" ,% ??? doubled

```

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

```

1525     MoreSelectCharTable=%
1526     \lst@CArgX--\relax\lst@DefDelimB{}{}%
1527     {\ifnum\lst@mode=\lst@tagmode\else
1528     \expandafter\@gobblethree
1529     \fi}%
1530     \lst@BeginComment\lst@commentmode{\lst@commentstyle}}%
1531     \lst@CArgX--\relax\lst@DefDelimE{}{}%
1532     \lst@endComment\lst@commentmode
1533 }[keywords,comments,strings,html]%

```

Peter Biechle 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.

```

1534 </lang1>

```

2.32 IDL

The definition is from Jürgen Heim.

```

1535 <*lang2>
1536 %%
1537 %% IDL definition (c) 1998 Juergen Heim
1538 %%
1539 \lst@definlanguage{IDL}%
1540 {morekeywords={and,begin,case,common,do,else,end,endcase,enderror,%
1541     endfor,endif,endreparendwhile,eq,for,function,ge,goto,gt,if,le,lt,%
1542     mod,ne,not,of,on_ioerror,or,pro,repeat,return,then,until,while,%
1543     xor,on_error,openw,openr,openu,print,printf,printu,plot,read,%
1544     readf,readu,writeu,stop},%
1545     sensitive=f,%
1546     morecomment=[1];,%
1547     morestring=[d]}'%
1548 }[keywords,comments,strings]%
1549 </lang2>

```

2.33 Inform

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

```
1550 (*lang2)

1551 %%
1552 %% Inform definition (c) 2003 Jonathan Sauer
1553 %%
1554 \lst@definelanguage{inform}{%
1555 % Language keywords
1556 morekeywords={breakdo,else,false,for,has,hasnt,if,%
1557   in,indirect,jump,notin,nothing,NULL,objectloop,ofclass,%
1558   private,property,provides,return,rfalse,rtrue,self,string,%
1559   switch,to,true,until,while,with,%
1560   creature,held,multiexcept,multiheld,multiinside,noun,number,%
1561   scope,topic},%
1562 %
1563 % Inform functions
1564 morekeywords=[2]{box,child,children,font,give,inversion,metaclass,move,%
1565   new_line,parent,print,print_ret,read,remove,restore,sibling,%
1566   save,spaces,quit,style,bold,underline,reverse,roman remaining,%
1567   create,destroy,recreate,copy},%
1568 %
1569 % Inform definitions
1570 morekeywords=[3]{Attribute,Array,Class,Constant,Default,End,Endif,Extend,%
1571   Global,Ifdef,Iffalse,Ifndef,Ifnot,Iftrue,Include,Object,%
1572   Property,Verb,Release,Serial,Statusline},%
1573 %
1574 % Library attributes
1575 morekeywords=[4]{absent,animate,clothing,concealed,container,door,edible,%
1576   enterable,female,general,light,lockable locked,male,moved,%
1577   neuter,on,open,openable,pluralname,proper,scenery,scored,%
1578   static,supporter,switchable,talkable,transparent,visited,%
1579   workflag,worn},%
1580 %
1581 % Library properties
1582 morekeywords=[5]{n_to,s_to,e_to,w_to,ne_to,nw_to,se_to,sw_to,in_to,%
1583   out_to,u_to,d_to,add_to_scope,after,article,articles,before,%
1584   cant_go,capacity,daemon,describe,description,door_dir,door_to,%
1585   each_turn,found_in,grammar,initial,inside_description,invent,%
1586   life,list_together,name number,orders,parse_name,plural,%
1587   react_after,react_before,short_name,short_name_indef,time_left,%
1588   time_out,when_closed,when_open,when_on,when_off,%
1589   with_key},%
1590 %
1591 % Library routines
1592 morekeywords=[6]{Achieved,AfterRoutines,AllowPushDir,Banner,ChangePlayer,%
1593   CommonAncestor,DictionaryLookup,GetGNAOfObject,HasLightSource,%
1594   IndirectlyContains,IsSeeThrough,Locale,LoopOverScope,LTI_Insert,%
```

```

1595     MoveFloatingObjects,NextWord,NextWordStopped,NounDomain,%
1596     ObjectIsUntouchable OffersLight,ParseToken,PlaceInScope,PlayerTo,%
1597     PronounNotice,PronounValue,ScopeWithin,SetPronoun,SetTime,%
1598     StartDaemon,StartTimer,StopDaemon,StopTimer,TestScope,TryNumber,%
1599     UnsignedCompare,WordAddress,WordInProperty,WordLength,%
1600     WriteListFrom,YesOrNo},%
1601 %
1602 % Library,entry points
1603 morekeywords=[7]{AfterLife,AfterPrompt,Amusing,BeforeParsing,ChooseObjects,%
1604     DarkToDark,DeathMessage,GamePostRoutine GamePreRoutine,%
1605     Initialise,InScope,LookRoutine,NewRoom,ParseNoun,ParseNumber,%
1606     ParserError,PrintRank,PrintTaskName,PrintVerb,TimePasses,%
1607     UnknownVerb},%
1608 %
1609 % Library constants
1610 morekeywords=[8]{NEWLINE_BIT,INDENT_BIT,FULLINV_BIT,ENGLISH_BIT,%
1611     RECURSE_BIT,ALWAYS_BIT,TERSE_BIT,PARTINV_BIT,DEFART_BIT,%
1612     WORKFLAG_BIT,ISARE_BIT,CONCEAL_BIT},%
1613 %
1614 % Library,meta actions
1615 morekeywords=[9]{Pronouns,Quit,Restart,Restore,Save,Verify,ScriptOn,%
1616     ScriptOff,NotifyOn,NotifyOff,Places,Objects,Score,FullScore,Version,%
1617     LMode1,LMode2,LMode3},%
1618 %
1619 % Library,main actions
1620 morekeywords=[10]{Close,Disrobe,Drop,Eat,Empty,EmptyT,Enter,Examine,%
1621     Exit,GetOff,Give,Go,GoIn,Insert,Inv,InvTall,InvWide,Lock,Look,Open,%
1622     PutOn,Remove,Search,Show,SwitchOff,SwitchOn,Take,Transfer,%
1623     Unlock VagueGo, Wear},%
1624 %
1625 % Library,stub actions
1626 morekeywords=[11]{Answer,Ask,AskFor,Attack,Blow,Burn,Buy,Climb,%
1627     Consult,Cut,Dig,Drink,Fill,Jump,JumpOver,Kiss,Listen,LookUnder,%
1628     Mild,No,Pray,Pull,Push,PushDir,Rub,Set,SetTo,Sing,Sleep,Smell,%
1629     Sleep,Smell,Sorry,Squeeze,Strong,Swim,Swing,Taste,Tell,Think,%
1630     ThrowAt,Tie,Touch,Turn,
1631     Wait,Wake,WakeOther,Wave,WaveHands,Yes},%
1632 %
1633 otherkeywords={->,->>},%
1634 sensitive=false,%
1635 morestring=[d]{"},%
1636 morecomment=[l]{!}%
1637 }[keywords,comments,strings]%
1638 </lang2>

```

2.34 Java and other JVM based languages

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

```

1639 (*lang1)

```

```

1640 %%
1641 %% AspectJ definition (c) Robert Wenner
1642 %%
1643 \lst@definelanguage[AspectJ]{Java}[]{}{Java}%
1644   {morekeywords={%
1645     adviceexecution,after,args,around,aspect,aspectOf,before,%
1646     call,cflow,cflowbelow,%
1647 % declare error,declare parents,declare precedence,
1648 % declare soft,declare warning,
1649     execution,get,handler,if,initialization,issingleton,pointcut,%
1650     percfow,percfowbelow,perthis,pertarget,preinitialization,%
1651     privileged,proceed,returning,set,staticinitialization,strictfp,%
1652     target,this,thisEnclosingJoinPoint,thisJoinPoint,throwing,%
1653     within,withincode},%
1654   MoreSelectCharTable=%
1655     \lst@DefSaveDef{'.}\lst@umdot{\lst@umdot\global\let\lst@derefop\@empty}%
1656     \ifx\lst@derefinstalled\@empty\else
1657       \global\let\lst@derefinstalled\@empty
1658 \lst@AddToHook{Output}%
1659 {\lst@ifkeywords
1660   \ifx\lst@derefop\@empty
1661     \global\let\lst@derefop\relax
1662     \ifx\lst@thestyle\lst@gkeywords\sty
1663       \ifx\lst@currstyle\relax
1664         \let\lst@thestyle\lst@identifierstyle
1665       \else
1666         \let\lst@thestyle\lst@currstyle
1667       \fi
1668     \fi
1669   \fi}
1670 \fi}
1671 \lst@AddToHook{BOL}{\global\let\lst@derefop\relax}%
1672 \lst@AddTo\lst@ProcessSpace{\global\let\lst@derefop\relax}%
1673   \fi
1674 }%
1675 

    Got data from http://java.sun.com.
1676 
1677 \lst@definelanguage{Java}%
1678   {morekeywords={abstract,boolean,break,byte,case,catch,char,class,%
1679     const,continue,default,do,double,else,extends,false,final,%
1680     finally,float,for,goto,if,implements,import,instanceof,int,%
1681     interface,label,long,native,new,null,package,private,protected,%
1682     public,return,short,static,super,switch,synchronized,this,throw,%
1683     throws,transient,true,try,void,volatile,while},%
1684   sensitive,%
1685   morecomment=[l]//,%
1686   morecomment=[s]{/*}{*/},%

```

```

1687   morestring=[b]" ,%
1688   morestring=[b]' ,%
1689   }[keywords,comments,strings]%

Herbert Voss added the keyword label.
1690 </lang1>

Martine Gautier made the following contribution.
1691 <lang1>

1692 %%
1693 %% ByteCodeJava definition (c) 2004 Martine Gautier
1694 %%
1695 \lst@definelanguage{JVMIS}%
1696   {morekeywords={aload,astore,acnst_null,aload,aload_0,aload_1,%
1697     aload_2,aload_3,anewarray,areturn,arraylength,astore,astore_0,%
1698     astore_1,astore_2,astore_3,athrow,baload,bastore,bipush,caload,%
1699     castore,checkcast,d2f,d2i,d2l,dadd,daload,dastore,dcmpg,dcmpl,%
1700     dconst_0,dconst_1,ddiv,dload,dload_0,dload_1,dload_2,dload_3,%
1701     dmul,dneg,drem,dreturn,dstore,dstore_0,dstore_1,dstore_2,%
1702     dstore_3,dsub,dup,dup_x1,dup_x2,dup2,dup2_x1,dup2_x2,f2d,%
1703     f2i,f2l,fadd,faload,fastore,fcmpg,fcmpl,fconst_0,fconst_1,%
1704     fconst_2,fdiv,fload,fload_0,fload_1,fload_2,fload_3,fmul,%
1705     fneg,frem,freturn,fstore,fstore_0,fstore_1,fstore_2,fstore_3,%
1706     fsub,getfield,getstatic,goto,goto_w,i2b,i2c,i2d,i2f,i2l,i2s,%
1707     iadd,iaload,iand,iastore,iconst_0,iconst_1,iconst_2,iconst_3,%
1708     iconst_4,iconst_5,ldiv,if_acmpeq,if_acmpne,if_icmpeq,if_icmpne,%
1709     if_icmplt,if_cmpge,if_cmpgt,if_cmple,ifeq,ifne,iflt,ifge,ifgt,%
1710     ifle,ifnonnull,ifnull,iinc,iload,iload_0,iload_1,iload_2,%
1711     iload_3,imul,ineg,instanceof,invokeinterface,invokespecial,%
1712     invokestatic,invokevirtual,ior,irem,ireturn,ishl,ishr,istore,%
1713     istore_0,istore_1,istore_2,istore_3,isub,iushr,ixor,jsr,jsr_w,%
1714     l2d,l2f,l2i,ladd,laload,land,lastore,lcmp,lconst_0,lconst_1,%
1715     ldc,ldc_w,ldc2_w,ldiv,lload,lload_0,lload_1,lload_2,lload_3,%
1716     lmul,lneg,lookupswitch,lor,lrem,lreturn,lshl,lshr,lstore,%
1717     lstore_0,lstore_1,lstore_2,lstore_3,lsb,lushr,lxor,%
1718     monitorenter,monitorexit,multianewarray,new,newarray,nop,pop,%
1719     pop2,putfield,putstatic,ret,return,saload,sastore,sipush,swap,%
1720     tableswitch,wide,limit,locals,stack},%
1721   }[keywords]%
1722 </lang1>

```

2.34.1 Scala

Bastian Germann asked to include the Scala definition provided by Frank Teubler (2009). Here it is:

```

1723 <lang3>

1724 \lst@definelanguage{Scala}%
1725   {morekeywords={abstract,case,catch,class,def,%
1726     do,else,extends,false,final,finally,%

```

```

1727   for,if,implicit,import,lazy,match,mixin,%
1728   new,null,object,override,package,%
1729   private,protected,requires,return,sealed,%
1730   super,this,trait,true,try,%
1731   type,val,var,while,with,yield},%+
1732 % otherkeywords={_,: ,=>, <<:, <\%,>:, \#,@},%
1733 otherkeywords={=,>,<-, <\%,<:,>:, \#,@},%
1734   sensitive,%
1735   morecomment=[l]//,%
1736   morecomment=[n]{/*}{*/},%
1737   morestring=[b]" ,%
1738   morestring=[b]' ,%
1739   morestring=[b]"" ,%
1740 }[keywords,comments,strings]%
1741 </lang3>

```

2.35 ksh

Thanks to Jeffrey Ratchliffe for this language definition.

```

1742 (*lang3)
1743 \lst@definlanguage{ksh}
1744 {morekeywords={alias,awk,cat,echo,else,elif,fi,exec,exit,%
1745   for,in,do,done,select,case,esac,while,until,function,%
1746   time,export,cd,eval,fc,fg,kill,let,pwd,read,return,rm,%
1747   glob,goto,history,if,logout,nice,nohup,onintr,repeat,sed,%
1748   set,setenv,shift,source,switch,then,umask,unalias,%
1749   unset,wait,@,env,argv,child,home,ignoreeof,noclobber,%
1750   noglob,nomatch,path,prompt,shell,status,verbose,print,printf,%
1751   sqrt,BEGIN,END},%
1752 morecomment=[l]\#,%
1753 morestring=[d]" ,%
1754 morestring=[d]' ,%
1755 morestring=[d]'%
1756 }[keywords,comments,strings]%
1757 % \begin{macrocode}
1758 </lang3>

```

Herbert Voss suggested to add the string delimiter ‘.

2.36 Lingo

Thanks to Mark Schade for this language definition.

```

1759 (*lang3)
1760 \lst@definlanguage{Lingo}{%
1761 morekeywords={abort, after, and, before, do, down, halt, me, new, not,%
1762   of, on, or, otherwise, pass, put, result, return, set, tell, the, then,%
1763   to, with, repeat, while, case, if, else, true, false, global, property,%
1764   \_global, \_key, \_mouse, \_movie, \_player, \_sound, \_system, abbr,%

```

1765 abbrev, abbreviated, abs, actionsenabled, activateapplication,%
1766 activatewindow, active3drenderer, activecastlib, activewindow,%
1767 actorlist, add, addat, addbackdrop, addcamera, addchild, addmodifier,%
1768 addoverlay, addprop, addtoworld, addvertex, alert, alerthook,%
1769 alignment, allowcustomcaching, allowgraphicmenu, allowsavelocal,%
1770 allowtransportcontrol, allowvolumecontrol, allowzooming,%
1771 alphathreshold, ambient, ambientcolor, ancestor, angle, anglebetween,%
1772 animationenabled, antialias, antialiasthreshold, append,%
1773 applicationname, applicationpath, appminimize, atan, attenuation,%
1774 attributevalue, auto, autoblend, automask, autotab, axisangle, back,%
1775 backcolor, backdrop, backgroundcolor, backspace, beep, beepon,%
1776 beginrecording, beginsprite, beveldepth, beveltype, bgcolor, bias,%
1777 bitand, bitmap, bitmapsizes, bitnot, bitor, bitrate, bitspersample,%
1778 bitxor, blend, blendconstant, blendconstantlist, blendfactor,%
1779 blendfunction, blendfunctionlist, blendlevel, blendrange, blendsource,%
1780 blendsourcelist, blendtime, bone, bonesplayer, border, both, bottom,%
1781 bottomcap, bottomradius, bottomspacing, boundary, boundingsphere, box,%
1782 boxdropshadow, boxtype, breakconnection, breakloop, brightness,%
1783 broadcastprops, browsername, buffersize, build, buttonsenabled,%
1784 buttonstyle, buttontype, bytesstreamed, boolean, cachedocverify,%
1785 cachesize, call, callancestor, camera, cameracount, cameraposition,%
1786 camerarotation, cancelidleload, castlib, castlibnum, castmemberlist,%
1787 center, centerregpoint, centerstage, changearea, channelcount, char,%
1788 characteraset, charpostoloc, chars, charspacing, charonum,%
1789 checkboxaccess, checkboxtype, checkmark, checknetmessages, child,%
1790 chunksize, clearatrender, clearcache, clearerror, clearframe,%
1791 clearglobals, clearvalue, clickloc, clickmode, clickon, clone,%
1792 clonedeep, clonemodelfromcastmember, clonemotionfromcastmember, close,%
1793 closed, closewindow, closexlib, collision, collisiondata,%
1794 collisionnormal, color, world, colorbuffer, colorbufferdepth,%
1795 colordepth, colorlist, colorrange, colors, colorsteps, commanddown,%
1796 comments, compressed, connecttonetserver, constrainh, constraint,%
1797 constrainv, continue, controldown, controller, copypixels,%
1798 copyrightinfo, copyto, copytoclipboard, cos, count, cpuhogticks,%
1799 creaseangle, creases, [contains], createfolder, createmask,%
1800 creatematte, creationdate, creator, crop, cross, crossproduct,%
1801 cuepassed, cuepointnames, cuepointtimes, currentloopstate,%
1802 currentspritenum, currenttime, cursor, cursorsize, curve, cylinder,%
1803 ate, day, deactivateapplication, deactivatewindow, debug,%
1804 debugplaybackenabled, decaymode, defaultrect, defaultrectmode, delay,%
1805 delete, deleteall, deleteat, deletecamera, deletefolder, deleteframe,%
1806 deletegroup, deletelight, deletemodel, deletemodelresource,%
1807 deletemotion, deleteone, deleteprop, deleteshader, deletetexture,%
1808 deletevertex, density, depth, depthbufferdepth, desktoprectlist,%
1809 diffuse, diffusecolor, diffuselightmap, digitalvideotimescale,%
1810 digitalvideotype, direction, directionalcolor, directionalpreset,%
1811 directtostage, disableimagingtransformation, displayface, displaymode,%
1812 distanceto, distribution, dither, done, doneparsing, dot, dotproduct,%
1813 doubleclick, downloadnetthing, drag, draw, drawrect, dropshadow,%
1814 duplicate, duplicateframe, duration, editable, editshortcutsenabled,%

1815 elapsedtime, emissive, emitter, empty, emulatemultibuttonmouse,%
1816 enabled, enablehotspot, end, endangle, endcolor, endframe,%
1817 endrecording, endsprite, endtime, enter, enterframe, environment,%
1818 erase, error, eventpassmode, exchange, exists, exit, exitframe,%
1819 exitlock, exp, externalevent, externalparamcount, externalparamname,%
1820 externalparamvalue, extractalpha, extrude3d, face, fadein, fadeout,%
1821 fadeto, far, field, fieldofview, filename, fill, fillcolor, fillcycles,%
1822 filldirection, filled, fillmode, filloffset, fillscale, findempty,%
1823 findlabel, findpos, findposnear, finishidleload, firstindent,%
1824 fixedlinespace, fixedrate, fixstagesize, flashrect, flashtostage, flat,%
1825 fliph, flipv, float, floatp, floatprecision, flush, flushingputevents,%
1826 fog, folderchar, font, fontsize, fontstyle, forecolor, forget, frame,%
1827 framecount, framelabel, framepalette, framerate, frameready,%
1828 framescript, framesound1, framesound2, framestohms, frametempo,%
1829 frametransition, freeblock, freebytes, fromcastmember, fromimageobject,%
1830 front, frontwindow, generatenormals, getaprop, getat,%
1831 getbehaviordescription, getbehaviortooltip, getboneid, geterror,%
1832 geterrorstring, gethardwareinfo, gethotspotrect, getlast,%
1833 getlatestnetid, getnetaddresscookie, getneterrorstring, getnetmessage,%
1834 getnetoutgoingbytes, getnettext, getnormalized, getnthfilenameinfolder,%
1835 getnumberwaitingnetmessages, getone, getpeerconnectionlist, getpixel,%
1836 getplaylist, getpos, getpref, getprop, getproptat,%
1837 getpropertydescriptionlist, getrendererservices, getstreamstatus,%
1838 gettemppath, getworldtransform, globals, glossmap, go, gotoframe,%
1839 gotonetmovie, gotonetpage, gradienttype, gravity, group, handler,%
1840 handlers, height, heightvertices, high, highlightpercentage,%
1841 highlightstrength, hilite, hither, hittest, hmstoframes, hold, hotspot,%
1842 html, hyperlink, hyperlinkclicked, hyperlinkrange, hyperlinks,%
1843 hyperlinkstate, id3tags, identity, idle, idlehandlerperiod,%
1844 idleloaddone, idleloadmode, idleloadperiod, idleloadtag,%
1845 idlereadchunksize, ilk, image, imagecompression, imageenabled,%
1846 imagequality, immovable, importfileinto, inflate, ink, inker,%
1847 inlineimeenabled, insertbackdrop, insertframe, insertoverlay, inside,%
1848 installmenu, instance, integer, integerp, interface, interpolate,%
1849 interpolateto, intersect, index, interval, inverse, invert, invertmask,%
1850 isbusy, isinworld, isoktoattach, ispastcuepoint, item, itemdelimiter,%
1851 kerning, kerningthreshold, key, keyboardfocussprite, keycode, keydown,%
1852 keydownscript, keyframeplayer, keypressed, keyup, keyupscript, label,%
1853 labellist, last, lastchannel, lastclick, lastevent, lastframe, lastkey,%
1854 lastroll, left, leftindent, length, lengthvertices, level, lifetime,%
1855 light, line, linearlist, linecolor, linecount, linedirection,%
1856 lineheight, lineoffset, linepostolocv, linesize, linkas, linked, list,%
1857 listp, loaded, loadfile, loc, loch, locked, locktranslation,%
1858 loctocharpos, locv, locvtolinepos, locz, lod, log, long, loop,%
1859 loopcount, loopendtime, loopsremaining, loopstarttime, machinetype,%
1860 magnitude, map, mapImageToStage, mapmembertostage, mapstagetomember,%
1861 margin, marker, markerlist, mask, max, maxinteger, maxspeed, mci,%
1862 media, mediaready, member, membernum, members, memorysize, menu, mesh,%
1863 meshdeform, milliseconds, min, minspeed, modal, mode, model, modela,%
1864 modelb, modelresource, modelsunderloc, modelsunderray, modelunderloc,%

1865 modified, modifiedby, modifieddate, modifier, modifiers, month,%
1866 mostrecentcuepoint, motion, mousechar, mousedown, mousedownscript,%
1867 mouseenter, mouseh, mouseitem, mouseleave, mouselevel, mouseline,%
1868 mouseloc, mousemember, mouseoverbutton, mouseup, mouseupoutside,%
1869 mouseupscript, mousev, mousewithin, mouseword, move, moveablesprite,%
1870 movetoback, movetofront, movevertex, movevertexhandle, movewindow,%
1871 movie, movieaboutinfo, moviecopyrightinfo, moviefilefreysize,%
1872 moviefilesize, moviefileversion, movieimagecompression,%
1873 movieimagequality, moviename, moviepath, movierate, movietime,%
1874 moviextralist, mpegplayer, multiply, multisound, name, near,%
1875 nearfiltering, neighbor, netabort, netdone, neterror, netlastmoddate,%
1876 netmime, netpresent, netstatus, nettextrresult, netthrottleticks,%
1877 newcamera, newcurve, newgroup, newlight, newmesh, newmodel,%
1878 newmodelresource, newmotion, newshader, newtexture, next, none,%
1879 normalize, normallist, normals, nothing, notify, nudge, number,%
1880 numchannels, numparticles, numsegments, numtochar, objectp, offset,%
1881 open, opensresfile, openwindow, openxlib, optiondown, organizationname,%
1882 originalfont, originh, originmode, originpoint, originv, orthoheight,%
1883 overlay, pageheight, palette, palettemapping, paletteref, paletteindex,%
1884 pan, paragraph, param, paramcount, parent, parsestring, particle,%
1885 pasteclipboardinto, path, pathname, pathstrength, pattern, pause,%
1886 pausedatstart, pausestate, percentplayed, percentstreamed, period,%
1887 perpendicularto, persistent, pi, picture, picturep, plane, platform,%
1888 play, playbackmode, playfile, playing, playlist, playnext, playrate,%
1889 point, pointat, pointatorientation, pointinhyperlink, pointofcontact,%
1890 pointtochar, pointtoitem, pointtoline, pointtoparagraph, pointtoword,%
1891 position, positionreset, posterframe, postnettext, power,%
1892 preferred3drenderer, preload, preloadbuffer, preloadeventabort,%
1893 preloadmember, preloadmode, preloadmovie, preloadnetthing, preloadram,%
1894 preloadtime, premultiply, prepareframe, preparemovie, prerotate,%
1895 prescale, pretranslate, previous, primitives, printfrom,%
1896 productversion, projection, projectionangle, propList, proxyserver,%
1897 pttotspotid, puppet, puppetpalette, puppetsound, puppetsprite,%
1898 puppettempo, puppettransition, purgepriority, qtregisteraccesskey,%
1899 qtunregisteraccesskey, quad, quality, queue, quit, quote, radius,%
1900 ramneeded, random, randomseed, randomvector, rateshift, rawnew, read,%
1901 readvalue, recordfont, rect, ref, reflectionmap, reflectivity, region,%
1902 registerforevent, registerscript, regpoint, regpointvertex,%
1903 removebackdrop, removefromworld, removevlast, removemodifier,%
1904 removeoverlay, rename, renderer, rendererdevicelist, renderformat,%
1905 renderstyle, resetworld, resizewindow, resolution, resolve, resolvea,%
1906 resolveb, resource, restart, resume, reverttoworlddefaults, rewind,%
1907 rgb, rgba4444, rgba5550, rgba5551, rgba5650, rgba8880, rgba8888, right,%
1908 rightindent, rightmousedown, rightmouseup, rollover, romanlingo,%
1909 rootlock, rootnode, rotate, rotation, rotationreset, rtf, runmode,%
1910 runpropertydialog, safeplayer, samplecount, samplerate, samplesize,%
1911 save, savedlocal, savemovie, scale, scalemode, score, scorecolor,%
1912 scoreselection, script, scriptexecutionstyle, scriptinstancelist,%
1913 scriptlist, scriptnum, scriptsenabled, scripttext, scripttype,%
1914 scrollbyline, scrollbypage, scrolltop, sds, searchcurrentfolder,%

```

1915 searchpath, searchpaths, seconds, selectedtext, selection, selend,%
1916 selstart, sendallsprites, sendevent, sendnetmessage, sendsprite,%
1917 serialnumber, setalpha, setaprop, setat, setcollisioncallback,%
1918 setflashproperty, setnetbufferlimits, setnetmessagehandler, setpixel,%
1919 setplaylist, setpref, setprop, setscripthead, settrackenabled,%
1920 setvariable, shader, shaderlist, shadowpercentage, shadowstrength,%
1921 shapetype, shiftdown, shininess, shockwave3d, short, showglobals,%
1922 showlocals, showprops, showresfile, showxlib, shutdown, silhouettes,%
1923 sin, size, sizerange, skew, sleep, smoothness, sort, sound, soundbusy,%
1924 soundchannel, sounddevice, sounddevicelist, soundenabled,%
1925 soundkeepdevice, soundlevel, soundmixmedia, source, sourcerect, space,%
1926 specular, specularcolor, specularlightmap, sphere, spotangle,%
1927 spotdecay, sprite, spritenum, spritespacetoworldspace, sqrt, stage,%
1928 stagebottom, stagecolor, stageleft, stageright, stagetoflash, stagetop,%
1929 standard, startangle, startframe, startmovie, starttime, starttimer,%
1930 state, static, status, stepframe, stilldown, stop, stopecvent,%
1931 stopmovie, stoptime, stream, streammode, streamname, streamsize,%
1932 streamstatus, string, stringp, strokecolor, strokewidth, style,%
1933 subdivision, sweep, swing, switchcolordepth, symbol, symbolp,%
1934 systemdate, tab, tabcount, tabs, tan, target, tellstreamstatus,%
1935 tension, text, texture, texturecoordinatelist, texturecoordinates,%
1936 texturelayer, texturelist, textureremember, texturemode, texturemodelist,%
1937 texturerenderformat, texturerepeat, texturerepeatlist,%
1938 texturetransform, texturetransformlist, texturetype, thumbnail, ticks,%
1939 tilt, time, timeout, timeouthandler, timeoutkeydown, timeoutlapsed,%
1940 timeoutlength, timeoutlist, timeoutmouse, timeoutplay, timeoutscript,%
1941 timer, timescale, title, titlevisible, toon, top, topcap, topradius,%
1942 topspacing, trace, traceload, tracelogfile, trackcount, trackenabled,%
1943 tracknextkeytime, tracknextsampletime, trackpreviouskeytime,%
1944 trackpreviousampletime, trackstarttime, trackstoptime, tracktext,%
1945 tracktype, trails, transform, transitiontype, translate,%
1946 triggercallback, trimwhitespace, tunneldepth, tweened, tweenmode, type,%
1947 [transparent], union, unload, unloadmember, unloadmovie,%
1948 unregisterallevents, update, updateframe, updatelock,%
1949 updatemovieenabled, updatestage, url, usealpha, usediffusewithtexture,%
1950 usefastquads, usehypertextstyles, uselineoffset, userdata, username,%
1951 value, vector, version, vertex, vertexlist, vertices, video,%
1952 videoforwindowspresent, viewh, viewpoint, viewscale, vieww, visibility,%
1953 visible, void, voidp, volume, volumeinfo, wait, waitfornetconnection,%
1954 warpmode, width, widthvertices, wind, window, windowlist,%
1955 windowpresent, windowtype, word, wordwrap, world, worldposition,%
1956 worldspacetospritespace, worldtransform, wraptransform,%
1957 wraptransformlist, write, writevalue, xaxis, xtra, xtralist, xtras,%
1958 yaxis, year, yon, zaxis, zoombox, zoomwindow, repeat, Conditional,%
1959 Boolean, TypeDef, Statement, Operator, String, Comment, Identifier,%
1960 Special, x, y, z},%
1961 sensitive=false,%
1962 morecomment=[l]{--},%
1963 morestring=[b]" ,%
1964 }[keywords,comments,strings]%

```

```
1965 % \begin{macrocode}
1966 </lang3>
```

2.37 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.

```
1967 <*lang2>
1968 \lst@definelanguage{Lisp}%
1969 {morekeywords={abort,abs,acons,acos,acosh,adjoin,alphanumericp,alter,%
1970 append,apply,apropos,aref,arrayp,ash,asin,asinh,assoc,atan,atanh,%
1971 atom,bit,boole,boundp,break,butlast,byte,catenate,ceiling,cerror,%
1972 char,character,characterp,choose,chunk,cis,close,clrhash,coerce,%
1973 collect,commonp,compile,complement,complex,complexp,concatenate,%
1974 conjugate,cons,consp,constantp,continue,cos,cosh,cotruncate,%
1975 count,delete,denominator,describe,directory,disassemble,%
1976 documentation,dpb,dribble,ed,eighth,elt,enclose,endp,eq,eql,%
1977 equal,equalp,error,eval,evalhook,evenp,every,exp,expand,export,%
1978 expt,fboundp,fceiling,fdefinition,ffloor,fifth,fill,find,first,%
1979 float,floatp,floor,fmakunbound,format,fourth,fround,ftruncate,%
1980 funcall,functionp,gatherer,gcd,generator,gensym,gentemp,get,getf,%
1981 gethash,identity,imagpart,import,inspect,integerp,intern,%
1982 intersection,tively,isqrt,keywordp,last,latch,lcm,ldb,ldiff,%
1983 length,list,listen,listp,load,log,logand,logbitp,logcount,logeqv,%
1984 logior,lognand,lognor,lognot,logtest,logxor,macroexpand,%
1985 makunbound,map,mapc,mapcan,mapcar,mapcon,maphash,mapl,maplist,%
1986 mask,max,member,merge,min,mingle,minusp,mismatch,mod,namestring,%
1987 nbutlast,nconc,nintersection,ninth,not,notany,notevery,nreconc,%
1988 nreverse,nsublis,nsubst,nth,nthcdr,null,numberp,generator,nunion,%
1989 oddp,open,packagep,pairlis,pathname,pathnamep,phase,plusp,%
1990 position,positions,pprint,previous,princ,print,proclaim,provide,%
1991 random,rassoc,rational,rationalize,rationalp,read,readtablep,%
1992 realp,realpart,reduce,rem,remhash,remove,remprop,replace,require,%
1993 rest,revappend,reverse,room,round,rplaca,rplacd,sbit,scan,schar,%
1994 search,second,series,set,seventh,shadow,signal,signum,sin,sinh,%
1995 sixth,sleep,some,sort,split,sqrt,streamp,string,stringp,sublis,%
1996 subseq,subseries,substep,subst,substitute,subtypep,svref,sxhash,%
1997 symbolp,tailp,tan,tanh,tenth,terpri,third,truefilename,truncate,%
1998 typep,unexport,unintern,union,until,values,vector,vectorp,warn,%
1999 write,zerop,and,assert,case,ccase,cond,ctypecase,decf,declaim,%
2000 defclass,defconstant,defgeneric,defmacro,defmethod,defpackage,%
```

```

2001     defparameter,defsetf,defstruct,deftype,defun,defvar,do,dolist,%
2002     dotimes,ecase,encapsulated,etypecase,flet,formatter,gathering,%
2003     incf,iterate,labels,let,locally,loop,macrolet,mapping,or,pop,%
2004     producing,prog,psetf,psetq,push,pushnew,remf,return,rotatef,%
2005     setf,shiftf,step,time,trace,typecase,unless,untrace,when},%
2006     sensitive=false,% ???
2007     alsodigit=-,%
2008     morecomment=[l];,%
2009     morecomment=[s]{\#|}{|\#},% 1997 Aslak Raanes
2010     morestring=[b]"%
2011   }[keywords,comments,strings]%
2012 </lang2>
2013 (*lang2)

```

Stefan Lagotzki warned me to define this as a lisp dialect ...

```

2014 %%
2015 %% AutoLISP/VisualLISP - Stefan Lagotzki, info@lagotzki.de
2016 %%
2017 \lst@definlanguage[Auto]{Lisp}%
2018   {morekeywords={abs,acad_colordlg,acad_helpdlg,acad_strlsort,%
2019     action_tile,add_list,alert,alloc,and,angle,angtof,angtos,append,%
2020     apply,arx,arxload,arxunload,ascii,assoc,atan,atof,atoi,atom,%
2021     atoms-family,autoarxload,autoload,Boole,boundp,caddr,cadr,car,%
2022     cdr,chr,client_data_tile,close,command,cond,cons,cos,cvunit,%
2023     defun,defun-q,defun-q-list-ref,defun-q-list-set,dictadd,dictnext,%
2024     dictremove,dictrename,dictsearch,dimx_tile,dimy_tile,distance,%
2025     distof,done_dialog,end_image,end_list,entdel,entget,entlast,%
2026     entmake,entmakex,entmod,entnext,entsel,entupd,eq,equal,*error*,%
2027     eval,exit,exp,expand,expt,fill_image,findfile,fix,float,foreach,%
2028     function,gc,gcd,get_attr,get_tile,getangle,getcfg,getcname,%
2029     getcorner,getdist,getenv,getfiled,getint,getkeyword,getorient,%
2030     getpoint,getreal,getstring,getvar,graphscr,grclear,grdraw,grread,%
2031     grtext,grvecs,handent,help,if,initdia,initget,inters,itoa,lambda,%
2032     last,layoutlist,length,list,listp,load,load_dialog,log,logand,%
2033     logior,lsh,mapcar,max,mem,member,menucmd,menugroup,min,minusp,%
2034     mode_tile,namedobjdict,nentsel,nentselp,new_dialog,not,nth,%
2035     null,numberp,open,or,osnap,polar,prinl,princ,print,progn,prompt,%
2036     quit,quote,read,read-char,read-line,redraw,regapp,rem,repeat,%
2037     reverse,rto, set, set_tile, setcfg, setenv, setfunhelp, setq,%
2038     setvar, setview, sin, slide_image, sinvalid, sqrt, ssadd, ssdel, ssgget,%
2039     ssggetfirst, sslength, ssmemb, ssnamed, ssnamedex, ssggetfirst, startapp,%
2040     start_dialog, start_image, start_list, strcase, strcat, strlen, subst,%
2041     substr, tablet, tblnext, tblobjname, tblsearch, term_dialog, terpri,%
2042     textbox, textpage, textscr, trace, trans, type, unload_dialog, untrace,%
2043     vector_image, ver, vl-acad-defun, vl-acad-undefun, vl-arx-import,%
2044     vl-bb-ref, vl-bb-set, vl-catch, vl-catch-all-apply,%
2045     vl-catch-all-error-message, vl-catch-all-error-p, vl-cmdf, vl-consp,%
2046     vl-directory-files, vl-doc-export, vl-doc-import, vl-doc-ref,%
2047     vl-doc-set, vl-every, vl-exit-with-error, vl-exit-with-value,%

```

2048 vl-file-copy, vl-file-delete, vl-file-directory-p, vl-file-rename, %
 2049 vl-file-size, vl-file-systime, vl-filename-base, %
 2050 vl-filename-directory, vl-filename-extension, vl-filename-mktemp, %
 2051 vl-get-resource, vl-list*, vl-list->string, %
 2052 vl-list-exported-functions, vl-list-length, vl-list-loaded-vlx, %
 2053 vl-load-all, vl-load-com, vl-load-reactors, vl-member-if, %
 2054 vl-member-if-not, vl-position, vl-print-to-string, %
 2055 vl-princ-to-string, vl-propagate, vl-registry-delete, %
 2056 vl-registry-descendents, vl-registry-read, vl-registry-write, %
 2057 vl-remove, vl-remove-if, vl-remove-if-not, vl-some, vl-sort, %
 2058 vl-sort-i, vl-string->list, vl-string-elt, vl-string-left-trim, %
 2059 vl-string-mismatch, vl-string-position, vl-string-right-trim, %
 2060 vl-string-search, vl-string-subst, vl-string-translate, %
 2061 vl-string-trim, vl-symbol-name, vl-symbol-value, vl-symbolp, %
 2062 vl-unload-vlx, vl-vbaload, vl-vbarun, vl-vlx-loaded-p, vlax-3D-point, %
 2063 vlax-add-cmd, vlax-create-object, vlax-curve-getArea, %
 2064 vlax-curve-getDistAtParam, vlax-curve-getDistAtPoint, %
 2065 vlax-curve-getEndParam, vlax-curve-getEndPoint, %
 2066 vlax-curve-getParamAtDist, vlax-curve-getParamAtPoint, %
 2067 vlax-curve-getPointAtDist, vlax-curve-getPointAtParam, %
 2068 vlax-curve-getStartParam, vlax-curve-getStartPoint, %
 2069 vlax-curve-isClosed, vlax-curve-isPeriodic, vlax-curve-isPlanar, %
 2070 vlax-curve-getClosestPointTo, %
 2071 vlax-curve-getClosestPointToProjection, vlax-curve-getFirstDeriv, %
 2072 vlax-curve-getSecondDeriv, vlax-dump-object, %
 2073 vlax-ename->vla-object, vlax-erased-p, vlax-for, %
 2074 vlax-get-acad-object, vlax-get-object, vlax-get-or-create-object, %
 2075 vlax-get-property, vlax-import-type-library, vlax-invoke-method, %
 2076 vlax-ldata-delete, vlax-ldata-get, vlax-ldata-list, vlax-ldata-put, %
 2077 vlax-ldata-test, vlax-make-safearray, vlax-make-variant, %
 2078 vlax-map-collection, vlax-method-applicable-p, %
 2079 vlax-object-released-p, vlax-product-key, %
 2080 vlax-property-available-p, vlax-put-property, vlax-read-enabled-p, %
 2081 vlax-release-object, vlax-remove-cmd, vlax-safearray-fill, %
 2082 vlax-safearray-get-dim, vlax-safearray-get-element, %
 2083 vlax-safearray-get-l-bound, vlax-safearray-get-u-bound, %
 2084 vlax-safearray-put-element, vlax-safearray-type, %
 2085 vlax-safearray->list, vlax-tmatrix, vlax-typeinfo-available-p, %
 2086 vlax-variant-change-type, vlax-variant-type, vlax-variant-value, %
 2087 vlax-vla-object->ename, vlax-write-enabled-p, vlisp-compile, %
 2088 vlr-acdb-reactor, vlr-add, vlr-added-p, vlr-beep-reaction, %
 2089 vlr-command-reactor, vlr-current-reaction-name, vlr-data, %
 2090 vlr-data-set, vlr-deepclone-reactor, vlr-docmanager-reactor, %
 2091 vlr-dwg-reactor, vlr-dxf-reactor, vlr-editor-reactor, %
 2092 vlr-insert-reactor, vlr-linker-reactor, vlr-lisp-reactor, %
 2093 vlr-miscellaneous-reactor, vlr-mouse-reactor, vlr-notification, %
 2094 vlr-object-reactor, vlr-owner-add, vlr-owner-remove, vlr-owners, %
 2095 vlr-pers, vlr-pers-list, vlr-pers-p, vlr-pers-release, %
 2096 vlr-reaction-names, vlr-reaction-set, vlr-reactions, vlr-reactors, %
 2097 vlr-remove, vlr-remove-all, vlr-set-notification, %

```

2098     vlr-sysvar-reactor,vlr-toolbar-reactor,vlr-trace-reaction,%
2099     vlr-type,vlr-types,vlr-undo-reactor,vlr-wblock-reactor,%
2100     vlr-window-reactor,vlr-xref-reactor,vports,wcmatch,while,%
2101     write-char,write-line,xdroom,xdsize,zerop},%
2102 alsodigit=->,%
2103 otherkeywords={1+,1-},%
2104 sensitive=false,%
2105 morecomment=[1];,%
2106 morecomment=[1];;%
2107 morestring=[b]"%
2108 }[keywords,comments,strings]%
2109 </lang2>
2110 (*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...

```

2111 \lst@definlanguage{elisp}[]{\Lisp}{%
2112 morekeywords={begin, car, cdr, cons, define, display, drop, filter,%
2113     hash-ref, hash-set, if, load-file, lambda, length, map, message,%
2114     progn, quote, require, setq, string-append, take, vector,%
2115     },%
2116 sensitive,%
2117 alsodigit=->,%
2118 otherkeywords={1+,1-},%
2119 sensitive=true,%
2120 morecomment=[1];,%
2121 morecomment=[1];;%
2122 morestring=[b]"%
2123 }[keywords,comments,strings]%
2124 </lang2>

```

2.38 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

```

2125 (*lang3)
2126 \lst@definlanguage{LLVM}{%
2127     morekeywords={%

```

- Instructions

```

2128         ret,br,switch,indirectbr,invoke,resume,unreachable,%
2129         add,fadd,sub,fsub,mul,fmul,udiv,sdiv,fdiv,urem,srem,frem,%

```

²In this section ‘I’ is Scott Pakin.

```

2130      shl,lshr,ashr,and,or,xor,%
2131      extractelement,insertelement,shufflevector,%
2132      extractvalue,insertvalue,%
2133      alloca,load,store,fence,cmpxchg,atomicrmw,getelementptr,%
2134      trunc,zext,sext,fptrunc,fpext,fptoui,fptosi,uitofp,sitofp,ptrtoint,%
2135      inttoptr,bitcast,to,%
2136      icmp,fcmp,phi,select,call,va_arg,landingpad,%

    • Atomic operations – some duplication with the above
2137      xchg,add,sub,and,nand,or,xor,max,min,umax,umin,%

    • Comparisons
2138      eq,ne,ugt,uge,ult,u!e,sgt,sge,slt,s!e,%
2139      false,oeq,ogt,oge,olt,ole,one,ord,ueq,ugt,uge,ult,u!e,une,uno,true,%

    • Linkage types
2140      private,linker_private,linker_private_weak,linker_private_weak_def_auto,%
2141      internal,available_externally,linkonce,common,weak,appending,extern_weak,%
2142      linkonce_odr,weak_odr,external,dllimport,dlllexport,%

    • Function headers
2143      define,declare,%

    • Parameter attributes
2144      zeroext,signext,inreg,byval,sret,noalias,nocapture,next,%

    • Garbage collector names
2145      gc,%

    • Function attributes
2146      address_safety,alignstack,alwaysinline,nonlazybind,inlinehint,naked,%
2147      noimplicitfloat,noinline,noredzone,noreturn,nounwind,optsize,readnone,%
2148      readonly,returns_twice,ssp,sspreq,uwtable,%

    • Module-level inline assembly
2149      module,asm,%

    • Data layout
2150      target,datalayout,%

    • Inline assembler expressions
2151      sideeffect,alignstack,%

    • Other keywords – I'm probably missing some here.
2152      nuw,nsw,exact,inbounds,unnamed_addr},%
2153      morekeywords=[2]{%

```

- Types

```

2154         i1,i2,i4,i8,i16,i32,i64,i128,i256,i512,i1024,% <-- Most common integers
2155         half,float,double,x86_fp80,fp128,ppc_fp128,x86mmx,%
2156         void,label,metadata},%
2157     alsoletter=.%
2158     sensitive=false,%
2159     morecomment=[l];,%
2160     morestring=[b]"%
2161     }
2162 </lang3>

```

2.39 Logo

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

```

2163 <*lang3>
2164 \lstdefinlanguage{Logo}%
2165 % ??? {end,unix} also keywords
2166 {morekeywords={and,atan,arctan,both,break,bf,bl,butfirst,butlast,%
2167     cbreak, close,co,continue,cos,count,clearscreen,cs,debquit,%
2168     describe,diff,difference,ed,edit,either,empty,equalp,er,erase,%
2169     errpause,errquit,fifp,filefprint,fifty,fileftype,fip,fileprint,%
2170     fird,fileread,fity,filetype,fiwd,fileword,f,first,or,fp,fprint,%
2171     fput,fty,ftype,full,fullscreen,go,bye,goodbye,gprop,greaterp,%
2172     help,if,iff,iffalse,ift,iftrue,nth,item,keyp,llast,lessp,list,%
2173     local,lput,make,max,maximum,memberp,memtrace,min,minimum,namep,%
2174     not,numberp,oflush,openr,openread,openw,openwrite,op,output,%
2175     pause,plist,pots,pow,pprop,pps,pr,print,product,quotient,random,%
2176     rc,readchar,rl,readlist,remprop,repcount,repeat,request,rnd,run,%
2177     se,sentencep,setc,setcolor,setipause,setqpause,po,show,%
2178     sin,split,splitscreen,sqrt,stop,sum,test,text,textscreen,thing,%
2179     to,tone,top,toplevel,type,untrace,wait,word,wordp,yaccdebug,is,%
2180     mod,remainder,trace,zerop,back,bk,bto,btouch,fd,forward,fto,%
2181     ftouch,getpen,heading,hit,hitoot,ht,hideturtle,loff,lampoff,lon,%
2182     lampon,lt,left,lot,lotoot,lto,ltouch,penc,pencolor,pd,pendown,pe,%
2183     penerase,penmode,pu,penup,px,penreverse,rt,right,rto,rto,rtouch,%
2184     scrunch,seth,setheading,setscrun,setscrunch,setxy,shownp,st,%
2185     showturtle,towardsxy,clean,wipeclean,xcor,ycor,tur,turtle,%
2186     display,dpy},%
2187     sensitive=f% ???
2188 }[keywords]%
2189 </lang3>

```

2.40 Lua

Stephan Hennig contributed the Lua keywords.

```

2190 <*lang2>

```

We begin with the keywords for Lua 5.0:

```
2191 %%
2192 %% Lua definitions (c) 2013 Stephan Hennig
2193 %%
2194 \lst@definelanguage[5.0]{Lua}{%
To enable highlighting of library keywords, the dot needs to be a letter.
2195  alsoletter={.},%
The language definition knows
    • language keywords
2196      morekeywords=[1]{%
2197          and, break, do, else, elseif, end, false, for, function, if, in,%
2198          local, nil, not, or, repeat, return, then, true, until, while,%
2199      },%
    • the standard library identifiers
2200      morekeywords=[2]{%
        – coming from the base library
2201          _G, _LOADED, _REQUIREDNAME, _VERSION, LUA_PATH,%
2202          assert, collectgarbage, dofile, error, gcinfo, getfenv,%
2203          getmetatable, ipairs, loadfile, loadlib, loadstring, newproxy,%
2204          next, pairs, pcall, print, rawequal, rawget, rawset, require,%
2205          setfenv, setmetatable, tonumber, tostring, type, unpack, xpcall,%
        – coming from the coroutine library
2206          coroutine, coroutine.create, coroutine.resume,%
2207          coroutine.status, coroutine.wrap, coroutine.yield,%
        – the debug library
2208          _TRACEBACK, debug, debug.debug, debug.gethook, debug.getinfo,%
2209          debug.getlocal, debug.getupvalue, debug.sethook, debug.setlocal,%
2210          debug.setupvalue, debug.traceback,%
        – the io library
2211          io, io.close, io.flush, io.input, io.lines, io.open, io.output,%
2212          io.popen, io.read, io.stderr, io.stdin, io.stdout, io.tmpfile,%
2213          io.type, io.write,%
        – the mathematical library
2214          __pow, math, math.abs, math.acos, math.asin, math.atan, math.atan2,%
2215          math.ceil, math.cos, math.deg, math.exp, math.floor, math.frexp,%
2216          math.ldexp, math.log, math.log10, math.max, math.min, math.mod,%
2217          math.pi, math.pow, math.rad, math.random, math.randomseed, math.sin,%
2218          math.sqrt, math.tan,%
        – the os library
2219          os, os.clock, os.date, os.difftime, os.execute, os.exit, os.getenv,%
2220          os.remove, os.rename, os.setlocale, os.time, os.tmpname,%
```

```

    - the string library
2221         string, string.byte, string.char, string.dump, string.find,%
2222         string.format, string.gfind, string.gsub, string.len, string.lower,%
2223         string.rep, string.sub, string.upper,%

    - the table library
2224         table, table.concat, table.foreach, table.foreachi, table.getn,%
2225         table.insert, table.remove, table.setn, table.sort,%
2226     },%

```

and some additional identifiers

```

2227     morekeywords=[2]{%
2228         _PROMPT, _PROMPT2, arg,%
2229     },%

```

These are the common language settings

```

2230     sensitive=true,%
2231     % single line comments
2232     morecomment=[1]{--},%
2233     % multi line comments
2234     morecomment=[s]{--[{}{}]},%
2235     % backslash escaped strings
2236     morestring=[b]",%
2237     morestring=[b]',%
2238     % multi line strings
2239     morestring=[s]{[{}{}]},%
2240 }[keywords,comments,strings]%

```

And here are the new definitions for Lua 5.1:

```

2241 \lst@definelanguage[5.1]{Lua}[5.0]{Lua}{%

```

There are some deletions

```

2242     deletekeywords=[2]{%

```

concerning

- the base library

```

2243         _LOADED, _REQUIREDNAME, LUA_PATH, gcinfo, loadlib,%

```

- the debug library

```

2244         _TRACEBACK,%

```

- the mathematical library

```

2245         __pow, math.mod,%

```

- the string library

```

2246         string.gfind,%

```

- the table library


```
2247         table.foreach, table.foreachi, table.getn, table.setn,%
2248     },%
```

and some new identifiers in standard libraries like

```
2249     morekeywords={2}{%
```

- the base library


```
2250         load, select,%
```
- coroutine library


```
2251         coroutine.running,%
```
- debug library


```
2252         debug.getfenv, debug.getmetatable, debug.getregistry, debug.setfenv,%
2253         debug.setmetatable,%
```
- the mathematical library


```
2254         math.cosh, math.fmod, math.huge, math.modf, math.sinh, math.tanh,%
```
- the package library which itself is new in Lua 5.1


```
2255         module, package, package.config, package.cpath, package.loaded,%
2256         package.loaders, package.loadlib, package.path, package.preload,%
2257         package.seeall,%
```
- the string library and


```
2258         string.gmatch, string.match, string.reverse,%
```
- the table library


```
2259         table.maxn,%
2260     },%
```

In Lua 5.1 long bracket comments were introduced also

```
2261     morecomment=[s]{--[=[{=}]}],%
2262     morecomment=[s]{--[=[{=}]}],%
2263     morecomment=[s]{--[=[{=}]}],%
2264     morecomment=[s]{--[=[{=}]}],%
2265     morecomment=[s]{--[=[{=}]}],%
2266     morecomment=[s]{--[=[{=}]}],%
2267     morecomment=[s]{--[=[{=}]}],%
2268     morecomment=[s]{--[=[{=}]}],%
2269     morecomment=[s]{--[=[{=}]}],%
2270     morecomment=[s]{--[=[{=}]}],%
```

as well as long bracket strings

```
2271  morestring=[s]{ [= [] {} = ] },%
2272  morestring=[s]{ [ == [] {} == ] },%
2273  morestring=[s]{ [ === [] {} === ] },%
2274  morestring=[s]{ [ ==== [] {} ==== ] },%
2275  morestring=[s]{ [ ===== [] {} ===== ] },%
2276  morestring=[s]{ [ ===== [] {} ===== ] },%
2277  morestring=[s]{ [ ===== [] {} ===== ] },%
2278  morestring=[s]{ [ ===== [] {} ===== ] },%
2279  morestring=[s]{ [ ===== [] {} ===== ] },%
2280  morestring=[s]{ [ ===== [] {} ===== ] },%
2281 }[keywords, comments, strings]%
```

Lua 5.2 again has some changed features. These are
2282 \lst@definelanguage[5.2]{Lua}[5.1]{Lua}{%

- new language keywords

```
2283     morekeywords=[1]{%
2284         goto,%
2285     },%
```

- deleted identifiers from the standard libraries like

```
2286     deletekeywords=[2]{%

        – the base library
2287         getfenv, loadstring, module, newproxy, setfenv, unpack,%

        – the debug library
2288         debug.getfenv, debug.setfenv,%

        – the mathematical library
2289         math.log10,%

        – the package library and
2290         package.loaders, package.seeall,%

        – the table library
2291         table.maxn,%
2292     },%
```

Again there are some new identifiers in the standard libraries

```
2293  morekeywords=[2]{%
like
```

- the base library

```
2294     rawlen,%
```

- the bit library

```

2295         bit32, bit32.arshift, bit32.band, bit32.bnot, bit32.bor,%
2296         bit32.btest, bit32.bxor, bit32.extract, bit32.lrotate,%
2297         bit32.lshift, bit32.replace, bit32.rrotate, bit32.rshift,%

```

- the debug library

```

2298         debug.getuservalue, debug.setuservalue, debug.upvalueid,%
2299         debug.upvaluejoin,%

```

- the package library

```

2300         package.searchers, package.searchpath,%

```

- the table library

```

2301         table.pack, table.unpack,%
2302     },%

```

There is a new additional identifier

```

2303     morekeywords=[2]{%
2304         _ENV,%
2305     },%

```

and labels are also new in Lua 5.2

```

2306     moredelim=[s][keywordstyle3]{::}{::},%
2307 }[keywords,comments,strings]%

```

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

```

2308 \lst@definelanguage[5.3]{Lua}[5.2]{Lua}{%

```

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

```

2309         deletekeywords=[2]{%

```

- the bit32 library

```

2310         bit32, bit32.arshift, bit32.band, bit32.bnot, bit32.bor,%
2311         bit32.btest, bit32.bxor, bit32.extract, bit32.lrotate,%
2312         bit32.lshift, bit32.replace, bit32.rrotate, bit32.rshift,%

```

- the mathematical library

```

2313         math.atan2, math.cosh, math.frexp, math.ldexp, math.pow,%
2314         math.sinh, math.tanh,%
2315     },%

```

Again there are some new identifiers in the standard libraries

```

2316     morekeywords=[2]{%

```

like

- the coroutine library

```

2317         coroutine.isyieldable,%

```

- the mathematical library

```

2318         math.maxinteger, math.mininteger, math.tointeger, math.type,%
2319         math.ult,%

```

- the string library

```

2320         string.pack, string.packsize, string.unpack,%

```

- the table library

```

2321         table.move,%

```

- the utf-8 library

```

2322         utf8, utf8.char, utf8.charpattern, utf8.codepoint, utf8.codes,%
2323         utf8.len, utf8.offset,%
2324     },%
2325 }[keywords,comments,strings]%
2326 </lang2>

```

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

```

2327 <*lua-prf>
2328 \usepackage[rgb, x11names]{xcolor}
2329 \lstdefinestyle{Lua}{%
2330     language=[5.2]Lua,
2331     basicstyle=\ttfamily,
2332     columns=spaceflexible,
2333     keywordstyle=\bfseries\color{Blue4},% language keywords
2334     keywordstyle=[2]\bfseries\color{RoyalBlue3},% std. library identifiers
2335     keywordstyle=[3]\bfseries\color{Purple3},% labels
2336     stringstyle=\bfseries\color{Coral4},% strings
2337     commentstyle=\itshape\color{Green4},% comments
2338 }

```

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

```

2339 </lua-prf>

```

2.41 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).

```

2340 <*lang2>

```

```

2341 %%
2342 %% Make definitions (c) 2000 Rolf Niepraschk
2343 %%
2344 \lst@definelanguage[gnu]{make}%
2345   {morekeywords={SHELL,MAKE,MAKEFLAGS,$@,$\%,\$<,$?,$^,$+,$*,%
2346     @,^,<,\%,+,%?,%*,% Markus Pahlow
2347     export,unexport,include,override,define,ifdef,ifneq,ifeq,else,%
2348     endif,vpath,subst,patsubst,strip,findstring,filter,filter-out,%
2349     sort,dir,notdir,suffix,basename,addsuffix,addprefix,join,word,%
2350     words,firstword,wildcard,shell,origin,foreach,%
2351     @D,@F,*D,*F,\%D,\%F,<D,<F,^D,^F,+D,+F,?D,?F,%
2352     AR,AS,CC,CXX,CO,CPP,FC,GET,LEX,PC,YACC,YACCR,MAKEINFO,TEXI2DVI,%
2353     WEAVE,CWEAVE,TANGLE,CTANGLE,RM,M2C,LINT,COMPILE,LINK,PREPROCESS,%
2354     CHECKOUT,%
2355     ARFLAGS,ASFLAGS,CFLAGS,CXXFLAGS,COFLAGS,CPPFLAGS,FFLAGS,GFLAGS,%
2356     LDFLAGS,LOADLIBES,LFLAGS,PFLAGS,RFLAGS,YFLAGS,M2FLAGS,MODFLAGS,%
2357     LINTFLAGS,MAKEINFO_FLAGS,TEXI2DVI_FLAGS,COFLAGS,GFLAGS,%
2358     OUTPUT_OPTION,SCCS_OUTPUT_OPTION,% missing comma: Markus Pahlow
2359     .PHONY,.SUFFIXES,.DEFAULT,.PRECIOUS,.INTERMEDIATE,.SECONDARY,%
2360     .IGNORE,.SILENT,.EXPORT_ALL_VARIABLES,MAKEFILES,VPATH,MAKESHELL,%
2361     MAKELEVEL,MAKECMDGOALS,SUFFIXES},%
2362   sensitive=true,
2363   morecomment=[1]\#,%
2364   morestring=[b]"%
2365   }[keywords,comments,strings,make]%

2366 \lst@definelanguage{make}
2367   {morekeywords={SHELL,MAKE,MAKEFLAGS,$@,$\%,\$<,$?,$^,$+,$*,%
2368     sensitive=true,%
2369     morecomment=[1]\#,%
2370     morestring=[b]"%
2371   }[keywords,comments,strings,make]%

```

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

2372 </lang2>

2.42 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.

2373 <*lang1>

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

```

2374 \lst@definelanguage[5.1]{Matlab}[] {Matlab}{-}
2375 \lst@definelanguage{Matlab}%
2376   {morekeywords={gt,lt,gt,lt,amp,abs,acos,acosh,acot,acoth,acsc,acsch,%
2377     all,angle,ans,any,asec,asech,asin,asinh,atan,atan2,atanh,auread,%
2378     auwrite,axes,axis,balance,bar,bessel,besselk,bessely,beta,%
2379     betainc,betaln,blanks,bone,break,brighten,capture,cart2pol,%

```

```

2380 cart2sph,caxis,cd,cdf2rdf,cedit,ceil,chol,cla,clabel,clc,clear,%
2381 clf,clock,close,colmmd,Colon,colorbar,colormap,ColorSpec,colperm,%
2382 comet,comet3,compan,compass,computer,cond,condest,conj,contour,%
2383 contour3,contourc,contrast,conv,conv2,cool,copper,corrcoef,cos,%
2384 cosh,cot,coth,cov,cplxpair,cputime,cross,csc,csch,csvread,%
2385 csvwrite,cumprod,cumsum,cylinder,date,dbclear,dbcont,dbdown,%
2386 dbquit,dbstack,dbstatus,dbstep,dbstop,dbtype,dbup,ddeadv,ddeexec,%
2387 ddeinit,ddepoke,ddereq,ddeterm,ddeunadv,deblank,dec2hex,deconv,%
2388 del2,delete,demo,det,diag,diary,diff,diffuse,dir,disp,dlmread,%
2389 dlmwrite,dmperm,dot,drawnow,echo,eig,ellipj,ellipke,else,elseif,%
2390 end,engClose,engEvalString,engGetFull,engGetMatrix,engOpen,%
2391 engOutputBuffer,engPutFull,engPutMatrix,engSetEvalCallback,%
2392 engSetEvalTimeout,engWinInit,eps,erf,erfc,erfcx,erfinv,error,%
2393 errorbar,etime,etree,eval,exist,exp,expint,expm,expo,eye,fclose,%
2394 feather,feof,ferror,feval,fft,fft2,fftshift,fgetl,fgets,figure,%
2395 fill,fill3,filter,filter2,find,findstr,finite,fix,flag,fliplr,%
2396 flipud,floor,flops,fmin,fmins,fopen,for,format,fplot,fprintf,%
2397 fread,frewind,fscanf,fseek,ftell,full,function,funm,fwrite,fzero,%
2398 gallery,gamma,gammainc,gammaln,gca,gcd,gcf,gco,get,getenv,%
2399 getframe,ginput,global,gplot,gradient,gray,graymon,grid,griddata,%
2400 gtext,hadamard,hankel,help,hess,hex2dec,hex2num,hidden,hilb,hist,%
2401 hold,home,hostid,hot,hsv,hsv2rgb,if,ifft,ifft2,imag,image,%
2402 imagesc,Inf,info,input,int2str,interp1,interp2,interpft,inv,%
2403 invhilb,isempty,isglobal,ishold,isieee,isinf,isletter,isnan,%
2404 isreal,isspace,issparse,isstr,jet,keyboard,kron,lasterr,lcm,%
2405 legend,legendre,length,lin2mu,line,linspace,load,log,log10,log2,%
2406 loglog,logm,logspace,lookfor,lower,ls,lscov,lu,magic,matClose,%
2407 matDeleteMatrix,matGetDir,matGetFp,matGetFull,matGetMatrix,%
2408 matGetNextMatrix,matGetString,matlabrc,matlabroot,matOpen,%
2409 matPutFull,matPutMatrix,matPutString,max,mean,median,menu,mesh,%
2410 meshc,meshgrid,meshz,mexAtExit,mexCallMATLAB,mexdebug,%
2411 mexErrMsgTxt,mexEvalString,mexFunction,mexGetFull,mexGetMatrix,%
2412 mexGetMatrixPtr,mexPrintf,mexPutFull,mexPutMatrix,mexSetTrapFlag,%
2413 min,more,movie,moviein,mu2lin,mxMalloc,mxCopyCharacterToPtr,%
2414 mxCopyComplex16ToPtr,mxCopyInteger4ToPtr,mxCopyPtrToCharacter,%
2415 mxCopyPtrToComplex16,mxCopyPtrToInteger4,mxCopyPtrToReal8,%
2416 mxCopyReal8ToPtr,mxCreateFull,mxCreateSparse,mxCreateString,%
2417 mxFree,mxFreeMatrix,mxGetIr,mxGetJc,mxGetM,mxGetN,mxGetName,%
2418 mxGetNzmax,mxGetPi,mxGetPr,mxGetScalar,mxGetString,mxIsComplex,%
2419 mxIsFull,mxIsNumeric,mxIsSparse,mxIsString,mxIsTypeDouble,%
2420 mxSetIr,mxSetJc,mxSetM,mxSetN,mxSetName,mxSetNzmax,mxSetPi,%
2421 mxSetPr,NaN,nargchk,nargin,nargout,newplot,nextpow2,nnls,nnz,%
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2428 return,rgb2hsv,rgbplot,rootobject,roots,rose,rosser,rot90,rotate,%
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2433 sprank, sprintf, spy, sqrt, sqrtm, sscanf, stairs, startup, std, stem, %
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2441 wk1write, xlabel, xor, ylabel, zeros, xlabel, zoom}, %
2442 sensitive, %
2443 morecomment=[1]\%, %
2444 morestring=[m]'%
2445 }[keywords, comments, strings]%
2446 </lang1>

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2.43 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.

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4189 DirectoryName, DisableConsolePrintPacket, DiscreteDelta,%
4190 DisplayAnimation, DisplayEndPacket, DisplayFlushImagePacket,%
4191 DisplayForm, DisplayPacket, DisplayRules, DisplaySetSizePacket,%
4192 DisplayString, DivisionFreeRowReduction, DOSTextFormat,%
4193 DoubleExponential, DoublyInfinite, Down, DragAndDrop, DrawHighlighted,%
4194 DualLinearProgramming, DumpGet, DumpSave, Edit, Editable,%
4195 EditButtonSettings, EditCellTagsSettings, EditDefinition, EditIn,%
4196 Element, EliminationOrder, EllipticExpPrime, EllipticNomeQ,%
4197 EllipticReducedHalfPeriods, EllipticThetaPrime, Empty,%
4198 EnableConsolePrintPacket, Encoding, EndAdd, EndDialogPacket,%
4199 EndFrontEndInteractionPacket, EndOfLine, EndOfString, Enter,%
4200 EnterExpressionPacket, EnterTextPacket, EqualColumns, EqualRows,%
4201 EquatedTo, Erfi, ErrorBox, ErrorBoxOptions, ErrorNorm, ErrorPacket,%
4202 ErrorsDialogSettings, Evaluatable, EvaluatePacket, EvaluationCell,%
4203 EvaluationCompletionAction, EvaluationMonitor, EvaluationNotebook,%
4204 Evaluator, EvaluatorNames, EventEvaluator, ExactNumberQ,%
4205 ExactRootIsolation, Except, ExcludedForms, Exists, ExitDialog,%
4206 ExponentPosition, ExponentStep, Export, ExportAutoReplacements,%
4207 ExportPacket, ExportString, ExpressionPacket, ExpToTrig, Extension,%
4208 ExternalCall, ExternalDataCharacterEncoding, Extract, Fail,%
4209 FEDisableConsolePrintPacket, FEEnableConsolePrintPacket, Fibonacci,%
4210 File, FileFormat, FileInformation, FileName, FileNameDialogSettings,%
4211 FindFit, FindInstance, FindMaximum, FindSettings, FitAll,%
4212 FlushPrintOutputPacket, Font, FontColor, FontFamily, FontName,%
4213 FontPostScriptName, FontProperties, FontReencoding, FontSize,%
4214 FontSlant, FontSubstitutions, FontTracking, FontVariations, FontWeight,%
4215 ForAll, FormatRules, FormatTypeAutoConvert, FormatValues, FormBox,%
4216 FormBoxOptions, Forward, ForwardBackward, FourierCosTransform,%
4217 FourierParameters, FourierSinTransform, FourierTransform,%
4218 FractionalPart, FractionBox, FractionBoxOptions, FractionLine,%
4219 FrameBox, FrameBoxOptions, FresnelC, FresnelS, FromContinuedFraction,%
4220 FromDigits, FrontEndExecute, FrontEndObject, FrontEndStackSize,%

4221 FrontEndToken, FrontEndTokenExecute, FrontEndVersion, Full, FullAxes,%
4222 FullSimplify, FunctionExpand, FunctionInterpolation, GaussKronrod,%
4223 GaussPoints, GenerateBitmapCaches, GenerateConditions, GeneratedCell,%
4224 GeneratedParameters, Generic, GetBoundingBoxSizePacket, GetContext,%
4225 GetFileName, GetFrontEndOptionsDataPacket,%
4226 GetLinebreakInformationPacket, GetMenusPacket,%
4227 GetPageBreakInformationPacket, Glaisher, GlobalPreferences,%
4228 GlobalSession, Gradient, GraphicsData, GraphicsGrouping, Gray, Green,%
4229 Grid, GridBaseline, GridBox, GridBoxOptions, GridCreationSettings,%
4230 GridDefaultElement, GridFrame, GridFrameMargins, GroupPageBreakWithin,%
4231 HarmonicNumber, Hash, HashTable, HeadCompose, HelpBrowserLookup,%
4232 HelpBrowserNotebook, HelpBrowserSettings, HessenbergDecomposition,%
4233 Hessian, HoldAllComplete, HoldComplete, HoldPattern, Horizontal,%
4234 HorizontalForm, HorizontalScrollPosition, HTMLSave,%
4235 HypergeometricOF1Regularized, Hypergeometric1F1Regularized,%
4236 Hypergeometric2F1Regularized, HypergeometricPFQ,%
4237 HypergeometricPFQRegularized, HyperlinkCreationSettings, Hyphenation,%
4238 HyphenationOptions, IgnoreCase, ImageCache, ImageCacheValid,%
4239 ImageMargins, ImageOffset, ImageRangeCache, ImageRegion,%
4240 ImageResolution, ImageRotated, ImageSize, Import,%
4241 ImportAutoReplacements, ImportString, IncludeFileExtension,%
4242 IncludeSingularTerm, IndentingNewlineSpacings, IndentMaxFraction,%
4243 IndexCreationOptions, Inequality, InexactNumberQ, InexactNumbers,%
4244 Inherited, InitializationCell, InitializationCellEvaluation,%
4245 InitializationCellWarning, InlineCounterAssignments,%
4246 InlineCounterIncrements, InlineRules, InputAliases, InputAutoFormat,%
4247 InputAutoReplacements, InputGrouping, InputNamePacket, InputNotebook,%
4248 InputPacket, InputSettings, InputStringPacket, InputToBoxFormPacket,%
4249 InputToInputForm, InputToStandardForm, InsertionPointObject,%
4250 IntegerExponent, IntegerPart, Integers, Interactive, Interlaced,%
4251 InterpolationOrder, InterpolationPoints, InterpolationPrecision,%
4252 InterpretationBox, InterpretationBoxOptions, InterpretTemplate,%
4253 InterruptSettings, Interval, IntervalIntersection, IntervalMemberQ,%
4254 IntervalUnion, InverseBetaRegularized, InverseEllipticNomeQ,%
4255 InverseErf, InverseErfc, InverseFourierCosTransform,%
4256 InverseFourierSinTransform, InverseFourierTransform,%
4257 InverseGammaRegularized, InverseJacobiCD, InverseJacobiCN,%
4258 InverseJacobiCS, InverseJacobiDC, InverseJacobiDN, InverseJacobiDS,%
4259 InverseJacobiNC, InverseJacobiND, InverseJacobiNS, InverseJacobiSC,%
4260 InverseJacobiSD, InverseLaplaceTransform, InverseWeierstrassP,%
4261 InverseZTransform, Jacobian, JacobiCD, JacobiCN, JacobiCS, JacobiDC,%
4262 JacobiDN, JacobiDS, JacobiNC, JacobiND, JacobiNS, JacobiSC, JacobiSD,%
4263 JordanDecomposition, K, Khinchin, KleinInvariantJ, KroneckerDelta,%
4264 Language, LanguageCategory, LaplaceTransform, Larger, Launch,%
4265 LayoutInformation, Left, LetterCharacter, Lexicographic, LicenseID,%
4266 LimitsPositioning, LimitsPositioningTokens, LinearSolveFunction,%
4267 LinebreakAdjustments, LineBreakWithin, LineForm, LineIndent,%
4268 LineSpacing, LineWrapParts, LinkActivate, LinkClose, LinkConnect,%
4269 LinkConnectedQ, LinkCreate, LinkError, LinkFlush, LinkHost,%
4270 LinkInterrupt, LinkLaunch, LinkMode, LinkObject, LinkOpen, LinkOptions,%

4271 LinkPatterns, LinkProtocol, LinkRead, LinkReadHeld, LinkReadyQ, Links,%
4272 LinkWrite, LinkWriteHeld, ListConvolve, ListCorrelate, Listen,%
4273 ListInterpolation, ListQ, LiteralSearch, LongestMatch, LongForm,%
4274 Loopback, LUBackSubstitution, LUdecomposition, MachineID, MachineName,%
4275 MachinePrecision, MacintoshSystemPageSetup, Magenta, Magnification,%
4276 MakeBoxes, MakeExpression, MakeRules, Manual, MatchLocalNameQ,%
4277 MathematicaNotation, MathieuC, MathieuCharacteristicA,%
4278 MathieuCharacteristicB, MathieuCharacteristicExponent, MathieuCPrime,%
4279 MathieuS, MathieuSPrime, MathMLForm, MathMLText, MatrixRank, Maximize,%
4280 MaxIterations, MaxPlotPoints, MaxPoints, MaxRecursion, MaxStepFraction,%
4281 MaxSteps, MaxStepSize, Mean, Median, MeijerG, MenuPacket,%
4282 MessageOptions, MessagePacket, MessagesNotebook, MetaCharacters,%
4283 Method, MethodOptions, Minimize, MinRecursion, MinSize, Mode,%
4284 ModularLambda, MonomialOrder, MonteCarlo, Most, MousePointerNote,%
4285 MultiDimensional, MultilaunchWarning, MultilineFunction,%
4286 MultiplicativeOrder, Multiplicity, Nand,%
4287 NeedCurrentFrontEndPackagePacket, NeedCurrentFrontEndSymbolsPacket,%
4288 NestedScriptRules, NestWhile, NestWhileList, NevilleThetaC,%
4289 NevilleThetaD, NevilleThetaN, NevilleThetaS, Newton, Next, NHoldAll,%
4290 NHoldFirst, NHoldRest, NMaximize, NMinimize, NonAssociative,%
4291 NonPositive, Nor, Norm, NormalGrouping, NormalSelection, NormFunction,%
4292 Notebook, NotebookApply, NotebookAutoSave, NotebookClose,%
4293 NotebookConvert, NotebookConvertSettings, NotebookCreate,%
4294 NotebookCreateReturnObject, NotebookDefault, NotebookDelete,%
4295 NotebookDirectory, NotebookFind, NotebookFindReturnObject, NotebookGet,%
4296 NotebookGetLayoutInformationPacket, NotebookGetMisspellingsPacket,%
4297 NotebookInformation, NotebookLocate, NotebookObject, NotebookOpen,%
4298 NotebookOpenReturnObject, NotebookPath, NotebookPrint, NotebookPut,%
4299 NotebookPutReturnObject, NotebookRead, NotebookResetGeneratedCells,%
4300 Notebooks, NotebookSave, NotebookSaveAs, NotebookSelection,%
4301 NotebookSetupLayoutInformationPacket, NotebooksMenu, NotebookWrite,%
4302 NotElement, NProductExtraFactors, NProductFactors, NRoots,%
4303 NSumExtraTerms, NSumTerms, NumberMarks, NumberMultiplier, NumberString,%
4304 NumericFunction, NumericQ, NValues, Offset, OLEData,%
4305 OneStepRowReduction, Open, OpenFunctionInspectorPacket,%
4306 OpenSpecialOptions, OptimizationLevel, OptionInspectorSettings,%
4307 OptionQ, OptionsPacket, OptionValueBox, OptionValueBoxOptions, Orange,%
4308 Ordering, Oscillatory, OutputAutoOverwrite, OutputFormData,%
4309 OutputGrouping, OutputMathEditExpression, OutputNamePacket,%
4310 OutputToOutputForm, OutputToStandardForm, Over, Overflow, Overlaps,%
4311 Overscript, OverscriptBox, OverscriptBoxOptions, OwnValues, PadLeft,%
4312 PadRight, PageBreakAbove, PageBreakBelow, PageBreakWithin,%
4313 PageFooterLines, PageFooters, PageHeaderLines, PageHeaders,%
4314 PalettePath, PaperWidth, ParagraphIndent, ParagraphSpacing,%
4315 ParameterVariables, ParentConnect, ParentForm, Parenthesize,%
4316 PasteBoxFormInlineCells, Path, PatternTest, PeriodicInterpolation,%
4317 Pick, Piecewise, PiecewiseExpand, Pink, Pivoting, PixelConstrained,%
4318 Placeholder, Plain, Plot3Matrix, PointForm, PolynomialForm,%
4319 PolynomialReduce, Polynomials, PowerModList, Precedence,%
4320 PreferencesPath, PreserveStyleSheet, Previous, PrimaryPlaceholder,%

4321 Primes, PrincipalValue, PrintAction, PrintingCopies, PrintingOptions,%
4322 PrintingPageRange, PrintingStartingPageNumber,%
4323 PrintingStyleEnvironment, PrintPrecision, PrivateCellOptions,%
4324 PrivateEvaluationOptions, PrivateFontOptions, PrivateNotebookOptions,%
4325 PrivatePaths, ProductLog, PromptForm, Purple, Quantile,%
4326 QuasiMonteCarlo, QuasiNewton, RadicalBox, RadicalBoxOptions,%
4327 RandomSeed, RationalFunctions, Rationals, RawData, RawMedium,%
4328 RealBlockForm, Reals, Reap, Red, Refine, Refresh, RegularExpression,%
4329 Reinstall, Release, Removed, RenderingOptions, RepeatedString,%
4330 ReplaceList, Rescale, ResetMenusPacket, Resolve, ResumePacket,%
4331 ReturnExpressionPacket, ReturnInputFormPacket, ReturnPacket,%
4332 ReturnTextPacket, Right, Root, RootReduce, RootSum, Row, RowAlignments,%
4333 RowBox, RowLines, RowMinHeight, RowsEqual, RowSpacings, RSolve,%
4334 RuleCondition, RuleForm, RulerUnits, Saveable, SaveAutoDelete,%
4335 ScreenRectangle, ScreenStyleEnvironment, ScriptBaselineShifts,%
4336 ScriptLevel, ScriptMinSize, ScriptRules, ScriptSizeMultipliers,%
4337 ScrollingOptions, ScrollPosition, Second, SectionGrouping, Selectable,%
4338 SelectedNotebook, Selection, SelectionAnimate, SelectionCell,%
4339 SelectionCellCreateCell, SelectionCellDefaultStyle,%
4340 SelectionCellParentStyle, SelectionCreateCell, SelectionDuplicateCell,%
4341 SelectionEvaluate, SelectionEvaluateCreateCell, SelectionMove,%
4342 SelectionSetStyle, SelectionStrategy, SendFontInformationToKernel,%
4343 SequenceHold, SequenceLimit, SeriesCoefficient, SetBoxFormNamesPacket,%
4344 SetEvaluationNotebook, SetFileLoadingContext, SetNotebookStatusLine,%
4345 SetOptionsPacket, SetSelectedNotebook, SetSpeechParametersPacket,%
4346 SetValue, ShortestMatch, ShowAutoStyles, ShowCellBracket,%
4347 ShowCellLabel, ShowCellTags, ShowClosedCellArea, ShowContents,%
4348 ShowCursorTracker, ShowGroupOpenCloseIcon, ShowPageBreaks,%
4349 ShowSelection, ShowShortBoxForm, ShowSpecialCharacters,%
4350 ShowStringCharacters, ShrinkWrapBoundingBox, SingleLetterItalics,%
4351 SingularityDepth, SingularValueDecomposition, SingularValueList,%
4352 SinhIntegral, Smaller, Socket, SolveDelayed, SoundAndGraphics, Sow,%
4353 Space, SpaceForm, SpanAdjustments, SpanCharacterRounding,%
4354 SpanLineThickness, SpanMaxSize, SpanMinSize, SpanningCharacters,%
4355 SpanSymmetric, Sparse, SparseArray, SpeakTextPacket,%
4356 SpellingDictionaries, SpellingDictionariesPath, SpellingOptions,%
4357 SpellingSuggestionsPacket, Spherical, Split, SqrtBox, SqrtBoxOptions,%
4358 StandardDeviation, StandardForm, StartingStepSize, StartOfLine,%
4359 StartOfString, StartupSound, StepMonitor, StieltjesGamma, StoppingTest,%
4360 StringCases, StringCount, StringExpression, StringFreeQ, StringQ,%
4361 StringReplaceList, StringReplacePart, StringSplit, StripBoxes,%
4362 StripWrapperBoxes, StructuredSelection, StruveH, StruveL, StyleBox,%
4363 StyleBoxAutoDelete, StyleBoxOptions, StyleData, StyleDefinitions,%
4364 StyleForm, StyleMenuListing, StyleNameDialogSettings, StylePrint,%
4365 StyleSheetPath, Subresultants, SubscriptBox, SubscriptBoxOptions,%
4366 Subsets, Subsuperscript, SubsuperscriptBox, SubsuperscriptBoxOptions,%
4367 SubtractFrom, SubValues, SugarCube, SuperscriptBox,%
4368 SuperscriptBoxOptions, SuspendPacket, SylvesterMatrix, SymbolName,%
4369 Syntax, SyntaxForm, SyntaxPacket, SystemException, SystemHelpPath,%
4370 SystemStub, Tab, TabFilling, TabSpacings, TagBox, TagBoxOptions,%

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4371 TaggingRules, TagStyle, TargetFunctions, TemporaryVariable, TensorQ,%
4372 TeXSave, TextAlignment, TextBoundingBox, TextData, TextJustification,%
4373 TextLine, TextPacket, TextParagraph, TextRendering, TextStyle,%
4374 ThisLink, TimeConstraint, TimeVariable, TitleGrouping, ToBoxes,%
4375 ToColor, ToFileName, Toggle, ToggleFalse, Tolerance, TooBig, Top,%
4376 ToRadicals, Total, Tr, TraceAction, TraceInternal, TraceLevel,%
4377 TraditionalForm, TraditionalFunctionNotation, TraditionalNotation,%
4378 TraditionalOrder, TransformationFunctions, TransparentColor,%
4379 Trapezoidal, TrigExpand, TrigFactor, TrigFactorList, TrigReduce,%
4380 TrigToExp, Tuples, UnAlias, Underflow, Underoverscript,%
4381 UnderoverscriptBox, UnderoverscriptBoxOptions, Underscript,%
4382 UnderscriptBox, UnderscriptBoxOptions, UndocumentedTestFEParsePacket,%
4383 UndocumentedTestGetSelectionPacket, UnitStep, Up, URL, Using, V2Get,%
4384 Value, ValueBox, ValueBoxOptions, ValueForm, Variance, Verbatim,%
4385 Verbose, VerboseConvertToPostScriptPacket, VerifyConvergence,%
4386 VerifySolutions, Version, VersionNumber, Vertical, VerticalForm,%
4387 ViewPointSelectorSettings, Visible, VisibleCell,%
4388 WeierstrassHalfPeriods, WeierstrassInvariants, WeierstrassSigma,%
4389 WeierstrassZeta, White, Whitespace, WhitespaceCharacter,%
4390 WindowClickSelect, WindowElements, WindowFloating, WindowFrame,%
4391 WindowFrameElements, WindowMargins, WindowMovable, WindowSize,%
4392 WindowTitle, WindowToolbars, WindowWidth, WordBoundary, WordCharacter,%
4393 WynnDegree, XMLElement},%
4394 morendkeywords={,$AddOnsDirectory,$AnimationDisplayFunction,%
4395 $AnimationFunction,%
4396 $Assumptions,$BaseDirectory,$BoxForms,$ByteOrdering,%
4397 $CharacterEncoding,$ConditionHold,$CurrentLink,$DefaultPath,%
4398 $ExportEncodings,$ExportFormats,$FormatType,$FrontEnd,%
4399 $HistoryLength,$HomeDirectory,$ImportEncodings,$ImportFormats,%
4400 $InitialDirectory,$InstallationDate,$InstallationDirectory,%
4401 $InterfaceEnvironment,%
4402 $LaunchDirectory,$LicenseExpirationDate,$LicenseID,$LicenseProcesses,%
4403 $LicenseServer,$MachineDomain,$MaxExtraPrecision,$MaxLicenseProcesses,%
4404 $MaxNumber,$MaxPiecewiseCases,$MaxPrecision,$MaxRootDegree,%
4405 $MinNumber,$MinPrecision,$NetworkLicense,$NumberMarks,%
4406 $Off,$OutputForms,$ParentLink,$ParentProcessID,%
4407 $PasswordFile,$PathnameSeparator,$PreferencesDirectory,$PrintForms,%
4408 $PrintLiteral,$ProcessID,$ProcessorType,$ProductInformation,%
4409 $ProgramName,$PSDirectDisplay,$RandomState,$RasterFunction,%
4410 $RootDirectory,$SetParentLink,$SoundDisplay,$SuppressInputFormHeads,%
4411 $SystemCharacterEncoding,$SystemID,$TemporaryPrefix,$TextStyle,%
4412 $TopDirectory,$TraceOff,$TraceOn,$TracePattern,%
4413 $TracePostAction,$TracePreAction,$UserAddOnsDirectory,$UserBaseDirectory,%
4414 $UserName,Constant,Flat,HoldAll,%
4415 HoldAllComplete,HoldFirst,HoldRest,Listable,%
4416 Locked,NHoldAll,NHoldFirst,NHoldRest,%
4417 NumericFunction,OneIdentity,Orderless,Protected,%
4418 ReadProtected,SequenceHold},%
4419 }%

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4420 %%
4421 %% Mathematica definitions (c) 1999 Michael Wiese
4422 %%
4423 \lst@definlanguage[3.0]{Mathematica}[1.0]{Mathematica}%
4424 {morekeywords={Abort,AbortProtect,AbsoluteDashing,AbsolutePointSize,%
4425 AbsoluteThickness,AbsoluteTime,AccountingFormAiry,AiPrime,AiryBi,%
4426 AiryBiPrime,Alternatives,AnchoredSearch,AxesEdge,AxesOrigin,%
4427 AxesStyle,Background,BetaRegularized,BoxStyle,C,CheckAbort,%
4428 Circle,ClebschGordan,CMYKColor,ColorFunction,ColorOutput,Compile,%
4429 Compiled,CompiledFunction,ComplexExpand,ComposeList,Composition,%
4430 ConstrainedMax,ConstrainedMin,Contexts,ContextToFilename,%
4431 ContourLines,Contours,ContourShading,ContourSmoothing,%
4432 ContourStyle,CopyDirectory,CopyFile,CosIntegral,CreateDirectory,%
4433 Cuboid,Date,DeclarePackage,DefaultColor,DefaultFont>Delete,%
4434 DeleteCases>DeleteDirectory>DeleteFile>Dialog>DialogIndent,%
4435 DialogProlog>DialogSymbols>DigitQ>Directory>DirectoryStack>Disk,%
4436 Dispatch>DownValues>DSolve>Encode>Epilog>Erfc>Evaluate,%
4437 ExponentFunction>FaceGrids>FileByteCount>FileDate>FileNames,%
4438 FileType>Find>FindList>FixedPointList>FlattenAt>Fold>FoldList,%
4439 Frame>FrameLabel>FrameStyle>FrameTicks>FromCharacterCode,%
4440 FromDate>FullGraphics>FullOptions>GammaRegularized,%
4441 GaussianIntegers>GraphicsArray>GraphicsSpacing>GridLines,%
4442 GroebnerBasis>Heads>HeldPart>HomeDirectory>Hue>IgnoreCases,%
4443 InputStream>Install>InString>IntegerDigits>InterpolatingFunction,%
4444 InterpolatingPolynomial>Interpolation>Interrupt>InverseFunction,%
4445 InverseFunctions>JacobiZeta>LetterQ>LinearProgramming>ListPlay,%
4446 LogGamma>LowerCaseQ>MachineNumberQ>MantissaExponent>MapIndexed,%
4447 MapThread>MatchLocalNames>MatrixExp>MatrixPower>MeshRange,%
4448 MeshStyle>MessageList>Module>NDSolve>NSolve>NullRecords,%
4449 NullWords>NumberFormat>NumberPadding>NumberSigns>OutputStream,%
4450 PaddedForm>ParentDirectory>Pause>Play>PlayRange>PlotRegion,%
4451 PolygonIntersections>PolynomialGCD>PolynomialLCM>PolynomialMod,%
4452 PostScript>PowerExpand>PrecisionGoal>PrimePi>Prolog,%
4453 QRDecomposition>Raster>RasterArray>RealDigits>Record>RecordLists,%
4454 RecordSeparators>ReleaseHold>RenameDirectory>RenameFile,%
4455 ReplaceHeldPart>ReplacePart>ResetDirectory>Residue,%
4456 RiemannSiegelTheta>RiemannSiegelZ>RotateLabel>SameTest,%
4457 SampleDepth>SampledSoundFunction>SampledSoundList>SampleRate,%
4458 SchurDecomposition>SessionTime>SetAccuracy>SetDirectory,%
4459 SetFileDate>SetPrecision>SetStreamPosition>Shallow>SignPadding,%
4460 SinIntegral>SixJSymbol>Skip>Sound>SpellingCorrection,%
4461 SphericalRegion>Stack>StackBegin>StackComplete>StackInhibit,%
4462 StreamPosition>Streams>StringByteCount>StringConversion,%
4463 StringDrop>StringInsert>StringPosition>StringReplace,%
4464 StringReverse>StringTake>StringToStream>SurfaceColor,%
4465 SyntaxLength>SyntaxQ>TableAlignments>TableDepth,%
4466 TableDirections>TableHeadings>TableSpacing>ThreeJSymbol>TimeUsed,%
4467 TimeZone>ToCharacterCode>ToDate>ToHeldExpression>TokenWords,%
4468 ToLowerCase>ToUpperCase>Trace>TraceAbove>TraceBackward,%
4469 TraceDepth>TraceDialog>TraceForward>TraceOff>TraceOn,%

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4470 TraceOriginal,TracePrint,TraceScan,Trig,Unevaluated,Uninstall,%
4471 UnsameQ,UpperCaseQ,UpValues,ViewCenter,ViewVertical,With,Word,%
4472 WordSearch,WordSeparators},%
4473 moreendkeywords={Stub,Temporary,$Aborted,$BatchInput,$BatchOutput,%
4474 $CreationDate,$DefaultFont,$DumpDates,$DumpSupported,$Failed,%
4475 $Input,$Inspector,$IterationLimit,$Language,$Letters,$Linked,%
4476 $LinkSupported,$MachineEpsilon,$MachineID,$MachineName,%
4477 $MachinePrecision,$MachineType,$MaxMachineNumber,$MessageList,%
4478 $MessagePrePrint,$MinMachineNumber,$ModuleNumber,$NewMessage,%
4479 $NewSymbol,$Notebooks,$OperatingSystem,$Packages,$PipeSupported,%
4480 $PreRead,$ReleaseNumber,$SessionID,$SoundDisplayFunction,%
4481 $StringConversion,$StringOrder,$SyntaxHandler,$TimeUnit,%
4482 $VersionNumber}%
4483 }%

4484 \lst@definlanguage[1.0]{Mathematica}%
4485 {morekeywords={Abs,Accuracy,AccurayGoal,AddTo,AiryAi,AlgebraicRules,%
4486 AmbientLight,And,Apart,Append,AppendTo,Apply,ArcCos,ArcCosh,%
4487 ArcCot,ArcCoth,ArcCsc,ArcCsch,ArcSec,ArcSech,ArcSin,ArcSinh,%
4488 ArcTan,ArcTanh,Arg,ArithmeticGeometricMean,Array,AspectRatio,%
4489 AtomQ,Attributes,Axes,AxesLabel,BaseForm,Begin,BeginPackage,%
4490 BernoulliB,BesselI,BesselJ,BesselK,BesselY,Beta,Binomial,Blank,%
4491 BlankNullSequence,BlankSequence,Block,Boxed,BoxRatios,Break,Byte,%
4492 ByteCount,Cancel,Cases,Catch,Ceiling,CForm,Character,Characters,%
4493 ChebyshevT,ChebyshevU,Check,Chop,Clear,ClearAll,ClearAttributes,%
4494 ClipFill,Close,Coefficient,CoefficientList,Collect,ColumnForm,%
4495 Complement,Complex,CompoundExpression,Condition,Conjugate,%
4496 Constants,Context,Continuation,Continue,ContourGraphics,%
4497 ContourPlot,Cos,Cosh,Cot,Coth,Count,Csc,Csch,Cubics,Cyclotomic,%
4498 D,Dashing,Decompose,Decrement,Default,Definition,Denominator,%
4499 DensityGraphics,DensityPlot,Depth,Derivative,Det,DiagonalMatrix,%
4500 DigitBlock,Dimensions,DirectedInfinity,Display,DisplayFunction,%
4501 Distribute,Divide,DivideBy,Divisors,DivisorSigma,Do,Dot,Drop,Dt,%
4502 Dump,EdgeForm,Eigensystem,Eigenvalues,Eigenvectors,Eliminate,%
4503 EllipticE,EllipticExp,EllipticF,EllipticK,EllipticLog,EllipticPi,%
4504 EllipticTheta,End,EndPackage,EngineeringForm,Environment,Equal,%
4505 Erf,EulerE,EulerPhi,EvenQ,Exit,Exp,Expand,ExpandAll,%
4506 ExpandDenominator,ExpandNumerator,ExpIntegralE,ExpIntegralEi,%
4507 Exponent,Expression,ExtendedGCD,FaceForm,Factor,FactorComplete,%
4508 Factorial,Factorial2,FactorInteger,FactorList,FactorSquareFree,%
4509 FactorSquareFreeList,FactorTerms,FactorTermsList,FindMinimum,%
4510 FindRoot,First,Fit,FixedPoint,Flatten,Floor,FontForm,For,Format,%
4511 FormatType,FortranForm,Fourier,FreeQ,FullDefinition,FullForm,%
4512 Function,Gamma,GCD,GegenbauerC,General,Get,Goto,Graphics,%
4513 Graphics3D,GrayLevel,Greater,GreaterEqual,Head,HermiteH,%
4514 HiddenSurface,Hold,HoldForm,Hypergeometric0F1,Hypergeometric1F1,%
4515 Hypergeometric2F1,HypergeometricU,Identity,IdentityMatrix,If,Im,%
4516 Implies,In,Increment,Indent,Infix,Information,Inner,Input,%
4517 InputForm,InputString,Insert,Integer,IntegerQ,Integrate,%
4518 Intersection,Inverse,InverseFourier,InverseJacobiSN,%

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4519 InverseSeries, JacobiAmplitude, JacobiP, JacobiSN, JacobiSymbol, Join, %
4520 Label, LaguerreL, Last, LatticeReduce, LCM, LeafCount, LegendreP, %
4521 LegendreQ, LegendreType, Length, LerchPhi, Less, LessEqual, Level, %
4522 Lighting, LightSources, Limit, Line, LinearSolve, LineBreak, List, %
4523 ListContourPlot, ListDensityPlot, ListPlot, ListPlot3D, Literal, Log, %
4524 LogicalExpand, LogIntegral, MainSolve, Map, MapAll, MapAt, MatchQ, %
4525 MatrixForm, MatrixQ, Max, MaxBend, MaxMemoryUsed, MemberQ, %
4526 MemoryConstrained, MemoryInUse, Mesh, Message, MessageName, Messages, %
4527 Min, Minors, Minus, Mod, Modulus, MoebiusMu, Multinomial, N, NameQ, Names, %
4528 NBernoulliB, Needs, Negative, Nest, NestList, NIntegrate, %
4529 NonCommutativeMultiply, NonConstants, NonNegative, Normal, Not, %
4530 NProduct, NSum, NullSpace, Number, NumberForm, NumberPoint, NumberQ, %
4531 NumberSeparator, Numerator, O, OddQ, Off, On, OpenAppend, OpenRead, %
4532 OpenTemporary, OpenWrite, Operate, Optional, Options, Or, Order, %
4533 OrderedQ, Out, Outer, OutputForm, PageHeight, PageWidth, %
4534 ParametricPlot, ParametricPlot3D, Part, Partition, PartitionsP, %
4535 PartitionsQ, Pattern, Permutations, Plot, Plot3D, PlotDivision, %
4536 PlotJoined, PlotLabel, PlotPoints, PlotRange, PlotStyle, Pochhammer, %
4537 Plus, Point, PointSize, PolyGamma, Polygon, PolyLog, PolynomialQ, %
4538 PolynomialQuotient, PolynomialRemainder, Position, Positive, Postfix, %
4539 Power, PowerMod, PrecedenceForm, Precision, PreDecrement, Prefix, %
4540 PreIncrement, Prepend, PrependTo, Prime, PrimeQ, Print, PrintForm, %
4541 Product, Protect, PseudoInverse, Put, PutAppend, Quartics, Quit, %
4542 Quotient, Random, Range, Rational, Rationalize, Raw, Re, Read, ReadList, %
4543 Real, Rectangle, Reduce, Remove, RenderAll, Repeated, RepeatedNull, %
4544 Replace, ReplaceAll, ReplaceRepeated, Rest, Resultant, Return, Reverse, %
4545 RGBColor, Roots, RotateLeft, RotateRight, Round, RowReduce, Rule, %
4546 RuleDelayed, Run, RunThrough, SameQ, Save, Scaled, Scan, ScientificForm, %
4547 Sec, Sech, SeedRandom, Select, Sequence, SequenceForm, Series, %
4548 SeriesData, Set, SetAttributes, SetDelayed, SetOptions, Shading, Share, %
4549 Short, Show, Sign, Signature, Simplify, Sin, SingularValues, Sinh, %
4550 Skeleton, Slot, SlotSequence, Solve, SolveAlways, Sort, %
4551 SphericalHarmonicY, Splice, Sqrt, StirlingS1, StirlingS2, String, %
4552 StringBreak, StringForm, StringJoin, StringLength, StringMatchQ, %
4553 StringSkeleton, Subscript, Subscripted, Subtract, SubtractForm, Sum, %
4554 Superscript, SurfaceGraphics, Switch, Symbol, Table, TableForm, TagSet, %
4555 TagSetDelayed, TagUnset, Take, Tan, Tanh, ToString, TensorRank, TeXForm, %
4556 Text, TextForm, Thickness, Thread, Through, Throw, Ticks, %
4557 TimeConstrained, Times, TimesBy, Timing, ToExpression, Together, %
4558 ToRules, ToString, TotalHeight, TotalWidth, Transpose, TreeForm, TrueQ, %
4559 Unequal, Union, Unique, Unprotect, Unset, Update, UpSet, UpSetDelayed, %
4560 ValueQ, Variables, VectorQ, ViewPoint, WeierstrassP, %
4561 WeierstrassPPrime, Which, While, WorkingPrecision, Write, WriteString, %
4562 Xor, ZeroTest, Zeta, %
4563 morendkeywords={All, Automatic, Catalan, ComplexInfinity, Constant, %
4564 Degree, E, EndOfFile, EulerGamma, False, Flat, GoldenRatio, HoldAll, %
4565 HoldFirst, HoldRest, I, Indeterminate, Infinity, Listable, Locked, %
4566 Modular, None, Null, OneIdentity, Orderless, Pi, Protected, %
4567 ReadProtected, True, \$CommandLine, \$Context, \$ContextPath, \$Display, %
4568 \$DisplayFunction, \$Echo, \$Epilog, \$IgnoreEOF, \$Line, \$Messages, %

```

4569     $Output,$Path,$Post,$Pre,$PrePrint,$RecursionLimit,$System,%
4570     $Urgent,$Version},%
4571     sensitive,%
4572     morecomment=[s]{(*){(*)}},%
4573     morestring=[d]"%
4574   }[keywords,comments,strings]%
4575 </lang1>

```

2.44 Mercury

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

```

4576 <*lang2>
4577 %%
4578 %% Mercury definition (c) 1997 Dominique de Waleffe
4579 %% Extended (c) 2001 Ralph Becket
4580 %%
4581 \lst@definelanguage{Mercury}%
4582 {otherkeywords={: :,->,->,->,->,:- ,==,=>,<=,<=>},%
4583   morekeywords={module,include_module,import_module,interface,%
4584     end_module,implementation,mode,is,failure,semidet,nondet,det,%
4585     multi,erroneous,inst,in,out,di,uo,ui,type,typeclass,instance,%
4586     where,with_type,pred,func,lambda,impure,semipure,if,then,else,%
4587     some,all,not,true,fail,pragma,memo,no_inline,inline,loop_check,%
4588     minimal_model,fact_table,type_spec,terminates,does_not_terminate,%
4589     check_termination,promise_only_solution,unsafe_promise_unique,%
4590     source_file,obsolete,import,export,c_header_code,c_code,%
4591     foreign_code,foreign_proc,may_call_mercury,will_not_call_mercury,%
4592     thread_safe,not_thread_safe},%
4593   sensitive=t,%
4594   morecomment=[l]\%,%
4595   morecomment=[s]{/*}{*/},%
4596   morestring=[bd]" ,%
4597   morestring=[bd]'%
4598 }[keywords,comments,strings]%
4599 </lang2>

```

2.45 MetaPost

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

```

4600 <*lang3>
4601 %%
4602 %% MetaPost definition (c) 2004 Brooks Moses
4603 %%   This definition is based on the language specifications
4604 %%   contained in the _User's Manual for Metapost_, with the core
4605 %%   language enhancements that are described in the _Drawing

```

```

4606 %%   Graphs with MetaPost_ documentation.
4607 %%
4608 \lst@definelanguage{MetaPost}%
4609 {% keywords[1] = MetaPost primitives (not found in following tables)
4610 morekeywords={end,begingroup,endgroup,beginfig,endfig,def,vardef,%
4611 primary,secondary,tertiary,primarydef,secondarydef,tertiarydef,%
4612 expr,suffix,text,undef,if,fi,else,elseif,for,forsuffixes,%
4613 forever,endfor,upto,downto,stop,until,tension,controls,on,off,%
4614 btex,etex,within,input},
4615 % keywords[2] = Operators (Tables 6-9 in MetaPost User's manual)
4616 morekeywords=[2]{abs,and,angle,arclength,arctime,ASCII,bbox,bluepart,%
4617 boolean,bot,ceiling,center,char,color,cosd,cutafter,cutbefore,%
4618 cycle,decimal,dir,direction,directionpoint,directiontime,div,%
4619 dotprod,floor,fontsize,greenpart,hex,infont,intersectionpoint,%
4620 intersectiontimes,inverse,known,length,lft,llcorner,lrcorner,%
4621 makepath,makepen,mexp,mlog,mod,normaldeviate,not,numeric,oct,%
4622 odd,or,pair,path,pen,penoffset,picture,point,postcontrol,%
4623 precontrol,redpart,reverse,rotated,round,rt,scaled,shifted,%
4624 sind,slanted,sqrt,str,string,subpath,substring,top,transform,%
4625 transformed,ulcorner,uniformdeviate,unitvector,unknown,%
4626 urcorner,whatever,xpart,xscaled,xypart,xypart,ypart,yscaled,%
4627 yxpart,ypart,zscaled,of,reflectedabout,rotatedaround,ulft,urt,%
4628 llft,lrt,readfrom,write,stroked,filled,textual,clipped,bounded,%
4629 pathpart,penpart,dashpart,textpart,fontpart},%
4630 % keywords[3] = Commands (Table 10)
4631 morekeywords=[3]{addto,clip,cutdraw,draw,drawarrow,drawdblarrow,%
4632 fill,filldraw,interim,let,loggingall,newinternal,pickup,%
4633 save,setbounds,shipout,show,showdependencies,showtoken,%
4634 showvariable,special,tracingall,tracingnone,undraw,unfill,%
4635 unfilldraw,to,also,contour,doublepath,withcolor,withpen,%
4636 dashed,randomseed},%
4637 % keywords[4] = Function-Like Macros (Table 11)
4638 morekeywords=[4]{boxit,boxjoin,bpath,buildcycle,circleit,dashpattern,%
4639 decr,dotlabel,dotlabels,drawboxed,drawboxes,drawoptions,%
4640 drawunboxed,fixpos,fixsize,incr,interpath,label,labels,max,min,pic,%
4641 thelabel,z,image},%
4642 % keywords[5] = Internal and Predefined Variables (Tables 3, 4)
4643 morekeywords=[5]{ahangle,ahlength,bboxmargin,charcode,ircmargin,%
4644 day,defaultdx,defaultdy,defaultpen,defaultscale,labeloffset,%
4645 linecap,linejoin,miterlimit,month,pausing,prologues,showstopping,%
4646 time,tracingcapsules,tracingchoices,tracingcommands,%
4647 tracingequations,tracinglostchars,tracingmacros,tracingonline,%
4648 tracingoutput,tracingrestores,tracingspecs,tracingstats,%
4649 tracingtitles,truecorners,warningcheck,year},
4650 morekeywords=[5]{background,currentpen,currentpicture,cuttings,%
4651 defaultfont},%
4652 % keywords[6] = Predefined Constants (Table 5)
4653 morekeywords=[6]{beveled,black,blue,bp,butt,cc,cm,dd,ditto,down,%
4654 epsilon,evenly,false,fullcircle,green,halfcircle,identity,%
4655 in,infinity,left,mitered,mm,nullpicture,origin,pc,pencircle,%

```

```

4656     pt,quartercircle,red,right,rounded,squared,true,unitsquare,%
4657     up,white,withdots},
4658     sensitive=false,%
4659     alsoother={0123456789$},%
4660     morecomment=[l]\%,%
4661     morestring=[mf]{input\ },%
4662     morestring=[b]"%
4663   }[keywords,comments,strings,mf]%
4664 </lang3>

```

2.46 Miranda

Thanks to Peter Bartke for providing the definition.

```

4665 (*lang2)

4666 %%
4667 %% Miranda definition (c) 1998 Peter Bartke
4668 %%
4669 %% Miranda: pure lazy functional language with polymorphic type system,
4670 %%           garbage collection and functions as first class citizens
4671 %%
4672 \lst@definelanguage{Miranda}%
4673   {morekeywords={abstype,div,if,mod,otherwise,readvals,show,type,where,%
4674     with,bool,char,num,sys_message,False,True,Appendfile,Closefile,%
4675     Exit,Stderr,Stdout,System,Tofile,\%include,\%export,\%free,%
4676     \%insert,abs,and,arctan,cjustify,code,concat,const,converse,cos,%
4677     decode,digit,drop,dropwhile,entier,error,exp,filemode,filter,%
4678     foldl,foldl1,foldr,foldr1,force,fst,getenv,hd,hugenum,id,index,%
4679     init,integer,iterate,last,lay,layn,letter,limit,lines,ljustify,%
4680     log,log10,map,map2,max,max2,member,merge,min,min2,mkset,neg,%
4681     numval,or,pi,postfix,product,read,rep,repeat,reverse,rjustify,%
4682     scan,seq,showfloat,shownum,showscaled,sin,snd,sort,spaces,sqrt,%
4683     subtract,sum,system,take,takewhile,tinyum,tl,transpose,undef,%
4684     until,zip2,zip3,zip4,zip5,zip6,zip},%
4685     sensitive,%
4686     morecomment=[l]||,%
4687     morestring=[b]"%
4688   }[keywords,comments,strings]%
4689 </lang2>

```

2.47 Mizar

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

```

4690 (*lang3)

4691 %%
4692 %% Mizar definition (c) 2003 Adam Grabowski
4693 %%
4694 %% Mizar is freely available at URL www.mizar.org for the Linux x86,

```

```

4695 %% Solaris x86, and Windows operating systems.
4696 %%
4697 \lst@definelanguage{Mizar}%
4698   {otherkeywords={->,( \#, \#), . =), \&},%
4699   morekeywords={vocabulary, constructors, $1, $1, $2, $3, $4, $5, $6, $7, $8,%
4700     @proof, according, aggregate, and, antonym, as, associativity, assume,%
4701     asymmetry, attr, be, begin, being, by, canceled, case, cases, cluster,%
4702     clusters, coherence, commutativity, compatibility, connectedness,%
4703     consider, consistency, constructors, contradiction, correctness, def,%
4704     deffunc, define, definition, definitions, defpred, end, environ, equals,%
4705     ex, exactly, existence, for, from, func, given, hence, hereby, holds,%
4706     idempotence, if, iff, implies, involutiveness, irreflexivity, is, it,%
4707     let, means, mode, non, not, notation, now, of, or, otherwise, over, per,%
4708     pred, prefix, projectivity, proof, provided, qua, reconsider, redefine,%
4709     reflexivity, requirements, reserve, scheme, schemes, section, selector,%
4710     set, st, struct, such, suppose, symmetry, synonym, take, that, the, then,%
4711     theorem, theorems, thesis, thus, to, transitivity, uniqueness,%
4712     vocabulary, where},%
4713   sensitive=t,%
4714   morecomment=[l]::%
4715 }[keywords, comments]%
4716 </lang3>

```

2.48 ML

Thanks to Torben Hoffmann for providing the definition.

```

4717 <*lang2>
4718 %%
4719 %% ML definition (c) 1999 Torben Hoffmann
4720 %%
4721 \lst@definelanguage{ML}%
4722   {morekeywords={abstype, and, andalso, as, case, do, datatype, else, end,%
4723     eqtype, exception, fn, fun, functor, handle, if, in, include, infix,%
4724     infixr, let, local, nonfix, of, op, open, orelse, raise, rec, sharing, sig,%
4725     signature, struct, structure, then, type, val, with, withtype, while},%
4726   sensitive,%
4727   morecomment=[n]{(*){(*)}},%
4728   morestring=[d]"%
4729 }[keywords, comments, strings]%
4730 </lang2>

```

2.49 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.

```

4731 (*lang3)
4732 \lst@definelanguage{Modula-2}%
4733   {morekeywords={AND,ARRAY,BEGIN,BY,CASE,CONST,DIV,DO,ELSE,ELSIF,END,%
4734     EXIT,EXPORT,FOR,FROM,IF,IMPLEMENTATION,IMPORT,IN,MOD,MODULE,NOT,%
4735     OF,OR,POINTER,PROCEDURE,QUALIFIED,RECORD,REPEAT,RETURN,SET,THEN,%
4736     TYPE,UNTIL,VAR,WHILE,WITH,ABS,BITSET,BOOLEAN,CAP,CARDINAL,CHAR,%
4737     CHR,DEC,EXCL,FALSE,FLOAT,HALT,HIGH,INC,INCL,INTEGER,LONGCARD,%
4738     LONGINT,LONGREAL,MAX,MIN,NIL,ODD,ORD,PROC,REAL,SIZE,TRUE,TRUNC,%
4739     VAL,DEFINITION,LOOP},% added keywords due to Peter Bartke 99/07/22
4740   sensitive,%
4741   morecomment=[n]{(*){(*)},%
4742   morestring=[d]',%
4743   morestring=[d]"%
4744   }[keywords,comments,strings]%
4745 </lang3>

```

2.50 MuPAD

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

```

4746 (*lang3)
4747 \lst@definelanguage{MuPAD}{%
4748   morekeywords={end,next,break,if,then,elif,else,end_if,case,end_case,%
4749     otherwise,for,from,to,step,downto,in,end_for,while,end_while,%
4750     repeat,until,end_repeat,or,and,not,xor,div,mod,union,minus,%
4751     intersect,subset,proc,begin,end_proc,domain,end_domain,category,%
4752     end_category,axiom,end_axiom,quit,delete,frame},%
4753   morekeywords=[2]{NIL,FAIL,TRUE,FALSE,UNKNOWN,I,RD_INF,RD_NINF,%
4754     RD_NAN,name,local,option,save,inherits,of,do},%
4755   otherkeywords={\%if,?,!,:,<,>,<=>,>=>,<=>,:,:,...,>,%
4756     @,@@,\$},%
4757   sensitive=true,%
4758   morecomment=[1]{//},%
4759   morecomment=[n]{/*}{*/},%
4760   morestring=[b]" ,%
4761   morestring=[d]{'}%
4762   }[keywords,comments,strings]
4763 </lang3>

```

2.51 NASTRAN

```

4764 (*lang3)

```

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

```

4765 \lst@definelanguage{NASTRAN}
4766   {morekeywords={ENDDATA},%
4767   morecomment=[1]$,%

```

```

4768 MoreSelectCharTable=%
4769 \lst@CArgX BEGIN\ BULK\relax\lst@CDef{}%
4770 {\lst@ifmode\else \ifnum\lst@length=\z@
4771 \lst@EnterMode{\lst@GPmode}{\lst@modetrue
4772 \let\lst@currstyle\lst@gkeywords@sty}%
4773 \fi \fi}%
4774 {\ifnum\lst@mode=\lst@GPmode
4775 \lst@XPrintToken \lst@LeaveMode
4776 \fi}%
4777 }[keywords,comments]%
4778 </lang3>

```

2.52 Oberon-2

```

4779 <*lang3>
4780 \lst@definelanguage{Oberon-2}%
4781 {morekeywords={ARRAY,BEGIN,BOOLEAN,BY,CASE,CHAR,CONST,DIV,DO,ELSE,%
4782 ELSIF,END,EXIT,FALSE,FOR,IF,IMPORT,IN,INTEGER,IS,LONGINT,%
4783 LONGREAL,LOOP,MOD,MODULE,NIL,OF,OR,POINTER,PROCEDURE,REAL,RECORD,%
4784 REPEAT,RETURN,SET,SHORTINT,THEN,TO,TRUE,TYPE,UNTIL,VAR,WHILE,%
4785 WITH,ABS,ASH,CAP,CHR,COPY,DEC,ENTIER,EXCL,HALT,INC,INCL,LEN,LONG,%
4786 MAX,MIN,NEW,ODD,ORD,SHORT,SIZE},%
4787 sensitive,%
4788 morecomment=[n]{(*)-*},%
4789 morestring=[d]',%
4790 morestring=[d]"%
4791 }[keywords,comments,strings]%
4792 </lang3>

```

2.53 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.

```

4793 <*lang3>
4794 %%
4795 %% OCL definition (c) 2000 Achim D. Brucker
4796 %%
4797 %% You are allowed to use, modify and distribute this code either under
4798 %% the terms of the LPPL (version 1.0 or later) or the GPL (version 2.0
4799 %% or later).
4800 %%

```

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).

```

4801 \lst@defineline[decorative]{OCL}[OMG]{OCL}
4802   {otherkeywords={@pre},%
4803   morendkeywords={name,attributes,associatoinEnds,operations,%
4804     supertypes,allSupertypes,allInstances,oclIsKindOf,oclIsTypeOf,%
4805     oclAsType,oclInState,oclIsNew,evaluationType,abs,floor,round,max,%
4806     min,div,mod,size,concat,toUpper,toLower,substring,includes,%
4807     excludes,count,includesAll,excludesAll,isEmpty,notEmpty,sum,%
4808     exists,forAll,isUnique,sortedBy,iterate,union,intersection,%
4809     including,excluding,symmetricDifference,select,reject,collect,%
4810     asSequence,asBag,asSequence,asSet,append,prepend,subSequence,at,%
4811     first,last,true,false,isQuery}%
4812   }%

```

Remark: "isQuery" is not real OCL, but a 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):

```

4813 \lst@defineline[OMG]{OCL}%
4814   {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):

```

4815   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:

```

4816   morekeywords=[3]{Boolean,Integer,Real,String,Set,Sequence,Bag,%
4817     OclType,OclAny,OclExpression,Enumeration,Collection,},%
4818   sensitive=t,%
4819   morecomment=[1]--,%
4820   morestring=[d]'%
4821   }[keywords,comments,strings]%

```

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

```

4822 </lang3>

```

2.54 Octave

```

4823 (*lang1)

```

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

```

4824 %%
4825 %% Octave definition (c) 2001,2002 Ulrich G. Wortmann
4826 %%
4827 \lst@defineline{Octave}%
4828   {morekeywords={gt,lt,amp,abs,acos,acosh,acot,acoth,acsc,acsch,%

```

```

4829 all, angle, ans, any, asec, asech, asin, asinh, atan, atan2, atanh, aread, %
4830 auwrite, axes, axis, balance, bar, bessell, bessellk, bessely, beta, %
4831 betainc, betaln, blanks, bone, break, brighten, capture, cart2pol, %
4832 cart2sph, caxis, cd, cdf2rdf, cedit, ceil, chol, cla, clabel, clc, clear, %
4833 clf, clock, close, colmmd, Colon, colorbar, colormap, ColorSpec, colperm, %
4834 comet, comet3, compan, compass, computer, cond, condest, conj, contour, %
4835 contour3, contourc, contrast, conv, conv2, cool, copper, corrcoef, cos, %
4836 cosh, cot, coth, cov, cplxpair, cputime, cross, csc, csch, csvread, %
4837 csvwrite, cumprod, cumsum, cylinder, date, dbclear, dbcont, dbdown, %
4838 dbquit, dbstack, dbstatus, dbstep, dbstop, dbtype, dbup, ddeadv, ddeexec, %
4839 ddeinit, ddepoke, ddereq, ddeterm, ddeunadv, deblank, dec2hex, deconv, %
4840 del2, delete, demo, det, diag, diary, diff, diffuse, dir, disp, dlmread, %
4841 dlmwrite, dmperm, dot, drawnow, echo, eig, ellipj, ellipke, else, elseif, %
4842 end, engClose, engEvalString, engGetFull, engGetMatrix, engOpen, %
4843 engOutputBuffer, engPutFull, engPutMatrix, engSetEvalCallback, %
4844 engSetEvalTimeout, engWinInit, eps, erf, erfc, erfcx, erfinv, %
4845 errorbar, etime, etree, eval, exist, exp, expint, expm, expo, eye, fclose, %
4846 feather, feof, ferror, feval, fft, fft2, fftshift, fgetl, fgets, figure, %
4847 fill, fill3, filter, filter2, find, findstr, finite, fix, flag, fliplr, %
4848 flipud, floor, flops, fmin, fmins, fopen, for, format, fplot, fprintf, %
4849 fread, frewind, fscanf, fseek, ftell, full, function, fumm, fwrite, fzero, %
4850 gallery, gamma, gammainc, gammaln, gca, gcd, gcf, gco, get, getenv, %
4851 getframe, ginput, global, gplot, gradient, gray, graymon, grid, griddata, %
4852 gtext, hadamard, hankel, help, hess, hex2dec, hex2num, hidden, hilb, hist, %
4853 hold, home, hostid, hot, hsv, hsv2rgb, if, ifft, ifft2, imag, image, %
4854 imagesc, Inf, info, input, int2str, interp1, interp2, interpft, inv, %
4855 invhilb, isempty, isglobal, ishold, isieee, isinf, isletter, isnan, %
4856 isreal, isspace, issparse, isstr, jet, keyboard, kron, lasterr, lcm, %
4857 legend, legendre, length, lin2mu, line, linspace, load, log, log10, log2, %
4858 loglog, logm, logspace, lookfor, lower, ls, lscov, lu, magic, matClose, %
4859 matDeleteMatrix, matGetDir, matGetFp, matGetFull, matGetMatrix, %
4860 matGetNextMatrix, matGetString, matlabrc, matlabroot, matOpen, %
4861 matPutFull, matPutMatrix, matPutString, max, mean, median, menu, mesh, %
4862 meshc, meshgrid, meshz, mexAtExit, mexCallMATLAB, mexdebug, %
4863 mexErrMsgTxt, mexEvalString, mexFunction, mexGetFull, mexGetMatrix, %
4864 mexGetMatrixPtr, mexPrintf, mexPutFull, mexPutMatrix, mexSetTrapFlag, %
4865 min, more, movie, moviein, mu2lin, mxMalloc, mxCopyCharacterToPtr, %
4866 mxCopyComplex16ToPtr, mxCopyInteger4ToPtr, mxCopyPtrToCharacter, %
4867 mxCopyPtrToComplex16, mxCopyPtrToInteger4, mxCopyPtrToReal8, %
4868 mxCopyReal8ToPtr, mxCreateFull, mxCreateSparse, mxCreateString, %
4869 mxFree, mxFreeMatrix, mxGetIr, mxGetJc, mxGetM, mxGetN, mxGetName, %
4870 mxGetNzmax, mxGetPi, mxGetPr, mxGetScalar, mxGetString, mxIsComplex, %
4871 mxIsFull, mxIsNumeric, mxIsSparse, mxIsString, mxIsTypeDouble, %
4872 mxSetIr, mxSetJc, mxSetM, mxSetN, mxSetName, mxSetNzmax, mxSetPi, %
4873 mxSetPr, NaN, nargchk, nargin, nargout, newplot, nextpow2, nnls, nnz, %
4874 nonzeros, norm, normest, null, num2str, nzmax, ode23, ode45, orient, orth, %
4875 pack, pascal, patch, path, pause, pcolor, pi, pink, pinv, plot, plot3, %
4876 pol2cart, polar, poly, polyder, polyeig, polyfit, polyval, polyvalm, %
4877 pow2, print, printopt, prism, prod, pwd, qr, qrdelete, qrinsert, quad, %
4878 quad8, quit, quiver, qz, rand, randn, randperm, rank, rat, rats, rbbox, %

```

```

4879   rcond,real,realmax,realmin,refresh,rem,reset,reshape,residue,%
4880   return,rgb2hsv,rgbplot,rootobject,roots,rose,rosser,rot90,rotate,%
4881   round,rref,rrefmovie,rsf2csf,save,saxis,schur,sec,sech,semilogx,%
4882   semilogy,set,setstr,shading,sign,sin,sinh,size,slice,sort,sound,%
4883   spalloc,sparse,spaugment,spconvert,spdiags,specular,speye,spfun,%
4884   sph2cart,sphere,spinmap,spline,spones,spparms,sprandn,sprandsym,%
4885   sprank,sprintf,spy,sqrt,sqrtm,sscanf,stairs,startup,std,stem,%
4886   str2mat,str2num,strcmp,strings,strrep,strtok,subplot,subscribe,%
4887   subspace,sum,surf,surface,surfc,surfl,surfnorm,svd,symbfact,%
4888   symmmd,symrcm,tan,tanh,tempdir,tempname,terminal,text,tic,title,%
4889   toc,toeplitz,trace,trapz,tril,triu,type,uicontrol,uigetfile,%
4890   uimenu,uiputfile,unix,unwrap,upper,vander,ver,version,view,%
4891   viewmtx,waitforbuttonpress,waterfall,wavread,wavwrite,what,%
4892   whatsnew,which,while,white,whitebg,who,whos,wilkinson,wk1read,%
4893   stderr,stdout,plot,set,endif,wk1write,xlabel,xor,ylabel,zeros,%
4894   xlabel,zoom,endwhile,endifunction,printf,case,switch,otherwise,%
4895   system,lsode,endfor,error,ones,oneplot,__gnuplot_set__,do,until},%
4896   sensitive=t,%
4897   morecomment=[1]\#,%
4898   morecomment=[1]\#\#,%
4899   morecomment=[1]\%,%
4900   morestring=[m] ',%
4901   morestring=[m] "%
4902   }[keywords,comments,strings]%
4903 </lang1>

```

2.55 Oz

```

4904 <*lang2>
Thanks to Andres Becerra Sandoval for providing this language definition.
4905 %%
4906 %% Oz definition (c) Andres Becerra Sandoval
4907 %%
4908 \lst@definelanguage{Oz}%
4909   {morekeywords={andthen,at,attr,case,catch,choice,class,%
4910     cond,declare,define,dis,div,else,elsecase,%
4911     elseif,end,export,fail,false,feat,finally,%
4912     from,fun,functor,if,import,in,local,%
4913     lock,meth,mod,not,of,or,orelse,%
4914     prepare,proc,prop,raise,require,self,skip,%
4915     then,thread,true,try,unit},%
4916   sensitive=true,%
4917   morecomment=[1]{\%},%
4918   morecomment=[s]{/*}{*/},%
4919   morestring=[b]" ,%
4920   morestring=[d]' %
4921   }[keywords,comments,strings]%
4922 </lang2>

```

2.56 Pascal

4923 (*lang1)

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

```
4924 \lst@definelanguage[XSC]{Pascal}[Standard]{Pascal}
4925   {deletekeywords={alfa,byte,pack,unpack},% 1998 Andreas Stephan
4926     morekeywords={dynamic,external,forward,global,module,nil,operator,%
4927       priority,sum,type,use,dispose,mark,page,release,cimatrix,%
4928       cinterval,civector,cmatrix,complex,cvector,dotprecision,imatrix,%
4929       interval,ivector,rmatrix,rvector,string,im,inf,re,sup,chr,comp,%
4930       eof,eoln,expo,image,ival,lb,lbound,length,loc,mant,maxlength,odd,%
4931       ord,pos,pred,round,rval,sign,substring,succ,trunc,ub,ubound}%
4932   }%
4933 \lst@definelanguage[Borland6]{Pascal}[Standard]{Pascal}
4934   {morekeywords={asm,constructor,destructor,implementation,inline,%
4935     interface,nil,object,shl,shr,string,unit,uses,xor},%
4936     morekeywords={Abs,Addr,ArcTan,Chr,Concat,Copy,Cos,CSeg,DiskFree,%
4937       DiskSize,DosExitCode,DosVersion,DSeg,EnvCount,EnvStr,Eof,Eoln,%
4938       Exp,FExpand,FilePos,FileSize,Frac,FSearch,GetBkColor,GetColor,%
4939       GetDefaultPalette,GetDriverName,GetEnv,GetGraphMode,GetMaxMode,%
4940       GetMaxX,GetMaxY,GetModeName,GetPaletteSize,GetPixel,GetX,GetY,%
4941       GraphErrorMsg,GraphResult,Hi,ImageSize,InstallUserDriver,%
4942       InstallUserFont,Int,IOResult,KeyPressed,Length,Lo,MaxAvail,%
4943       MemAvail,MsDos,Odd,Ofs,Ord,OvrGetBuf,OvrGetRetry,ParamCount,%
4944       ParamStr,Pi,Pos,Pred,Ptr,Random,ReadKey,Round,SeekEof,SeekEoln,%
4945       Seg,SetAspectRatio,Sin,SizeOf,Sound,SPtr,Sqr,Sqrt,SSeg,Succ,%
4946       Swap,TextHeight,TextWidth,Trunc,TypeOf,UpCase,WhereX,WhereY,%
4947       Append,Arc,Assign,AssignCrt,Bar,Bar3D,BlockRead,BlockWrite,ChDir,%
4948       Circle,ClearDevice,ClearViewPort,Close,CloseGraph,ClrEol,ClrScr,%
4949       Dec,Delay>Delete,DelLine,DetectGraph,Dispose,DrawPoly,Ellipse,%
4950       Erase,Exec,Exit,FillChar,FillEllipse,FillPoly,FindFirst,FindNext,%
4951       FloodFill,Flush,FreeMem,FSplit,GetArcCoords,GetAspectRatio,%
4952       GetDate,GetDefaultPalette,GetDir,GetCBreak,GetFAttr,%
4953       GetFillSettings,GetFTime,GetImage,GetIntVec,GetLineSettings,%
4954       GetMem,GetPalette,GetTextSettings,GetTime,GetVerify,%
4955       GetViewSettings,GoToXY,Halt,HighVideo,Inc,InitGraph,Insert,%
4956       InsLine,Intr,Keep,Line,LineRel,LineTo,LowVideo,Mark,MkDir,Move,%
4957       MoveRel,MoveTo,MsDos,New,NormVideo,NoSound,OutText,OutTextXY,%
4958       OvrClearBuf,OvrInit,OvrInitEMS,OvrSetBuf,PackTime,PieSlice,%
4959       PutImage,PutPixel,Randomize,Rectangle,Release,Rename,%
4960       RestoreCrtMode,RmDir,RunError,Sector,Seek,SetActivePage,%
4961       SetAllPalette,SetBkColor,SetCBreak,SetColor,SetDate,SetFAttr,%
4962       SetFillPattern,SetFillStyle,SetFTime,SetGraphBufSize,%
4963       SetGraphMode,SetIntVec,SetLineStyle,SetPalette,SetRGBPalette,%
4964       SetTextBuf,SetTextJustify,SetTextStyle,SetTime,SetUserCharSize,%
4965       SetVerify,SetViewPort,SetVisualPage,SetWriteMode,Sound,Str,%
4966       SwapVectors,TextBackground,TextColor,TextMode,Truncate,%
4967       UnpackTime,Val,Window}%
4968   }%
4969 \lst@definelanguage[Standard]{Pascal}%
```

```

4970 {morekeywords={alfa,and,array,begin,boolean,byte,case,char,const,div,%
4971     do,downto,else,end,false,file,for,function,get,goto,if,in,%
4972     integer,label,maxint,mod,new,not,of,or,pack,packed,page,program,%
4973     put,procedure,read,readln,real,record,repeat,reset,rewrite,set,%
4974     text,then,to,true,type,unpack,until,var,while,with,write,%
4975     writeln},%
4976     sensitive=f,%
4977     morecomment=[s]{(*){(*)}},%
4978     morecomment=[s]{\}{\}},%
4979     morestring=[d]}'%
4980 }[keywords,comments,strings]%
4981 </lang1>

```

2.57 Perl

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

```

4982 (*lang1)
4983 \lst@definelanguage{Perl}%
4984 {morekeywords={abs,accept,alarm,atan2,bind,binmode,bless,caller,%
4985     chdir,chmod,chomp,chop,chosen,chr,chroot,close,closedir,connect,%
4986     continue,cos,crypt,dbmclose,defined,delete,die,do,dump,%
4987     each,else,elsif,endgrent,endhostent,endnetent,endprotoent,%
4988     endpwent,endservent,eof,eval,exec,exists,exit,exp,fcntl,fileno,%
4989     flock,for,foreach,fork,format,formline,getc,getgrent,getgrgid,%
4990     getgrnam,gethostbyaddr,gethostbyname,gethostent,getlogin,%
4991     getnetbyaddr,getnetbyname,getnetent,getpeername,getpgrp,%
4992     getppid,getpriority,getprotobyname,getprotobynumber,getprotoent,%
4993     getpwent,getpwnam,getpwuid,getservbyname,getservbyport,%
4994     getservent,getsockname,getsockopt,glob,gmtime,goto,grep,hex,if,%
4995     import,index,int,iocntl,join,keys,kill,last,lc,lcfirst,length,%
4996     link,listen,local,localtime,log,lstat,m,map,mkdir,msgctl,msgget,%
4997     msgrcv,msgsnd,my,next,no,oct,open,opendir,ord,pack,package,pipe,%
4998     pop,pos,print,printf,prototype,push,q,qq,quotemeta,qw,qx,rand,%
4999     read,readdir,readlink,recv,redo,ref,rename,require,reset,return,%
5000     reverse,rewinddir,rindex,rmdir,s,scalar,seek,seekdir,select,%
5001     semctl,semget,semop,send,setgrent,sethostent,setnetent,setpgrp,%
5002     setpriority,setprotoent,setpwent,setservent,setsockopt,shift,%
5003     shmctl,shmget,shmread,shmwrite,shutdown,sin,sleep,socket,%
5004     socketpair,sort,splICE,split,sprintf,sqrt,srand,stat,study,sub,%
5005     substr,symlink,syscall,sysopen,sysread,system,syswrite,tell,%
5006     telldir,tie,tied,time,times,tr,truncate,uc,ucfirst,umask,undef,%
5007     unless,unlink,unpack,unshift,untie,until,use,utime,values,vec,%
5008     wait,waitpid,wantarray,warn,while,write,y},%
5009     sensitive,%
5010     morecomment=[l]\#,%
5011     morestring=[b]" ,%
5012     morestring=[b]' ,%
5013     MoreSelectCharTable=%

```

```

5014     \lst@ReplaceInput{\$\#}{\lst@ProcessOther\$\lst@ProcessOther\#}%
5015   }[keywords,comments,strings]%
5016 /<lang1

```

2.58 PHP

Luca Balzerani sent me this language definition.

```

5017 (*lang2)
5018 %%
5019 %% PHP definition by Luca Balzerani
5020 %%
5021 \lst@definelanguage{PHP}%
5022 {morekeywords={%
5023   %--- core language
5024   <?,?>,::,break,case,continue,default,do,else,%
5025   elseif,for,foreach,if,include,require,phpinfo,%
5026   switch,while,false,FALSE,true,TRUE,%
5027   %--- apache functions
5028   apache_lookup_uri,apache_note,ascii2ebcdic,ebcdic2ascii,%
5029   virtual,apache_child_terminate,apache_setenv,%
5030   %--- array functions
5031   array,array_change_key_case,array_chunk,array_count_values,%
5032   array_filter,array_flip,array_fill,array_intersect,%
5033   array_keys,array_map,array_merge,array_merge_recursive,%
5034   array_pad,array_pop,array_push,array_rand,array_reverse,%
5035   array_shift,array_slice,array_splice,array_sum,array_unique,%
5036   array_values,array_walk,arsort,asort,compact,count,current,each,%
5037   extract,in_array,array_search,key,krsort,ksort,list,natsort,%
5038   next,pos,prev,range,reset,rsort,shuffle,sizeof,sort,uasort,%
5039   usort,%
5040   %--- aspell functions
5041   aspell_new,aspell_check,aspell_check_raw,aspell_suggest,%
5042   %--- bc functions
5043   bcadd,bccomp,bcdiv,bcmod,bcmul,bcpow,bcscale,bcsqrt,bcsub,%
5044   %--- bzip2 functions
5045   bzclose,bzcompress,bzdecompress,bzerrno,bzerror,bzerrstr,%
5046   bzopen,bzread,bzwrite,%
5047   %--- calendar functions
5048   JDToGregorian,GregorianToJD,JDToJulian,JulianToJD,JDToJewish,%
5049   JDToFrench,FrenchToJD,JDMonthName,JDDayOfWeek,easter_date,%
5050   unixtojd,jdtounix,cal_days_in_month,cal_to_jd,cal_from_jd,%
5051   %--- ccvs functions
5052   ccvs_init,ccvs_done,ccvs_new,ccvs_add,ccvs_delete,ccvs_auth,%
5053   ccvs_reverse,ccvs_sale,ccvs_void,ccvs_status,ccvs_count,%
5054   ccvs_report,ccvs_command,ccvs_textvalue,%
5055   %--- classobj functions
5056   call_user_method,call_user_method_array,class_exists,get_class,%
5057   get_class_vars,get_declared_classes,get_object_vars,%

```

```

5058     is_a,is_subclass_of,method_exists,%
5059 %--- com functions
5060     COM,VARIANT,com_load,com_invoke,com_propget,com_get,com_propput,%
5061     com_set,com_addrf,com_release,com_isenum,com_load_typelib,%
5062 %--- cpdf functions
5063     cpdf_add_annotation,cpdf_add_outline,cpdf_arc,cpdf_begin_text,%
5064     cpdf_clip,cpdf_close,cpdf_closepath,cpdf_closepath_fill_stroke,%
5065     cpdf_continue_text,cpdf_curveto,cpdf_end_text,cpdf_fill,%
5066     cpdf_finalize,cpdf_finalize_page,%
5067     cpdf_import_jpeg,cpdf_lineto,cpdf_moveto,cpdf_newpath,cpdf_open,%
5068     cpdf_page_init,cpdf_place_inline_image,cpdf_rect,cpdf_restore,%
5069     cpdf_rmoveto,cpdf_rotate,cpdf_rotate_text,cpdf_save,%
5070     cpdf_scale,cpdf_set_char_spacing,cpdf_set_creator,%
5071     cpdf_set_font,cpdf_set_horiz_scaling,cpdf_set_keywords,%
5072     cpdf_set_page_animation,cpdf_set_subject,cpdf_set_text_matrix,%
5073     cpdf_set_text_rendering,cpdf_set_text_rise,cpdf_set_title,%
5074     cpdf_setdash,cpdf_setflat,cpdf_setgray,cpdf_setgray_fill,%
5075     cpdf_setlinecap,cpdf_setlinejoin,cpdf_setlinewidth,%
5076     cpdf_setrgbcolor,cpdf_setrgbcolor_fill,cpdf_setrgbcolor_stroke,%
5077     cpdf_show_xy,cpdf_stringwidth,cpdf_set_font_directories,%
5078     cpdf_set_viewer_preferences,cpdf_stroke,cpdf_text,%
5079     cpdf_set_action_url,%
5080 %--- crack functions
5081     crack_opendict,crack_closedict,crack_check,crack_getlastmessage,%
5082 %--- ctype functions
5083     ctype_alnum,ctype_alpha,ctype_cntrl,ctype_digit,ctype_lower,%
5084     ctype_print,ctype_punct,ctype_space,ctype_upper,ctype_xdigit,%
5085 %--- curl functions
5086     curl_init,curl_setopt,curl_exec,curl_close,curl_version,%
5087     curl_error,curl_getinfo,%
5088 %--- cybercash functions
5089     cybercash_encr,cybercash_decr,cybercash_base64_encode,%
5090 %--- cybermut functions
5091     cybermut_creerformulairecm,cybermut_testmac,%
5092 %--- cyrus functions
5093     cyrus_connect,cyrus_authenticate,cyrus_bind,cyrus_unbind,%
5094     cyrus_close,%
5095 %--- datetime functions
5096     checkdate,date,getdate,gettextofday,gmtime,gmmktime,gmstrftime,%
5097     microtime,mktime,strftime,time,strtotime,%
5098 %--- dbase functions
5099     dbase_create,dbase_open,dbase_close,dbase_pack,dbase_add_record,%
5100     dbase_delete_record,dbase_get_record,%
5101     dbase_numfields,dbase_numrecords,%
5102 %--- dba functions
5103     dba_close,dba_delete,dba_exists,dba_fetch,dba_firstkey,%
5104     dba_nextkey,dba_popen,dba_open,dba_optimize,dba_replace,%
5105 %--- dbm functions
5106     dbmopen,dbmclose,dbmexists,dbmfetch,dbminsert,dbmreplace,%
5107     dbmfirstkey,dbmnextkey,dblist,%

```

```

5108 %--- dbx functions
5109     dbx_close,dbx_connect,dbx_error,dbx_query,dbx_sort,dbx_compare,%
5110 %--- dio functions
5111     dio_open,dio_read,dio_write,dio_truncate,dio_stat,dio_seek,%
5112     dio_close,%
5113 %--- dir functions
5114     chroot,chdir,dir,closedir,getcwd,opendir,readdir,rewinddir,%
5115 %--- dotnet functions
5116     dotnet_load,%
5117 %--- errorfunc functions
5118     error_log,error_reporting,restore_error_handler,%
5119     trigger_error,user_error,%
5120 %--- exec functions
5121     escapeshellarg,escapeshellcmd,exec,passthru,system,shell_exec,%
5122 %--- fbsql functions
5123     fbsql_affected_rows,fbsql_autocommit,fbsql_change_user,%
5124     fbsql_commit,fbsql_connect,fbsql_create_db,fbsql_create_blob,%
5125     fbsql_database_password,fbsql_data_seek,fbsql_db_query,%
5126     fbsql_drop_db,fbsql_errno,fbsql_error,fbsql_fetch_array,%
5127     fbsql_fetch_field,fbsql_fetch_lengths,fbsql_fetch_object,%
5128     fbsql_field_flags,fbsql_field_name,fbsql_field_len,%
5129     fbsql_field_table,fbsql_field_type,fbsql_free_result,%
5130     fbsql_list_dbs,fbsql_list_fields,fbsql_list_tables,%
5131     fbsql_num_fields,fbsql_num_rows,fbsql_pconnect,fbsql_query,%
5132     fbsql_read_clob,fbsql_result,fbsql_rollback,fbsql_set_lob_mode,%
5133     fbsql_start_db,fbsql_stop_db,fbsql_tablename,fbsql_warnings,%
5134     fbsql_get_autostart_info,fbsql_hostname,fbsql_password,%
5135     fbsql_username,%
5136 %--- fdf functions
5137     fdf_open,fdclose,fdcreate,fdsave,fdget_value,%
5138     fdf_next_field_name,fdset_ap,fdset_status,fdget_status,%
5139     fdf_get_file,fdset_flags,fdset_opt,%
5140     fdf_set_javascript_action,fdset_encoding,fdadd_template,%
5141 %--- filepro functions
5142     filepro,filepro_fieldname,filepro_fieldtype,filepro_fieldwidth,%
5143     filepro_fieldcount,filepro_rowcount,%
5144 %--- filesystem functions
5145     basename,chmod,chown,clearstatcache,copy,delete,dirname,%
5146     diskfreespace,disk_total_space,fclose,feof,fflush,fgetc,fgetcsv,%
5147     fgetss,file_get_contents,file,file_exists,fileatime,filectime,%
5148     fileinode,filemtime,fileowner,fileperms,filesize,filetype,flock,%
5149     fopen,fpassthru,fputs,fread,fscanf,fseek,fstat,ftell,ftruncate,%
5150     set_file_buffer,is_dir,is_executable,is_file,is_link,%
5151     is_writable,is_writeable,is_uploaded_file,link,linkinfo,mkdir,%
5152     parse_ini_file,pathinfo,pclose,popen,readfile,readlink,rename,%
5153     rmdir,stat,lstat,realpath,symlink,tempnam,tmpfile,touch,umask,%
5154 %--- fribidi functions
5155     fribidi_log2vis,%
5156 %--- ftp functions
5157     ftp_connect,ftp_login,ftp_pwd,ftp_cdup,ftp_chdir,ftp_mkdir,%

```

```

5158 ftp_nlist,ftp_rawlist,ftp_systype,ftp_pasv,ftp_get,ftp_fget,%
5159 ftp_fput,ftp_size,ftp_mdtm,ftp_rename,ftp_delete,ftp_site,%
5160 ftp_quit,ftp_exec,ftp_set_option,ftp_get_option,%
5161 %--- funchand functions
5162 call_user_func_array,call_user_func,create_function,%
5163 func_get_args,func_num_args,function_exists,%
5164 register_shutdown_function,register_tick_function,%
5165 %--- gettext functions
5166 bindtextdomain,bind_textdomain_codeset,dcgettext,dcngettext,%
5167 dgettext,gettext,ngettext,textdomain,%
5168 %--- gmp functions
5169 gmp_init,gmp_intval,gmp_strval,gmp_add,gmp_sub,gmp_mul,%
5170 gmp_div_r,gmp_div_qr,gmp_div,gmp_mod,gmp_divexact,gmp_cmp,%
5171 gmp_com,gmp_abs,gmp_sign,gmp_fact,gmp_sqrt,gmp_sqrtrm,%
5172 gmp_pow,gmp_powm,gmp_prob_prime,gmp_gcd,gmp_gcdext,gmp_invert,%
5173 gmp_jacobi,gmp_random,gmp_and,gmp_or,gmp_xor,gmp_setbit,%
5174 gmp_scan0,gmp_scan1,gmp_popcount,gmp_hamdist,%
5175 %--- http functions
5176 header,headers_sent,setcookie,%
5177 %--- hw functions
5178 hw_Array2Objrec,hw_Children,hw_ChildrenObj,hw_Close,hw_Connect,%
5179 hw_Deleteobject,hw_DocByAnchor,hw_DocByAnchorObj,%
5180 hw_Document_BodyTag,hw_Document_Content,hw_Document_SetContent,%
5181 hw_ErrorMsg,hw_EditText,hw_Error,hw_Free_Document,hw_GetParents,%
5182 hw_GetChildColl,hw_GetChildCollObj,hw_GetRemote,%
5183 hw_GetSrcByDestObj,hw_GetObject,hw_GetAndLock,hw_GetText,%
5184 hw_GetObjectByQueryObj,hw_GetObjectByQueryColl,%
5185 hw_GetChildDocColl,hw_GetChildDocCollObj,hw_GetAnchors,%
5186 hw_Mv,hw_Identify,hw_InCollections,hw_Info,hw_InsColl,hw_InsDoc,%
5187 hw_InsertObject,hw_mapid,hw_Modifyobject,hw_New_Document,%
5188 hw_Output_Document,hw_pConnect,hw_PipeDocument,hw_Root,%
5189 hw_Who,hw_getusername,hw_stat,hw_setlinkroot,hw_connection_info,%
5190 hw_insertanchors,hw_getrellink,hw_changeobject,%
5191 %--- ibase functions
5192 ibase_connect,ibase_pconnect,ibase_close,ibase_query,%
5193 ibase_fetch_row,ibase_fetch_object,ibase_field_info,%
5194 ibase_free_result,ibase_prepare,ibase_execute,ibase_trans,%
5195 ibase_rollback,ibase_timefmt,ibase_num_fields,ibase_blob_add,%
5196 ibase_blob_close,ibase_blob_create,ibase_blob_echo,%
5197 ibase_blob_import,ibase_blob_info,ibase_blob_open,%
5198 %--- icap functions
5199 icap_open,icap_close,icap_fetch_event,icap_list_events,%
5200 icap_delete_event,icap_snooze,icap_list_alarms,%
5201 icap_rename_calendar,icap_delete_calendar,icap_reopen,%
5202 %--- iconv functions
5203 iconv,iconv_get_encoding,iconv_set_encoding,ob_iconv_handler,%
5204 %--- ifx functions
5205 ifx_connect,ifx_pconnect,ifx_close,ifx_query,ifx_prepare,ifx_do,%
5206 ifx_errormsg,ifx_affected_rows,ifx_getsqlca,ifx_fetch_row,%
5207 ifx_fielddtypes,ifx_fieldproperties,ifx_num_fields,ifx_num_rows,%

```

```

5208     ifx_create_char,ifx_free_char,ifx_update_char,ifx_get_char,%
5209     ifx_copy_blob,ifx_free_blob,ifx_get_blob,ifx_update_blob,%
5210     ifx_textasvarchar,ifx_byteasvarchar,ifx_nullformat,%
5211     ifxus_free_slob,ifxus_close_slob,ifxus_open_slob,%
5212     ifxus_seek_slob,ifxus_read_slob,ifxus_write_slob,%
5213 %--- iisfunc functions
5214     iis_get_server_by_path,iis_get_server_by_comment,iis_add_server,%
5215     iis_set_dir_security,iis_get_dir_security,iis_set_server_rights,%
5216     iis_set_script_map,iis_get_script_map,iis_set_app_settings,%
5217     iis_stop_server,iis_stop_service,iis_start_service,%
5218 %--- image functions
5219     exif_imagetype,exif_read_data,exif_thumbnail,getimagesize,%
5220     imagealphablending,imagearc,imagefilledarc,imageellipse,%
5221     imagechar,imagecharup,imagecolorallocate,imagecolordeallocate,%
5222     imagecolorclosest,imagecolorclosestalpha,imagecolorclosesthwb,%
5223     imagecolorexactalpha,imagecolorresolve,imagecolorresolvealpha,%
5224     imagecolorset,imagecolorsforindex,imagecolorstotal,%
5225     imagecopy,imagecopymerge,imagecopymergegray,imagecopyresized,%
5226     imagecreate,imagecreatetruecolor,imagetruecolorfrompalette,%
5227     imagecreatefromgd2,imagecreatefromgd2part,imagecreatefromgif,%
5228     imagecreatefrompng,imagecreatefromwbmp,imagecreatefromstring,%
5229     imagecreatefromxpm,imagedashedline,imagedestroy,imagefill,%
5230     imagefilledrectangle,imagefilltoborder,imagefontheight,%
5231     imagegd,imagegd2,imagegif,imagepng,imagejpeg,imagewbmp,%
5232     imageline,imageloadfont,imagepalettecopy,imagepolygon,%
5233     imagepscodefont,imagepsfreefont,imagepsloadfont,%
5234     imagepslfont,imagepstext,imagerectangle,imagesetpixel,%
5235     imagesetstyle,imagesettile,imagesetthickness,imagestring,%
5236     imagesx,imagesy,imagettfbbox,imageftbbox,imagettftext,%
5237     imagetypes,jpeg2wbmp,png2wbmp,iptcembed,read_exif_data,%
5238 %--- imap functions
5239     imap_8bit,imap_alerts,imap_append,imap_base64,imap_binary,%
5240     imap_bodystruct,imap_check,imap_clearflag_full,imap_close,%
5241     imap_delete,imap_deletemailbox,imap_errors,imap_expunge,%
5242     imap_fetchbody,imap_fetchheader,imap_fetchstructure,%
5243     imap_getmailboxes,imap_getsubscribed,imap_header,%
5244     imap_headers,imap_last_error,imap_listmailbox,%
5245     imap_mail,imap_mail_compose,imap_mail_copy,imap_mail_move,%
5246     imap_mime_header_decode,imap_msgno,imap_num_msg,imap_num_recent,%
5247     imap_ping,imap_popen,imap_qprint,imap_renamemailbox,imap_reopen,%
5248     imap_rfc822_parse_headers,imap_rfc822_write_address,%
5249     imap_search,imap_setacl,imap_set_quota,imap_setflag_full,%
5250     imap_status,imap_subscribe,imap_uid,imap_undelete,%
5251     imap_utf7_decode,imap_utf7_encode,imap_utf8,imap_thread,%
5252 %--- info functions
5253     assert,assert_options,extension_loaded,dlopen,getenv,get_cfg_var,%
5254     get_defined_constants,get_extension_funcs,getmygid,%
5255     get_loaded_extensions,get_magic_quotes_gpc,%
5256     getlastmod,getmyinode,getmypid,getmyuid,get_required_files,%
5257     ini_alter,ini_get,ini_get_all,ini_restore,ini_set,phpcredits,%

```

```

5258     phpversion,php_logo_guid,php_sapi_name,php_uname,putenv,%
5259     set_time_limit,version_compare,zend_logo_guid,zend_version,%
5260 %--- ircg functions
5261     ircg_pconnect,ircg_fetch_error_msg,ircg_set_current,ircg_join,%
5262     ircg_msg,ircg_notice,ircg_nick,ircg_topic,ircg_channel_mode,%
5263     ircg_whois,ircg_kick,ircg_ignore_add,ircg_ignore_del,%
5264     ircg_is_conn_alive,ircg_lookup_format_messages,%
5265     ircg_set_on_die,ircg_set_file,ircg_get_username,%
5266     ircg_nickname_unescape,%
5267 %--- java functions
5268     java_last_exception_clear,java_last_exception_get,%
5269 %--- ldap functions
5270     ldap_add,ldap_bind,ldap_close,ldap_compare,ldap_connect,%
5271     ldap_delete,ldap_dn2ufn,ldap_err2str,ldap_errno,ldap_error,%
5272     ldap_first_attribute,ldap_first_entry,ldap_free_result,%
5273     ldap_get_dn,ldap_get_entries,ldap_get_option,ldap_get_values,%
5274     ldap_list,ldap_modify,ldap_mod_add,ldap_mod_del,%
5275     ldap_next_attribute,ldap_next_entry,ldap_read,ldap_rename,%
5276     ldap_set_option,ldap_unbind,ldap_8859_to_t61,%
5277     ldap_next_reference,ldap_parse_reference,ldap_parse_result,%
5278     ldap_sort,ldap_start_tls,ldap_t61_to_8859,%
5279 %--- mail functions
5280     mail,ezmlm_hash,%
5281 %--- math functions
5282     abs,acos,acosh,asin,asinh,atan,atanh,atan2,base_convert,bindec,%
5283     cos,cosh,decbin,dechex,decoct,deg2rad,exp,expm1,floor,%
5284     hexdec,hypot,is_finite,is_infinite,is_nan,lcg_value,log,log10,%
5285     max,min,mt_rand,mt_srand,mt_getrandmax,number_format,octdec,pi,%
5286     rad2deg,rand,round,sin,sinh,sqrt,srand,tan,tanh,%
5287 %--- mbstring functions
5288     mb_language,mb_parse_str,mb_internal_encoding,mb_http_input,%
5289     mb_detect_order,mb_substitute_character,mb_output_handler,%
5290     mb_strlen,mb_strpos,mb_strrpos,mb_substr,mb_strcut,mb_strwidth,%
5291     mb_convert_encoding,mb_detect_encoding,mb_convert_kana,%
5292     mb_decode_mimeheader,mb_convert_variables,%
5293     mb_decode_numericentity,mb_send_mail,mb_get_info,%
5294     mb_ereg,mb_eregi,mb_ereg_replace,mb_eregi_replace,mb_split,%
5295     mb_ereg_search,mb_ereg_search_pos,mb_ereg_search_regs,%
5296     mb_ereg_search_getregs,mb_ereg_search_getpos,%
5297 %--- mcal functions
5298     mcal_open,mcal_popen,mcal_reopen,mcal_close,%
5299     mcal_rename_calendar,mcal_delete_calendar,mcal_fetch_event,%
5300     mcal_append_event,mcal_store_event,mcal_delete_event,%
5301     mcal_list_alarms,mcal_event_init,mcal_event_set_category,%
5302     mcal_event_set_description,mcal_event_set_start,%
5303     mcal_event_set_alarm,mcal_event_set_class,mcal_is_leap_year,%
5304     mcal_date_valid,mcal_time_valid,mcal_day_of_week,%
5305     mcal_date_compare,mcal_next_recurrence,%
5306     mcal_event_set_recur_daily,mcal_event_set_recur_weekly,%
5307     mcal_event_set_recur_monthly_wday,mcal_event_set_recur_yearly,%

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5308     mcal_event_add_attribute,mcal_expunge,mcal_week_of_year,%
5309 %--- mcrypt functions
5310     mcrypt_get_cipher_name,mcrypt_get_block_size,%
5311     mcrypt_create_iv,mcrypt_cbc,mcrypt_cfb,mcrypt_ecb,mcrypt_ofb,%
5312     mcrypt_list_modes,mcrypt_get_iv_size,mcrypt_encrypt,%
5313     mcrypt_module_open,mcrypt_module_close,mcrypt_generic_deinit,%
5314     mcrypt_generic,mdecrypt_generic,mcrypt_generic_end,%
5315     mcrypt_enc_is_block_algorithm_mode,%
5316     mcrypt_enc_is_block_mode,mcrypt_enc_get_block_size,%
5317     mcrypt_enc_get_supported_key_sizes,mcrypt_enc_get_iv_size,%
5318     mcrypt_enc_get_modes_name,mcrypt_module_self_test,%
5319     mcrypt_module_is_block_algorithm,mcrypt_module_is_block_mode,%
5320     mcrypt_module_get_algo_key_size,%
5321 %--- mhash functions
5322     mhash_get_hash_name,mhash_get_block_size,mhash_count,mhash,%
5323 %--- misc functions
5324     connection_aborted,connection_status,connection_timeout,%
5325     define,defined,die,eval,exit,get_browser,highlight_file,%
5326     ignore_user_abort,iptcparse,leak,pack,show_source,sleep,uniqid,%
5327     usleep,%
5328 %--- mnogosearch functions
5329     udm_add_search_limit,udm_alloc_agent,udm_api_version,%
5330     udm_cat_list,udm_clear_search_limits,udm_errno,udm_error,%
5331     udm_free_agent,udm_free_ispell_data,udm_free_res,%
5332     udm_get_res_field,udm_get_res_param,udm_load_ispell_data,%
5333     udm_check_charset,udm_check_stored,udm_close_stored,udm_crc32,%
5334 %--- msession functions
5335     msession_connect,msession_disconnect,msession_count,%
5336     msession_destroy,msession_lock,msession_unlock,msession_set,%
5337     msession_uniq,msession_randstr,msession_find,msession_list,%
5338     msession_set_array,msession_listvar,msession_timeout,%
5339     msession_getdata,msession_setdata,msession_plugin,%
5340 %--- mysql functions
5341     mysql,mysql_affected_rows,mysql_close,mysql_connect,mysql_create_db,%
5342     mysql_data_seek,mysql_dbname,mysql_drop_db,mysql_dropdb,mysql_error,%
5343     mysql_fetch_field,mysql_fetch_object,mysql_fetch_row,%
5344     mysql_field_seek,mysql_fieldtable,mysql_fieldtype,mysql_fieldflags,%
5345     mysql_free_result,mysql_freeresult,mysql_list_fields,%
5346     mysql_list_dbs,mysql_listdbs,mysql_list_tables,mysql_listtables,%
5347     mysql_num_rows,mysql_numfields,mysql_numrows,mysql_pconnect,%
5348     mysql_regcase,mysql_result,mysql_select_db,mysql_selectdb,%
5349 %--- mssql functions
5350     mssql_close,mssql_connect,mssql_data_seek,mssql_fetch_array,%
5351     mssql_fetch_object,mssql_fetch_row,mssql_field_length,%
5352     mssql_field_seek,mssql_field_type,mssql_free_result,%
5353     mssql_min_error_severity,mssql_min_message_severity,%
5354     mssql_num_fields,mssql_num_rows,mssql_pconnect,mssql_query,%
5355     mssql_select_db,mssql_bind,mssql_execute,mssql_fetch_assoc,%
5356     mssql_guid_string,mssql_init,mssql_rows_affected,%
5357 %--- muscat functions

```

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5358 muscat_setup,muscat_setup_net,muscat_give,muscat_get,%
5359 %--- mysql functions
5360 mysql_affected_rows,mysql_change_user,mysql_character_set_name,%
5361 mysql_connect,mysql_create_db,mysql_data_seek,mysql_db_name,%
5362 mysql_drop_db,mysql_errno,mysql_error,mysql_escape_string,%
5363 mysql_fetch_assoc,mysql_fetch_field,mysql_fetch_lengths,%
5364 mysql_fetch_row,mysql_field_flags,mysql_field_name,%
5365 mysql_field_seek,mysql_field_table,mysql_field_type,%
5366 mysql_info,mysql_insert_id,mysql_list_dbs,mysql_list_fields,%
5367 mysql_list_tables,mysql_num_fields,mysql_num_rows,%
5368 mysql_ping,mysql_query,mysql_unbuffered_query,%
5369 mysql_result,mysql_select_db,mysql_tablename,mysql_thread_id,%
5370 mysql_get_host_info,mysql_get_proto_info,mysql_get_server_info,%
5371 %--- network functions
5372 checkdnsrr,closedlog,debugger_off,debugger_on,%
5373 fsockopen,gethostbyaddr,gethostbyname,gethostbyname_l,getmxrr,%
5374 getprotobyname,getservbyname,getservbyport,ip2long,long2ip,%
5375 pfsockopen,socket_get_status,socket_set_blocking,%
5376 syslog,%
5377 %--- nis functions
5378 yp_get_default_domain,yp_order,yp_master,yp_match,yp_first,%
5379 yp_errno,yp_err_string,yp_all,yp_cat,%
5380 %--- oci8 functions
5381 OCIDefineByName,OCIBindByName,OCILogon,OCIPLogon,OCINLogon,%
5382 OCIExecute,OCICommit,OCIRollback,OCINewDescriptor,OCIRowCount,%
5383 OCIResult,OCIFetch,OCIFetchInto,OCIFetchStatement,%
5384 OCIColumnName,OCIColumnSize,OCIColumnType,OCIServerVersion,%
5385 OCINewCursor,OCIFreeStatement,OCIFreeCursor,OCIFreeDesc,%
5386 OCIError,OCIInternalDebug,OCICancel,OCISetPrefetch,%
5387 OCISaveLobFile,OCISaveLob,OCILoadLob,OCIColumnScale,%
5388 OCIColumnTypeRaw,OCINewCollection,OCIFreeCollection,%
5389 OCICollAppend,OCICollAssignElem,OCICollGetElem,OCICollMax,%
5390 OCICollTrim,%
5391 %--- oracle functions
5392 Ora_Bind,Ora_Close,Ora_ColumnName,Ora_ColumnSize,Ora_ColumnType,%
5393 Ora_CommitOff,Ora_CommitOn,Ora_Do,Ora_Error,Ora_ErrorCode,%
5394 Ora_Fetch,Ora_Fetch_Into,Ora_GetColumn,Ora_Logoff,Ora_Logon,%
5395 Ora_Numcols,Ora_Numrows,Ora_Open,Ora_Parse,Ora_Rollback,%
5396 %--- outcontrol functions
5397 flush,ob_start,ob_get_contents,ob_get_length,ob_get_level,%
5398 ob_flush,ob_clean,ob_end_flush,ob_end_clean,ob_implicit_flush,%
5399 %--- ovrimos functions
5400 ovrimos_connect,ovrimos_close,ovrimos_longreadlen,%
5401 ovrimos_execute,ovrimos_cursor,ovrimos_exec,ovrimos_fetch_into,%
5402 ovrimos_result,ovrimos_result_all,ovrimos_num_rows,%
5403 ovrimos_field_name,ovrimos_field_type,ovrimos_field_len,%
5404 ovrimos_free_result,ovrimos_commit,ovrimos_rollback,%
5405 %--- pcntl functions
5406 pcntl_fork,pcntl_signal,pcntl_waitpid,pcntl_wexitstatus,%
5407 pcntl_wifsignaled,pcntl_wifstopped,pcntl_wstopsig,%

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```

5408     pcntl_exec,%
5409 %--- pcre functions
5410     preg_match,preg_match_all,preg_replace,preg_replace_callback,%
5411     preg_quote,preg_grep,Pattern Modifiers,Pattern Syntax,%
5412 %--- pdf functions
5413     pdf_add_annotation,pdf_add_bookmark,pdf_add_launchlink,%
5414     pdf_add_note,pdf_add_outline,pdf_add_pdflink,pdf_add_thumbnail,%
5415     pdf_arc,pdf_arcn,pdf_attach_file,pdf_begin_page,%
5416     pdf_begin_template,pdf_circle,pdf_clip,pdf_close,pdf_closepath,%
5417     pdf_closepath_stroke,pdf_close_image,pdf_close_pdi,%
5418     pdf_concat,pdf_continue_text,pdf_curveto,pdf_delete,%
5419     pdf_endpath,pdf_end_pattern,pdf_end_template,pdf_fill,%
5420     pdf_findfont,pdf_get_buffer,pdf_get_font,pdf_get_fontname,%
5421     pdf_get_image_height,pdf_get_image_width,pdf_get_parameter,%
5422     pdf_get_pdi_value,pdf_get_majorversion,pdf_get_minorversion,%
5423     pdf_initgraphics,pdf_lineto,pdf_makespotcolor,pdf_moveto,%
5424     pdf_open,pdf_open_CCITT,pdf_open_file,pdf_open_gif,%
5425     pdf_open_image_file,pdf_open_jpeg,pdf_open_memory_image,%
5426     pdf_open_pdi_page,pdf_open_png,pdf_open_tiff,pdf_place_image,%
5427     pdf_rect,pdf_restore,pdf_rotate,pdf_save,pdf_scale,pdf_setcolor,%
5428     pdf_setflat,pdf_setfont,pdf_setgray,pdf_setgray_fill,%
5429     pdf_setlinecap,pdf_setlinejoin,pdf_setlinewidth,pdf_setmatrix,%
5430     pdf_setpolydash,pdf_setrgbcolor,pdf_setrgbcolor_fill,%
5431     pdf_set_border_color,pdf_set_border_dash,pdf_set_border_style,%
5432     pdf_set_duration,pdf_set_font,pdf_set_horiz_scaling,%
5433     pdf_set_info_author,pdf_set_info_creator,pdf_set_info_keywords,%
5434     pdf_set_info_title,pdf_set_leading,pdf_set_parameter,%
5435     pdf_set_text_rendering,pdf_set_text_rise,pdf_set_text_matrix,%
5436     pdf_set_word_spacing,pdf_show,pdf_show_boxed,pdf_show_xy,%
5437     pdf_stringwidth,pdf_stroke,pdf_translate,%
5438 %--- pfp functions
5439     pfp_init,pfp_cleanup,pfp_process,pfp_process_raw,%
5440 %--- psql functions
5441     pg_close,pg_affected_rows,pg_connect,pg_dbname,pg_end_copy,%
5442     pg_query,pg_fetch_array,pg_fetch_object,pg_fetch_row,%
5443     pg_field_name,pg_field_num,pg_field_prtlen,pg_field_size,%
5444     pg_free_result,pg_last_oid,pg_host,pg_last_notice,pg_lo_close,%
5445     pg_lo_export,pg_lo_import,pg_lo_open,pg_lo_read,pg_lo_seek,%
5446     pg_lo_read_all,pg_lo_unlink,pg_lo_write,pg_num_fields,%
5447     pg_options,pg_pconnect,pg_port,pg_put_line,pg_fetch_result,%
5448     pg_client_encoding,pg_trace,pg_tty,pg_untrace,pg_get_result,%
5449     pg_send_query,pg_cancel_query,pg_connection_busy,%
5450     pg_connection_status,pg_copy_from,pg_copy_to,pg_escape_bytea,%
5451     pg_result_error,%
5452 %--- posix functions
5453     posix_kill,posix_getpid,posix_getppid,posix_getuid,%
5454     posix_getgid,posix_getegid,posix_setuid,posix_seteuid,%
5455     posix_setegid,posix_getgroups,posix_getlogin,posix_getpgrp,%
5456     posix_setpgid,posix_getpgid,posix_getsid,posix_uname,%
5457     posix_ctermid,posix_ttyname,posix_isatty,posix_getcwd,%

```

```

5458     posix_getgrnam, posix_getgrgid, posix_getpwnam, posix_getpwuid, %
5459 %--- printer functions
5460     printer_open, printer_abort, printer_close, printer_write, %
5461     printer_set_option, printer_get_option, printer_create_dc, %
5462     printer_start_doc, printer_end_doc, printer_start_page, %
5463     printer_create_pen, printer_delete_pen, printer_select_pen, %
5464     printer_delete_brush, printer_select_brush, printer_create_font, %
5465     printer_select_font, printer_logical_fontheight, %
5466     printer_draw_rectangle, printer_draw_ellipse, printer_draw_text, %
5467     printer_draw_chord, printer_draw_pie, printer_draw_bmp, %
5468 %--- pspell functions
5469     pspell_add_to_personal, pspell_add_to_session, pspell_check, %
5470     pspell_config_create, pspell_config_ignore, pspell_config_mode, %
5471     pspell_config_repl, pspell_config_runtogether, %
5472     pspell_new, pspell_new_config, pspell_new_personal, %
5473     pspell_store_replacement, pspell_suggest, %
5474 %--- qtdom functions
5475     qdom_tree, qdom_error, %
5476 %--- readline functions
5477     readline, readline_add_history, readline_clear_history, %
5478     readline_info, readline_list_history, readline_read_history, %
5479 %--- recode functions
5480     recode_string, recode, recode_file, %
5481 %--- regex functions
5482     ereg, ereg_replace, eregi, eregi_replace, split, spliti, sql_regcase, %
5483 %--- sem functions
5484     sem_get, sem_acquire, sem_release, sem_remove, shm_attach, %
5485     shm_remove, shm_put_var, shm_get_var, shm_remove_var, ftok, %
5486 %--- sesam functions
5487     sesam_connect, sesam_disconnect, sesam_settransaction, %
5488     sesam_rollback, sesam_execimm, sesam_query, sesam_num_fields, %
5489     sesam_diagnostic, sesam_fetch_result, sesam_affected_rows, %
5490     sesam_field_array, sesam_fetch_row, sesam_fetch_array, %
5491     sesam_free_result, %
5492 %--- session functions
5493     session_start, session_destroy, session_name, session_module_name, %
5494     session_id, session_register, session_unregister, session_unset, %
5495     session_get_cookie_params, session_set_cookie_params, %
5496     session_encode, session_set_save_handler, session_cache_limiter, %
5497     session_write_close, %
5498 %--- shmop functions
5499     shmop_open, shmop_read, shmop_write, shmop_size, shmop_delete, %
5500 %--- snmp functions
5501     snmpget, snmpset, snmpwalk, snmpwalkoid, snmp_get_quick_print, %
5502     snmprealwalk, %
5503 %--- strings functions
5504     addcslashes, addslashes, bin2hex, chop, chr, chunk_split, %
5505     count_chars, crc32, crypt, echo, explode, get_html_translation_table, %
5506     hebrew, hebrevc, htmlentities, htmlspecialchars, implode, join, %
5507     localeconv, ltrim, md5, md5_file, metaphone, nl_langinfo, nl2br, ord, %

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```

5508     print,printf,quoted_printable_decode,quotemeta,str_rot13,rtrim,%
5509     setlocale,similar_text,soundex,sprintf,strcasecmp,strcmp,%
5510     strcmp,strcmp,strcmp,strip_tags,stripclashes,stripslashes,%
5511     strlen,strcmp,strcmpcasecmp,strcmp,strcmp,strcmp,strcmp,%
5512     strcmp,strcmp,strcmp,strcmp,strcmp,strcmp,strcmp,%
5513     strcmp,strcmp,strcmp_count,strcmp_replace,trim,ucfirst,ucwords,%
5514     vsprintf,wordwrap,%
5515 %--- swf functions
5516     swf_openfile,swf_closefile,swf_labelframe,swf_showframe,%
5517     swf_getframe,swf_mulcolor,swf_addcolor,swf_placeobject,%
5518     swf_removeobject,swf_nextid,swf_startdoaction,%
5519     swf_actiongeturl,swf_actionnextframe,swf_actionprevframe,%
5520     swf_actionstop,swf_actiontogglequality,swf_actionwaitforframe,%
5521     swf_actiongotolabel,swf_enddoaction,swf_defineline,%
5522     swf_definepoly,swf_startshape,swf_shapelinesolid,%
5523     swf_shapefillsolid,swf_shapefillbitmapclip,%
5524     swf_shapemoveto,swf_shapelineto,swf_shapecurveto,%
5525     swf_shapearc,swf_endshape,swf_definefont,swf_setfont,%
5526     swf_fontslant,swf_fonttracking,swf_getfontinfo,swf_definetext,%
5527     swf_definebitmap,swf_getbitmapinfo,swf_startsymbol,%
5528     swf_startbutton,swf_addbuttonrecord,swf_oncondition,%
5529     swf_viewport,swf_ortho,swf_ortho2,swf_perspective,swf_polarview,%
5530     swf_pushmatrix,swf_popmatrix,swf_scale,swf_translate,swf_rotate,%
5531 %--- sybase functions
5532     sybase_affected_rows,sybase_close,sybase_connect,%
5533     sybase_fetch_array,sybase_fetch_field,sybase_fetch_object,%
5534     sybase_fetch_row,sybase_free_result,sybase_get_last_message,%
5535     sybase_min_error_severity,sybase_min_message_severity,%
5536     sybase_num_fields,sybase_num_rows,sybase_pconnect,sybase_query,%
5537     sybase_select_db,%
5538 %--- odbc functions
5539     odbc_autocommit,odbc_binmode,odbc_close,odbc_close_all,%
5540     odbc_connect,odbc_cursor,odbc_do,odbc_error,odbc_errormsg,%
5541     odbc_execute,odbc_fetch_into,odbc_fetch_row,odbc_fetch_array,%
5542     odbc_fetch_object,odbc_field_name,odbc_field_num,%
5543     odbc_field_len,odbc_field_precision,odbc_field_scale,%
5544     odbc_longreadlen,odbc_num_fields,odbc_pconnect,odbc_prepare,%
5545     odbc_result,odbc_result_all,odbc_rollback,odbc_setoption,%
5546     odbc_tableprivileges,odbc_columns,odbc_columnprivileges,%
5547     odbc_primarykeys,odbc_foreignkeys,odbc_procedures,%
5548     odbc_specialcolumns,odbc_statistics,%
5549 %--- url functions
5550     base64_decode,base64_encode,parse_url,rawurldecode,rawurlencode,%
5551     urlencode,%
5552 %--- var functions
5553     doubleval,empty,floatval,gettype,get_defined_vars,%
5554     import_request_variables,intval,is_array,is_bool,is_double,%
5555     is_int,is_integer,is_long,is_null,is_numeric,is_object,is_real,%
5556     is_scalar,is_string,isset,print_r,serialize,unset,strtval,%
5557     unset,var_dump,var_export,is_callable,%

```

```

5558 %--- vpopmail functions
5559     vpopmail_add_domain,vpopmail_del_domain,%
5560     vpopmail_add_domain_ex,vpopmail_del_domain_ex,%
5561     vpopmail_add_user,vpopmail_del_user,vpopmail_passwd,%
5562     vpopmail_auth_user,vpopmail_alias_add,vpopmail_alias_del,%
5563     vpopmail_alias_get,vpopmail_alias_get_all,vpopmail_error,%
5564 %--- w32api functions
5565     w32api_set_call_method,w32api_register_function,%
5566     w32api_deftype,w32api_init_dtype,%
5567 %--- wddx functions
5568     wddx_serialize_value,wddx_serialize_vars,wddx_packet_start,%
5569     wddx_add_vars,wddx_deserialize,%
5570 %--- xml functions
5571     xml_parser_create,xml_set_object,xml_set_element_handler,%
5572     xml_set_processing_instruction_handler,xml_set_default_handler,%
5573     xml_set_notation_decl_handler,%
5574     xml_parse,xml_get_error_code,xml_error_string,%
5575     xml_get_current_column_number,xml_get_current_byte_index,%
5576     xml_parser_free,xml_parser_set_option,xml_parser_get_option,%
5577     utf8_encode,xml_parser_create_ns,%
5578     xml_set_start_namespace_decl_handler,%
5579 %--- xslt functions
5580     xslt_set_log,xslt_create,xslt_errno,xslt_error,xslt_free,%
5581     xslt_set_sax_handler,xslt_set_scheme_handler,%
5582     xslt_set_base,xslt_set_encoding,xslt_set_sax_handlers,%
5583 %--- yaz functions
5584     yaz_addinfo,yaz_close,yaz_connect,yaz_errno,yaz_error,yaz_hits,%
5585     yaz_database,yaz_range,yaz_record,yaz_search,yaz_present,%
5586     yaz_scan,yaz_scan_result,yaz_ccl_conf,yaz_ccl_parse,%
5587     yaz_wait,yaz_sort,%
5588 %--- zip functions
5589     zip_close,zip_entry_close,zip_entry_compressedsize,%
5590     zip_entry_filesize,zip_entry_name,zip_entry_open,zip_entry_read,%
5591     zip_read,%
5592 %--- zlib functions
5593     gzclose,gzEOF,gzfile,gzgetc,gzgets,gzgetss,gzopen,gzpassthru,%
5594     gzread,gzrewind,gzseek,gztell,gzwrite,readgzfile,gzcompress,%
5595     gzdeflate,gzinflate,gzencode,},%
5596     sensitive,%
5597     morecomment=[l]\#,%
5598     morecomment=[l]//,%
5599     morecomment=[s]{/*}{*/},%
5600     morestring=[b]" ,%
5601     morestring=[b]' %
5602 }[keywords,comments,strings]%
5603 </lang2>

```

2.59 Plasm

Alessio Pace provided the following definition.

```
5604 (*lang3)
5605 \lst@definelanguage{Plasm}%
5606 {sensitive=false,%
5607   morekeywords={aa,abs,ac,acolor,acos,actor,al,alias,align,and,%
5608     animation,animation,appearance,apply,ar,arc,as,asin,assoc,atan,%
5609     axialcamera,axialcameras,basehermite,bbox,bbox,bernstein,%
5610     bernsteinbasis,bezier,beziercurve,beziermanifold,bezierstripe,%
5611     beziersurface,bigger,biggest,bilinearsurface,binormal,%
5612     biquadraticsurface,black,blend,blue,bottom,box,brown,bspize,%
5613     bspline,bsplinebasis,c,cabinet,camera,cart,case,cat,catch,ceil,%
5614     centeredcameras,centralcavalier,char,chargseq,choose,circle,%
5615     circumference,class,cmap,color,comp,computecoords,cone,%
5616     conicalsurface,cons,control,convexcoords,convexhull,conspatch,%
5617     copy,cos,cosh,crease,crosspolytope,cube,cubiccardinal,%
5618     cubiccardinalbasis,cubichermite,cubicubspline,cubicubsplinebasis,%
5619     cuboid,curl,curvature,curve2cspath,curve2mapvect,cyan,cylinder,%
5620     cylindricalsurface,d,deboor,def,depol,depth_sort,depth_test,%
5621     derbernstein,derbernsteinbase,derbezier,determinant,difference,%
5622     differencepr,dim,dimetric,dirproject,displaygraph,displaynubspline,%
5623     displaynurbspline,distl,distr,div,divergence,dodecahedron,dot,down,%
5624     dp,drawedges,drawforks,drawtree,ds,dsphere,dump,dumprep,ellipse,%
5625     embed,end,eq,ex,exp,explode,export,extract_bodies,extract_polygons,%
5626     extract_wires,extrude,extrusion,fact,false,feature,ff,fillcolor,%
5627     filter,finitecone,first,flash,flashani,floor,fontcolor,fontheight,%
5628     fontspacing,fontwidth,fractalsimplex,frame,frame,frameflash,fromto,%
5629     gausscurvature,ge,grad,gradient,gradmap,gray,green,gt,help,hermite,%
5630     hermitebasis,hermitesurface,hexahedron,icosahedron,id,idnt,if,in,%
5631     inarcs,innerprod,inset,insl,instr,intersection,intersectionpr,%
5632     intervals,intmax,intmin,intsto,inv,isa,isanimpol,isbool,ischar,%
5633     isclosedshape,iscloseto,isempty,iseven,isfun,isfunvect,isge,isgt,%
5634     isint,isintneg,isinto,isintpos,isle,isl,ismat,ismatof,isnat,%
5635     isnull,isnum,isnumneg,isnumpos,isodd,isometric,isorthoshape,ispair,%
5636     ispoint,ispointseq,ispol,ispoldim,ispolytope,ispurepol,isreal,%
5637     isrealneg,isrealpos,isrealvect,isseq,isseqof,isshape,issimplex,%
5638     issqmat,issting,isvect,iszero,jacobian,join,joints,k,last,le,%
5639     left,leftcavalier,len,less,lesseq,lex,lift,light,linecolor,%
5640     linesize,list,ln,load,loadlib,loop,lt,lxmy,magenta,map,mapshapes,%
5641     markersize,mat,matdotprod,material,mathom,max,mean,meanpoint,med,%
5642     merge,mesh,min,minkowski,mirror,mixedprod,mk,mkframe,mkpol,%
5643     mkvector,mkversork,mod,model,move,mul,multextrude,mxby,mxty,%
5644     myfont,n,nat2string,neq,ngon,norm2,normalmap,not,nu_grid,nubspline,%
5645     nubsplineknots,nurbspline,nurbsplineknots,octahedron,offset,%
5646     onepoint,open,optimize,or,orange,ord,ortho,orthoproject,orthox,%
5647     orthoy,orthoz,outarcs,outerloop,outerwarp,pairdiff,parallel,%
5648     pascaltriangle,pdiff,pdifference,permutahedron,permutations,%
5649     perspective,perspective,pi,pivotop,plane,planemapping,pmap,%
```

```

5650 points2shape,polar,polyline,polymarker,polypoint,power,powerset,%
5651 presort,principalnormal,print,prism,profileprodsurface,%
5652 progressivesum,project,projection,purple,pyramid,q,quadarray,%
5653 quadmesh,quote,r,raise,range,rationalbezier,rationalblend,%
5654 rationalbspline,rationalize,red,rev,reverse,rgbacolor,right,%
5655 rightcavalier,ring,rn,rotatedtext,rotationalsurface,rotn,rtail,%
5656 ruledsurface,rxmy,s,save,scalarmatprod,scalarvectprod,schlegel2d,%
5657 schlegel3d,sdifference,sdifferencepr,segment,sel,setand,setdiff,%
5658 setfontcolor,setor,setxor,sex,shape_0,shape_1,shape2points,%
5659 shape2pol,shapeclosed,shapecomb,shapediff,shapedist,%
5660 shapeinbetweening,shapeinf,shapejoin,shapelen,shapenorm,%
5661 shapenormal,shapeprod,shaperot,shapesum,shapesup,shapezero,shift,%
5662 showprop,sign,signal,simplex,simplexpile,sin,sinh,size,skeleton,%
5663 skew,smaller,smallest,solidifier,solidify,sort,sphere,spline,%
5664 splinesampling,splitcells,splitpols,sqr,sqrt,star,string,%
5665 stringtokens,struct,sub,svg,sweep,t,tail,tan,tangent,tanh,%
5666 tensorprodsurface,tetrahedron,text,texture,textwithattributes,%
5667 thinsolid,threepoints,time,tmax,tmin,top,torus,torusmap,trace,%
5668 trans,tree,trianglefan,trianglestripe,trimetric,true,truncone,tt,%
5669 tube,twopoints,uk,ukpol,ukpolf,union,unionpr,unitvect,unprune,up,%
5670 vect2dtoangle,vect2mat,vectdiff,vectnorm,vectprod,vectsum,view,%
5671 viewmodel,viewmodel,vrml,warp,warp,where,white,with,xcavalier,xor,%
5672 xquadarray,xx,ycavalier,yellow},%
5673 moredirectives={loadlib},%
5674 otherkeywords={-,+,*,**/,~,|,...,^,\&,\&\&,\#,\#\#},%
5675 morecomment=[s]{\%}{\%},%
5676 morestring=[b]',%
5677 literate={~}{\sim}{1} {^}{\wedge}{1},%
5678 }[keywords,directives,comments,strings]%
5679  $\end{code}$ 

```

2.60 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

```

5680  $\begin{code}$ 
5681 \lstdefinlanguage{PL/I}{%
5682 morekeywords={ABS, ATAN, AUTOMATIC, AUTO, ATAND, BEGIN, BINARY, BIN, BIT,%
5683 BUILTIN, BY, CALL, CHARACTER, CHAR, CHECK, COLUMN, COL, COMPLEX, CPLX,%
5684 COPY, COS, COSD, COSH, DATA, DATE, DECIMAL, DEC, DECLARE, DCL, DO,%
5685 EDIT, ELSE, END, ENDFILE, ENDPAGE, ENTRY, EXP, EXTERNAL, EXT, FINISH,%
5686 FIXED, FIXEDOVERFLOW, FOFL, FLOAT, FORMAT, GET, GO, GOTO, IF, IMAG,%
5687 INDEX, INITIAL, INIT, INTERNAL, INT, LABEL, LENGTH, LIKE, LINE, LIST,%
5688 LOG, LOG2, LOG10, MAIN, MAX, MIN, MOD, NOCHECK, NOFIXEDOVERFLOW,%
5689 NOFOFL, NOOVERFLOW, NOOFL, NOSIZE, NOUNDERFLOW, NOUFL, NOZERODIVIDE,%
5690 NOZDIV, ON, OPTIONS, OVERFLOW, OFL, PAGE, PICTURE, PROCEDURE, PROC,%

```

```

5691   PUT, READ, REPEAT, RETURN, RETURNS, ROUND, SIN, SIND, SINH, SIZE, SKIP,%
5692   SQRT, STATIC, STOP, STRING, SUBSTR, SUM, SYSIN, SYSPRINT, TAN, TAND,%
5693   TANH, THEN, TO, UNDERFLOW, UFL, VARYING, WHILE, WRITE, ZERODIVIDE,%
5694   ZDIV},%
5695   sensitive=f,%
5696   morecomment=[s]{/*}{*/},%
5697   morestring=[d]’%
5698 }[keywords,comments,strings]%
5699 </lang3>

```

2.61 PostScript

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

```

5700 (*lang3)
5701 %%
5702 %% PostScript language definition (c) 2005 Christophe Jorssen.
5703 %%
5704 \lst@definlanguage{PostScript}{%
5705   morekeywords={abs, add, aload, anchorsearch, and, arc, arcn, arct, arcto,%
5706   array, ashow, astore, atan, awidthshow, begin, bind, bitshift,%
5707   bytesavailable, cachestatus, ceiling, charpath, clear, cleartomark,%
5708   cleardictstack, clip, clippath, closefile, closepath, colorimage,%
5709   concat, concatmatrix, condition, copy, cypage, cos, count,%
5710   countdictstack, countexecstack, counttomark, cshow,%
5711   currentblackgeneration, currentcacheparams, currentcmykcolor,%
5712   currentcolor, currentcolorrendering, currentcolorscreen,%
5713   currentcolorspace, currentcolortransfer, currentcontext, currentdash,%
5714   currentdevparams, currentdict, currentfile, currentflat, currentfont,%
5715   currentglobal, currentgray, currentgstate, currenthalftone,%
5716   currenthalftonephase, currenthsbcolor, currentlinecap, currentlinejoin,%
5717   currentlinewidth, currentmatrix, currentmiterlimit,%
5718   currentobjectformat, currentpacking, currentpagedevice, currentpoint,%
5719   currentrgbcolor, currentscreen, currentshared, currentstrokeadjust,%
5720   currentsystemparams, currenttransfer, currentundercolorremoval,%
5721   currentuserparams, curveto, cvi, cvlit, cvn, cvr, cvrs, cvs, cvx, def,%
5722   defaultmatrix, definefont, defineresource, defineusername,%
5723   defineuserobject, deletfile, detach, deviceinfo, dict, dictstack, div,%
5724   dtransform, dup, echo, eexec, end, eoclip, eofill, eoviewclip, eq,%
5725   erasepage, errordict, exch, exec, execform, execstack, execuserobject,%
5726   executeonly, executive, exit, exp, false, file, filenameforall,%
5727   fileposition, fill, filter, findencoding, findfont, findresource,%
5728   flattenpath, floor, flush, flushfile, FontDirectory, for, forall, fork,%
5729   ge, get, getinterval, globaldict, GlobalFontDirectory, glyphshow,%
5730   grestore, grestoreall, gsave, gstate, gt, identmatrix, idiv,%
5731   idtransform, if, ifelse, image, imagemask, index, ineofill, infill,%
5732   initclip, initgraphics, initmatrix, initviewclip, instroke,%
5733   internaldict, inueofill, inufill, inustroke, invertmatrix,%

```

```

5734 ISOLatin1Encoding, itransform, join, kshow, known, languagelevel, le,%
5735 length, lineto, ln, load, lock, log, loop, lt, makefont, makepattern,%
5736 mark, matrix, maxlength, mod, monitor, moveto, mul, ne, neg, newpath,%
5737 noaccess, not, notify, null, nulldevice, or, packedarray, pathbbox,%
5738 pathforall, pop, print, printobject, product, prompt, pstack, put,%
5739 putinterval, quit, rand, rcurveto, read, readhexstring, readline,%
5740 readonly, readstring, realtime, rectclip, rectfill, rectstroke,%
5741 rectviewclip, renamefile, repeat, resetfile, resourceforall,%
5742 resourcestatus, restore, reversepath, revision, rlineto, rmoveto, roll,%
5743 rootfont, rotate, round, rrand, run, save, scale, scalefont, scheck,%
5744 search, selectfont, serialnumber, setbbox, setblackgeneration,%
5745 setcachedevice, setcachedevice2, setcachelimit, setcacheparams,%
5746 setcharwidth, setcmymkcolor, setcolor, setcolorrendering,%
5747 setcolorscreen, setcolorspace, setcolortransfer, setdash, setdevparams,%
5748 setfileposition, setflat, setfont, setglobal, setgray, setgstate,%
5749 sethalftone, sethalftonephase, sethsbcolor, setlinecap, setlinejoin,%
5750 setlinewidth, setmatrix, setmiterlimit, setobjectformat, setoverprint,%
5751 setpacking, setpagedevice, setpattern, setrgbcolor, setscreen,%
5752 setshared, setstrokeadjust, setsystemparams, settransfer,%
5753 setucacheparams, setundercolorremoval, setuserparams, setvmthreshold,%
5754 shareddict, show, showpage, sin, sqrt, srand, stack, StandardEncoding,%
5755 start, startjob, status, statusdict, stop, stopped, store, string,%
5756 stringwidth, stroke, strokepath, sub, systemdict, transform, translate,%
5757 true, truncate, type, token, uappend, ucache, ucachestatus, ueofill,%
5758 ufill, undef, upath, userdict, UserObjects, usertime, ustroke,%
5759 ustrokepath, version, viewclip, viewclippath, vmreclaim, vmstatus,%
5760 wait, wcheck, where, widthshow, write, writehexstring, writeobject,%
5761 writestring, wtranslation, xcheck, xor, xshow, xyshow, yield, yshow},%
5762 sensitive,%
5763 morecomment=[1]\%}[keywords,comments]
5764 /lang3)

```

2.62 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.

```

5765 (*lang1)
5766 %%
5767 %% POV definition (c) 1999 Berthold H"ollmann
5768 %%
5769 \lst@definelanguage{POV}%
5770 {morekeywords={abs,absorption,acos,acosh,adaptive,adc_bailout,agate,%
5771   agate_turb,all,alpha,ambient,ambient_light,angle,aperture,append,%
5772   arc_angle,area_light,array,asc,asin,asinh,assumed_gamma,atan,%
5773   atan2,atanh,average,background,bezier_spline,bicubic_patch,%
5774   black_hole,blob,blue,blur_samples,bounded_by,box,boxed,bozo,%
5775   break,brick,brick_size,brightness,brilliance,bumps,bump_map,%

```

```

5776 bump_size, camera, case, caustics, ceil, checker, chr, clipped_by, clock, %
5777 clock_delta, color, color_map, colour, colour_map, component, %
5778 composite, concat, cone, confidence, conic_sweep, control0, control1, %
5779 cos, cosh, count, crackle, crand, cube, cubic, cubic_spline, cubic_wave, %
5780 cylinder, cylindrical, debug, declare, default, defined, degrees, %
5781 density, density_file, density_map, dents, difference, diffuse, %
5782 dimensions, dimension_size, direction, disc, distance, %
5783 distance_maximum, div, eccentricity, else, emission, end, error, %
5784 error_bound, exp, extinction, fade_distance, fade_power, falloff, %
5785 falloff_angle, false, fclose, file_exists, filter, finish, fisheye, %
5786 flatness, flip, floor, focal_point, fog, fog_alt, fog_offset, fog_type, %
5787 fopen, frequency, gif, global_settings, gradient, granite, %
5788 gray_threshold, green, height_field, hexagon, hf_gray_16, hierarchy, %
5789 hollow, hypercomplex, if, ifdef, iff, ifndef, image_map, include, int, %
5790 interior, interpolate, intersection, intervals, inverse, ior, irid, %
5791 irid_wavelength, jitter, julia_fractal, lambda, lathe, leopard, %
5792 light_source, linear_spline, linear_sweep, local, location, log, %
5793 looks_like, look_at, low_error_factor, macro, mandel, map_type, marble, %
5794 material, material_map, matrix, max, max_intersections, max_iteration, %
5795 max_trace_level, media, media_attenuation, media_interaction, merge, %
5796 mesh, metallic, min, minimum_reuse, mod, mortar, nearest_count, no, %
5797 normal, normal_map, no_shadow, number_of_waves, object, octaves, off, %
5798 offset, omega, omnimax, on, once, onion, open, orthographic, panoramic, %
5799 perspective, pgm, phase, phong, phong_size, pi, pigment, pigment_map, %
5800 planar, plane, png, point_at, poly, polygon, poly_wave, pot, pow, ppm, %
5801 precision, prism, pwr, quadratic_spline, quadric, quartic, quaternion, %
5802 quick_color, quick_colour, quilted, radial, radians, radiosity, radius, %
5803 rainbow, ramp_wave, rand, range, ratio, read, reciprocal, %
5804 recursion_limit, red, reflection, reflection_exponent, refraction, %
5805 render, repeat, rgb, rgbf, rgbft, rgbt, right, ripples, rotate, roughness, %
5806 samples, scale, scallop_wave, scattering, seed, shadowless, sin, %
5807 sine_wave, sinh, sky, sky_sphere, slice, slope_map, smooth, %
5808 smooth_triangle, sor, specular, sphere, spherical, spiral1, spiral2, %
5809 spotlight, spotted, sqr, sqrt, statistics, str, strcmp, strength, strlen, %
5810 strlwr,strupr, Sturm, substr, superellipsoid, switch, sys, t, tan, tanh, %
5811 text, texture, texture_map, tga, thickness, threshold, tightness, tile2, %
5812 tiles, torus, track, transform, translate, transmit, triangle, %
5813 triangle_wave, true, ttf, turbulence, turb_depth, type, u, %
5814 ultra_wide_angle, undef, union, up, use_color, use_colour, use_index, %
5815 u_steps, v, val, variance, vaxis_rotate, vcross, vdot, version, vlength, %
5816 vnormalize, vrotate, v_steps, warning, warp, water_level, waves, while, %
5817 width, wood, wrinkles, write, x, y, yes, z}, %
5818 moredirectives={break, case, debug, declare, default, else, end, fclose, %
5819 fopen, local, macro, read, render, statistics, switch, undef, version, %
5820 warning, write}, %
5821 moredelim=[directive]\#, %
5822 sensitive, %
5823 morecomment=[1]//, %
5824 morecomment=[s]{/*}{*/}, %
5825 morestring=[d] ", %

```

```

5826 }[keywords,directives,comments,strings]%
5827 </lang1>

```

2.63 Prolog

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

```

5828 (*lang2)
5829 %%
5830 %% Prolog definition (c) 1997 Dominique de Waleffe
5831 %%
5832 \lst@definlanguage{Prolog}%
5833 {morekeywords={op,mod,abort,ancestors,arg,ascii,ask,assert,asserta,%
5834     assertz,atom,atomic,char,clause,close,concat,consult,ed,ef,em,%
5835     eof,fail,file,findall,write,functor,getc,integer,is,length,%
5836     listing,load,name,nl,nonvar,not,numbervars,op,or,pp,prin,print,%
5837     private,prompt,putc,ratom,read,read_from_this_file,rename,repeat,%
5838     retract,retractall,save,see,seeing,seen,sh,skip,statistics,%
5839     subgoal_of,system,tab,tell,telling,time,told,trace,true,unload,%
5840     untrace,var,write},%
5841     sensitive=f,%
5842     morecomment=[1]\%,%
5843     morecomment=[s]{/*}{*/},%
5844     morestring=[bd]" ,%
5845     morestring=[bd]'%
5846 }[keywords,comments,strings]%
5847 </lang2>

```

2.64 Promela

Thanks to William ThimblebyPromela for this language definition.

```

5848 (*lang3)
5849 %%
5850 %% Promela definition (c) 2004 William Thimbleby
5851 %%
5852 \lst@definlanguage{Promela}
5853 {morekeywords={active,assert,atomic,bit,bool,break,byte,chan,d_step,%
5854     Dproctype,do,else,empty,enabled,fi,full,goto,hidden,if,init,int,%
5855     len,mtype,nempty,never,nfull,od,of,pcvalue,printf,priority,%
5856     proctype,provided,run,short,skip,timeout,typedef,unless,unsigned,%
5857     xr,xs,true,false,inline,eval},%
5858     moredirectives={define,ifdef,ifndef,if,if,else,endif,undef,include},%
5859     moredelim=[directive]\#,%
5860     morecomment=[s]{/*}{*/},%
5861     morestring=[b]"%
5862 }[keywords,comments,strings,directives]%
5863 </lang3>

```

2.65 PSTricks

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

```
5864 (*lang3)
5865 %%
5866 %% PSTricks definition (c) 2006 Herbert Voss
5867 %%
5868 \lst@definlanguage{PSTricks}%
5869 {morekeywords={%
5870   begin,end,definecolor,multido,%
5871   KillGlue,DontKillGlue,pslbrace,bsrbrace,psscalebox,psset,pstVerb,pstverb,%
5872   pst@def,psframebox,psclip,endclip,endpspicture,psframe,%
5873 %%   pspicture,%
5874   multirput,multips,Rput,rput,uput,cput,lput,%
5875   newrgbcolor,newgray,newcmykcolor,%
5876 %%
5877 %% pstricks-add
5878   psStep,psgraph,psbrace,psPrintValue,%
5879 %%
5880 %% pst-plot
5881   psvlabel,pshlabel,psplot,psline,pscustom,pscurve,psccurve,%
5882   readdata,savedata,fileplot,dataplot,listplot,%
5883   psecurve,psgraph,parametricplot,%
5884   psellipse,psaxes,ncline,nccurve,psbezier,parabola,%
5885   qdisk,qline,clipbox,endpsclip,%
5886   psgrid,pscircle,pscirclebox,psdiabox,pstribox,%
5887   newpsfontdot,psdot,psdots,%
5888   pspolygon,psdiamond,psoval,pstriangle,%
5889   psarc,psarcn,psellipticarc,psellipticarcn,pswedge,psellipticwedge,%
5890   pcline,pcdiag,pcdiagg,pccurve,pcurve,pcecurve,%
5891   scalebox,scaleboxto,psmathboxtrue,everypsbox,psverbboxtrue,overlaybox,%
5892   psoverlay,putoverlaybox,%
5893   newpsstyle,newpsobject,%
5894   moveto,newpath,closepath,stroke,fill,gsave,grestore,msave,mrestore,%
5895   translate,scale,swapaxes,rotate,openshadow,closedshadow,movepath,%
5896   lineto,rlineto,curveto,rcurveto,code,dim,coor,rcoor,file,arrows,%
5897   setcolor,rotateleft,rotateright,rotatedown,%
5898 %%
5899 %% pst-node
5900   nput,naput,nbput,ncput,%
5901   ncarc,ncbox,ncangle,ncangles,ncloop,ncdiag,ncdiagg,ncarcbox,ncbar,%
5902   cnodeput,nccircle,%
5903   pnode,rnode,Rnode,Cnode,cnode,fnode,%
5904   circlenode,ovalnode,trinode,dianode,%
5905   psmatrix,endpsmatrix,psspan,%
5906 %%
5907 %% pst-tree
5908   pstree,Tcircle,TCircle,Ttri,Tn,TC,Tc,Tfan,TR,Tr,Tdia,Toval,Tdot,Tp,Tf,%
```

```

5909     skiplevel,skiplevels,endskiplevels,tSPACE,tlput,%
5910 %%
5911 %% pst-text
5912     pscharpath,pstextpath,%
5913 %%
5914 %% pst-barcode
5915     psbarcode,%
5916 %%
5917 %% pst-coil
5918     psboxfill,pscoil,psCoil,pszigzag,nccoil,%
5919     psshadow,pstilt,psTilt,ThreeDput,%
5920 %%
5921 %% pst-gr3d
5922     PstGridThreeDNodeProcessor,%
5923 %%
5924 %% pst-vue3d
5925     PstGridThreeD,%
5926     AxesThreeD,LineThreeD,DieThreeD,FrameThreeD,SphereCircleThreeD,%
5927     SphereMeridienThreeD,QuadrillageThreeD,TetraedreThreeD,%
5928     PyramideThreeD,ConeThreeD,CylindreThreeD,DodecahedronThreeD,%
5929     ConeThreeD,SphereThreeD,SphereInverseThreeD,DemiSphereThreeD,%
5930     SphereCreuseThreeD,SphereCircledThreeD,PortionSphereThreeD,%
5931     pNodeThreeD,CubeThreeD,%
5932 %%
5933 %% pst-3dplot
5934     pstThreeDCoor, pstThreeDDot, pstThreeDTriangle, pstThreeDCircle,%
5935     pstPlanePut, pstThreeDBox, pstThreeDEllipse, pstThreeDLine,%
5936     pstThreeDPut, pstThreeDNode, pstThreeDSquare, psplotThreeD,%
5937     parametricplotThreeD, fileplotThreeD, dataplotThreeD,%
5938     pstScalePoints,%
5939 %%
5940 %% pst-circ
5941     resistor,battery,Ucc,Icc,capacitor,coil,diode,Zener,LED,lamp,switch,%
5942     wire,tension,circledipole,multidipole,OA,transistor,Tswitch,%
5943     potentiometer,transformer,optoCoupler,logic,%
5944 %%
5945 %% pst-eucl
5946     pstTriangle,pstMediatorAB,pstInterLL,pstMiddleAB,pstProjection,%
5947     pstCircleOA,pstLineAB,%
5948 %%
5949 %% pst-func
5950     psBessel,psPolynomial,psFourier,psGaussI,psGauss,psSi,psSi,psCi,psCi,%
5951 %%
5952 %% pst-infixplot
5953     psPlot,%
5954 %%
5955 %% pst-ob3d
5956     PstDie,PstCube,%
5957 %%
5958 %% pst-poly

```

```

5959   PstPolygon,pspolygonbox,%
5960 %%
5961 %% pst-bar
5962   psbarchart,readpsbardata,psbarscale,newpsbarstyle,%
5963 %%
5964 %% pst-lens
5965   PstLens,%
5966 %%
5967 %% pst-geo
5968   WorldMap,WorldMapII,WorldMapThreeD,WorldMapThreeDII,pnodeMap,MapPut,%
5969 %%
5970 %% pst-autoseg
5971   asr,firstnode,merge,massoc,labelmerge,%
5972 %%
5973 %% gastex
5974   node,imark,fmark,rmark,drawqbpedge,drawedge,drawloop,%
5975 %%
5976 %% pst-labo
5977   Distillation,Ballon,%
5978 %%
5979 %% pst-optic
5980   lens,Transform,%
5981 %%
5982 %% pst-light3d
5983   PstLightThreeDText,%
5984 %%
5985 %% calendrier
5986   Calendrier,%
5987 %%
5988 %% pst-osci
5989   Oscillo%
5990 },%
5991   sensitive,%
5992   alsoother={0123456789$_},%
5993   morecomment=[1]\% %
5994   }[keywords,comments]%
5995 </lang3>

```

2.66 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.

```

5996 (*lang1)
5997 %%

```

```

5998 %% Python definition (c) 1998 Michael Weber
5999 %% Additional definitions (2013) Alexis Dimitriadis
6000 %%
6001 \lst@definelanguage{Python}{%
6002   morekeywords={access, and, break, class, continue, def, del, elif, else,%
6003     except, exec, finally, for, from, global, if, import, in, is, lambda,%
6004     not, or, pass, print, raise, return, try, while},%

```

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

```

6005   % Built-ins
6006   morekeywords=[2]{abs, all, any, basestring, bin, bool, bytearray,%
6007     callable, chr, classmethod, cmp, compile, complex, delattr, dict, dir,%
6008     divmod, enumerate, eval, execfile, file, filter, float, format,%
6009     frozenset, getattr, globals, hasattr, hash, help, hex, id, input, int,%
6010     isinstance, issubclass, iter, len, list, locals, long, map, max,%
6011     memoryview, min, next, object, oct, open, ord, pow, property, range,%
6012     raw_input, reduce, reload, repr, reversed, round, set, setattr, slice,%
6013     sorted, staticmethod, str, sum, super, tuple, type, unichr, unicode,%
6014     vars, xrange, zip, apply, buffer, coerce, intern},%
6015   sensitive=true,%
6016   morecomment=[l]\#,%
6017   morestring=[b]',,%
6018   morestring=[b]",,%

```

According to PEP (Python Enhancement Proposals) comment should be distinguished from documentation strings, so we define

```

6019   morecomment=[s]{''''}{''''},% used for documentation text
6020                                     % (multiline strings)
6021   morecomment=[s]{""""}{""""},% added by Philipp Matthias Hahn

```

Jürgen Dietel provided an example with a wrong representation of documentation strings, so the two lines above got changed from `morestring` → `morecomment`.

Python now supports so called *raw strings* and also Unicode strings. Here is the definition of these strings:

```

6022   morestring=[s]{r'}{''},% 'raw' strings
6023   morestring=[s]{r"}{"},%
6024   morestring=[s]{r'''}{''''},%
6025   morestring=[s]{r"""}{""""},%
6026   morestring=[s]{u'}{''},% unicode strings
6027   morestring=[s]{u"}{"},%
6028   morestring=[s]{u'''}{''''},%
6029   morestring=[s]{u"""}{""""}%
6030 }%

```

Philipp Matthias Hahn added the third comment. 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.

```

6031 </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:

```
6032 (*python-prf)
6033 \usepackage{xcolor}
6034 \usepackage{textcomp}
6035
6036 %% Actual colors from idlelib/config-highlight.def
6037 %% --> corrected to 'web-safe'
6038 %% strings = #00aa00 / 0,170,0 (a darker green)
6039 %% builtins = #900090 / 144,0,144 (purple-ish)
6040 %% keywords = #FF7700 / 255,119,0 (quite close to plain 'orange')
6041 \%definecolor{IDLEorange}{RGB}{255,119,0} % pretty close to real orange
6042 \%definecolor{IDLEpurple}{RGB}{144,0,144}
6043 \%definecolor{IDLEgreen}{RGB}{0,170,0}
6044 \%definecolor{IDLERed}{RGB}{221,0,0}
6045 %% Corrected to 'web-safe'
6046 \%definecolor{orange2}{RGB}{255,102,0}
6047 \%definecolor{purple2}{RGB}{153,0,153} % there's actually no standard purple
6048 \%definecolor{green2}{RGB}{0,153,0} % a darker green
6049 \%definecolor{red2}{RGB}{221,0,0}
6050
6051 % Except for green and purple, the other colors are pretty good in standard
6052 % hue
6053 \lstdefinestyle{python-idle-code}{%
6054 language=Python, % the language
6055 basicstyle=\normalsize\ttfamily, % size of the fonts for the code
6056 % Color settings to match IDLE style
6057 keywordstyle=\color{orange}, % core keywords
6058 keywordstyle={[2]\color{purple2}}, % built-ins
6059 stringstyle=\color{green2},%
6060 commentstyle=\color{red2},%
6061 upquote=true, % requires textcomp
6062 }
6063 % Unimplemented IDLE syntax: function/class names being defined should be
6064 % blue
```

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

```
6065 (/python-prf)
```

2.67 Rexx

Patrick TJ McPhee provided this definition.

```
6066 (*lang2)
6067 %%
6068 %% classic rexx listings definition
6069 %% by Patrick TJ McPhee <ptjm@interlog.com>
6070 %%
```

```

6071 \lst@definlanguage{Rexx}{%
6072   morekeywords={address,arg,call,do,drop,else,end,exit,if,interpret,%
6073               iterate,leave,nop,numeric,options,otherwise,parse,%
6074               procedure,pull,push,queue,return,say,select,signal,then,%
6075               to,trace,when},%
6076   sensitive=false,%
6077   morecomment=[n]{/*}{*/},%
6078   morestring=[d]{'},%
6079   morestring=[d]{"},%
6080 }[keywords,comments,strings]%
6081 </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/>).

2.67.1 Rexx—VM/XA

```

6082 (*lang2)
6083 %%
6084 %% REXX keywords from System Product Interpreter Reference, VM/XA SP Release 1
6085 %% and Release 2
6086 \lst@definlanguage[VM/XA]{Rexx}[] {Rexx}{%
6087   morekeywords={all,by,digits,commands,end,engineering,error,errors,expose,%
6088               external,for,form,fuzz,halt,labels,intermediates,negative,normal,novalue,%
6089               on,off,results,scan,scientific,select,source,stream,syntax,until,upper,%
6090               value,var,version,while,with},%
6091   morekeywords=[2]{abbrev,abs,address,bitand,bitor,bitxor,center,centre,%
6092               compare,copies,c2d,c2x,datatype,date,delstr,delword,diag,diagrc,%
6093               d2c,d2x,errortext,externals,find,format,index,insert,justify,%
6094               lastpos,left,length,linein,lineout,lines,linesize,max,min,overlay,%
6095               pos,queued,random,reverse,righth,sign,sourceline,space,storage,%
6096               strip,substr,subword,symbol,time,translate,trunc,userid,value,verify,%
6097               word,wordindex,wordlength,words,xrange,x2c,x2d},%
6098   morekeywords=[3]{result,rc,self,sigl,super},%
6099   sensitive=false,%
6100   morestring=[d]",%
6101   morestring=[d]',%
6102   morecomment=[s]{/*}{*/},%
6103 }[keywords,comments,strings]%
6104 </lang2>

```

2.67.2 ooRexx

```

6105 (*lang2)
6106 %%
6107 %% ooREXX keywords (http://www.oorexx.org/)
6108 \lst@definlanguage[] {OORexx}[VM/XA]{Rexx}{%
6109   morekeywords={::annotate,::attribute,::class,::constant,::method,%

```

```

6110     ::options, ::requires, ::resource, ::routine,%
6111     forward, guard, local, loop, raise, strict,%
6112     },%
6113     alsoletter={:},%
6114 }[keywords,comments,strings]
6115 </lang2>

```

2.68 Reduce

was provided by Geraint Paul Bevan.

```

6116 <*lang3>
6117 %%
6118 %% Reduce definition (c) 2002 Geraint Paul Bevan
6119 %%
6120 \lst@definelanguage{Reduce}%
6121 {morekeywords={%
6122 %% reserved identifiers
6123 abs,acos,acosh,acot,acoth,acsc,acsch,%
6124 adjprec,algebraic,algint,allbranch,allfac,and,%
6125 antisymmetric,append,arglength,array,asec,asech,%
6126 asin,asinh,atan,atan2,atanh,begin,bfspace,bye,%
6127 card_no,ceiling,clear,clearrules,coeff,coeffn,%
6128 cofactor,combineexpt,combinelogs,comment,comp,%
6129 complex,conj,cons,cont,cos,cosh,cot,coth,cramer,%
6130 cref,csc,csch,decompose,define,defn,deg,demo,den,%
6131 depend,det,df,difference,dilog,display,div,do,e,%
6132 echo,ed,editdef,ei,end,eps,eq,equal,erf,errcont,%
6133 evallhseqp,eval_mode,even,evenp,exp,expandlogs,%
6134 expr,expt,ezgcd,factor,factorial,factorize,fexpr,%
6135 first,fix,fixp,floor,for,forall,foreach,fort,%
6136 fort_width,freeof,fullroots,g,gcd,geq,go,goto,%
6137 greaterp,high_pow,hypot,i,if,ifactor,impart,in,%
6138 index,infinity,infix,input,int,integer,interpol,%
6139 intstr,k,korder,lambda,lcm,lcof,length,leq,lessp,%
6140 let,lhs,linear,linelength,lisp,list,listargp,%
6141 listargs,ln,load,load_package,log,log10,logb,%
6142 low_pow,lterm,macro,mainvar,mass,mat,match,%
6143 mateigen,matrix,max,mcd,member,memq,min,minus,mkid,%
6144 modular,msg,mshell,multiplicities,nat,neq,nero,%
6145 nextprime,nil,nodepend,noncom,nonzero,nosplit,%
6146 nospur,nullspace,num,numberp,odd,off,on,operator,%
6147 or,order,ordp,out,output,part,pause,period,pf,pi,%
6148 plus,precedence,precise,precision,pret,pri,primep,%
6149 print_precision,procedure,product,quit,quotient,%
6150 random,random_new_seed,rank,rat,ratarg,rational,%
6151 rationalize,ratpri,real,rederr,reduct,remainder,%
6152 remfac,remind,repert,repeat,rest,resultant,retry,%
6153 return,reverse,revpri,rhs,rlistp88,%
6154 root_multiplicity,round,roundall,roundbf,rounded,%

```

```

6155 saveas,savestructr,scalar,sec,sech,second,set,%
6156 setmod,setq,share,showrules,showtime,shut,sign,sin,%
6157 sinh,smacro,solve,solvesingular,spur,sqrt,structr,%
6158 sub,sum,symbolic,symmetric,t,tan,tanh,third,time,%
6159 times,tp,tra,trace,trfac,trigform,trint,until,%
6160 varname,vecdim,vector,weight,when,where,while,%
6161 write,ws,wlevel,%
6162 %% identifiers with spaces
6163 %% for all,for each,go to,such that,%
6164 },%
6165 sensitive=false,%
6166 morecomment=[l]\%,%
6167 morecomment=[s]{COMMENT}{;},%
6168 morecomment=[s]{COMMENT}{$},%
6169 morestring=""
6170 }[keywords,comments,strings]%
6171 </lang3>

```

2.69 RSL

Thanks go to Brian Christensen.

```

6172 (*lang3)
6173 %%
6174 %% RSL definition (c) 2004 Brian Christensen
6175 %%
6176 \lst@definelanguage{RSL}%
6177 {morekeywords={Bool,Char,devt_relation,Int,Nat,Real,Text,Unit,abs,any,%
6178 as,axiom,card,case,channel,chaos,class,do,dom,elems,else,elsif,end,%
6179 extend,false,for,hd,hide,if,in,inds,initialise,int,len,let,local,%
6180 object,of,out,post,pre,read,real,rng,scheme,skip,stop,swap,%
6181 test_case,theory,then,tl,true,type,until,use,value,variable,while,%
6182 with,write},%
6183 literate=%
6184 {<}{<<}{1}%
6185 {>}{>>}{1}%
6186 {[]}{$[}{1}%
6187 {[]}{$]}{1}%
6188 {^}{\mbox{\widehat{\;}}}{1}%
6189 {'}{\raisebox{1ex}[1ex][0ex]{\protect\scriptsize$\prime$}}{1}%
6190 {||}{\mbox{\parallel}}{2}%
6191 {|-}{\vdash}{1}%
6192 {|=}{\mbox{\lceil\!\rceil\!\!\!\!\!\;\!\lfloor\!\rfloor}}{1}%
6193 {**}{\uparrow}{1}%
6194 {/\}{\wedge}{1}%
6195 {inter}{\cap}{1}%
6196 {-\}{\lambda}{1}%
6197 {->}{\rightarrow}{1}%
6198 {-m->}{\mbox{\rightarrow \hspace{-2.5\lst@width} _{m}\;}}{1}%

```

6199 $\{\sim m \rightarrow\}$ $\{\{\mbox{\$}\stackrel{\sim}{\sim}\{\mbox{\$}\rightarrow\}$
6200 $\hspace{-2.5\lst@width} _m\backslash;\}$ $\}\}$ $\{1\}$ %
6201 $\{-\sim \rightarrow\}$ $\{\{\mbox{\$}\stackrel{\sim}{\sim}\{\mbox{\$}\rightarrow\}\}\}$ $\{1\}$ %
6202 $\{-\text{set}\}$ $\{\{\bf{-set}\}\}$ $\{4\}$ %
6203 $\{-\text{list}\}$ $\{\{\$\^{\sim}\{\ast}\}\}$ $\{1\}$ %
6204 $\{-\text{inflat}\}$ $\{\{\$\^{\sim}\omega\}\}$ $\{1\}$ %
6205 $\{-\text{infset}\}$ $\{\{\mbox{\$}\{\bf{-infset}\}\}\}$ $\{7\}$ %
6206 $\{\#\}$ $\{\{\$\circ\}\}$ $\{1\}$ %
6207 $\{:-\}$ $\{\{\raisebox{.4ex}\{\tiny \$\bullet\}\}\}$ $\{1\}$ %
6208 $\{=\}$ $\{\{\$=\}\}$ $\{1\}$ %
6209 $\{==\}$ $\{\{\$==\}\}$ $\{2\}$ %
6210 $\{=\>\}$ $\{\{\$\rightarrow\}\}$ $\{1\}$ %
6211 $\{\backslash \text{is}\backslash\text{protect}\backslash\^{\sim}M\}$ $\{\{\$\backslash;\text{equiv}\}\}$ $\{2\}$ %
6212 $\{\backslash \text{is}\ \}$ $\{\{\$\backslash\text{equiv}\}\}$ $\{3\}$ %
6213 $\{\backslash \text{isin}\backslash\text{protect}\backslash\^{\sim}M\}$ $\{\{\$\backslash;\text{in}\}\}$ $\{2\}$ %
6214 $\{\sim\}$ $\{\{\$\sim\}\}$ $\{1\}$ %
6215 $\{\sim=\}$ $\{\{\$\neq\}\}$ $\{1\}$ %
6216 $\{\sim\text{isin}\}$ $\{\{\$\notin\}\}$ $\{1\}$ %
6217 $\{+\>\}$ $\{\{\$\mapsto\}\}$ $\{1\}$ %
6218 $\{++\}$ $\{\}$ $\{1\}$ %
6219 $\{\lceil\}$ $\{\{\mbox{\$}\lceil\!\rceil\}\}$ $\{1\}$ %
6220 $\{\vee\}$ $\{\{\$\vee\}\}$ $\{1\}$ %
6221 $\{\text{exists}\}$ $\{\{\$\text{exists}\}\}$ $\{1\}$ %
6222 $\{\text{union}\}$ $\{\{\$\cup\}\}$ $\{1\}$ %
6223 $\{\>=\}$ $\{\{\$\geq\}\}$ $\{1\}$ %
6224 $\{\>\<\}$ $\{\{\$\times\}\}$ $\{1\}$ %
6225 $\{\>\>\}$ $\{\{\$\supset\}\}$ $\{1\}$ %
6226 $\{\>=>\}$ $\{\{\$\supseteq\}\}$ $\{1\}$ %
6227 $\{\<=\}$ $\{\{\$\leq\}\}$ $\{1\}$ %
6228 $\{\<\<\}$ $\{\{\$\subset\}\}$ $\{1\}$ %
6229 $\{\<.\}$ $\{\{\$\langle\}\}$ $\{1\}$ %
6230 $\{\<=<=\}$ $\{\{\$\subseteq\}\}$ $\{1\}$ %
6231 $\{\<-\>\}$ $\{\{\$\leftarrow\rightarrow\}\}$ $\{1\}$ %
6232 $\{\{=\}$ $\{\{\$\sqsubseteq\}\}$ $\{1\}$ %
6233 $\{\backslash\{=\}$ $\{\{\$\preceq\}\}$ $\{1\}$ %
6234 $\{\backslash \text{all}\backslash\text{protect}\backslash\^{\sim}M\}$ $\{\{\$\forall\}\}$ $\{2\}$ %
6235 $\{\backslash \text{all}\ \}$ $\{\{\$\forall\}\}$ $\{3\}$ %
6236 $\{\dagger\}$ $\{\{\$\dagger\}\}$ $\{1\}$ %
6237 $\{\text{always}\}$ $\{\{\$\Box\}\}$ $\{1\}$ %
6238 $\{\cdot.\}$ $\{\{\$\rangle\}\}$ $\{1\}$ %
6239 $\{\text{'alpha}\}$ $\{\{\$\alpha\}\}$ $\{1\}$ %
6240 $\{\text{'beta}\}$ $\{\{\$\beta\}\}$ $\{1\}$ %
6241 $\{\text{'gamma}\}$ $\{\{\$\gamma\}\}$ $\{1\}$ %
6242 $\{\text{'delta}\}$ $\{\{\$\delta\}\}$ $\{1\}$ %
6243 $\{\text{'epsilon}\}$ $\{\{\$\epsilon\}\}$ $\{1\}$ %
6244 $\{\text{'zeta}\}$ $\{\{\$\zeta\}\}$ $\{1\}$ %
6245 $\{\text{'eta}\}$ $\{\{\$\eta\}\}$ $\{1\}$ %
6246 $\{\text{'theta}\}$ $\{\{\$\theta\}\}$ $\{1\}$ %
6247 $\{\text{'iota}\}$ $\{\{\$\iota\}\}$ $\{1\}$ %
6248 $\{\text{'kappa}\}$ $\{\{\$\kappa\}\}$ $\{1\}$ %

```

6249 {'mu'}{${\mu$}}{1}%
6250 {'nu'}{${\nu$}}{1}%
6251 {'xi'}{${\xi$}}{1}%
6252 {'pi'}{${\pi$}}{1}%
6253 {'rho'}{${\rho$}}{1}%
6254 {'sigma'}{${\sigma$}}{1}%
6255 {'tau'}{${\tau$}}{1}%
6256 {'upsilon'}{${\upsilon$}}{1}%
6257 {'phi'}{${\phi$}}{1}%
6258 {'chi'}{${\chi$}}{1}%
6259 {'psi'}{${\psi$}}{1}%
6260 {'omega'}{${\omega$}}{1}%
6261 {'Gamma'}{${\Gamma$}}{1}%
6262 {'Delta'}{${\Delta$}}{1}%
6263 {'Theta'}{${\Theta$}}{1}%
6264 {'Lambda'}{${\Lambda$}}{1}%
6265 {'Xi'}{${\Xi$}}{1}%
6266 {'Pi'}{${\Pi$}}{1}%
6267 {'Sigma'}{${\Sigma$}}{1}%
6268 {'Upsilon'}{${\Upsilon$}}{1}%
6269 {'Phi'}{${\Phi$}}{1}%
6270 {'Psi'}{${\Psi$}}{1}%
6271 {'Omega'}{${\Omega$}}{1},%
6272   sensitive=true,%
6273   morecomment=[1]{--},%
6274   morecomment=[s]{/*}{*/}%
6275 }[keywords,comments]%
6276 </lang3>

```

2.70 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.

```

6277 (*lang2)
6278 \lst@definelanguage{Ruby}%
6279   {morekeywords={__FILE__, __LINE__, BEGIN, END, alias, and, begin, break,%
6280     case, class, def, defined?, do, else, elsif, end, ensure, false, for,%
6281     if, in, module, next, nil, not, or, redo, rescue, retry, return, self,%
6282     super, then, true, undef, unless, until, when, while, yield},%
6283   sensitive=true,%
6284   morecomment=[1]\#,%
6285   morecomment=[1]\#\#,%

```

```

6286  morecomment=[s]{=BEGIN}{=END},%
6287  morestring=[b]',%
6288  morestring=[b]" ,%
6289  morestring=[s]{\%q/}{/},%
6290  morestring=[s]{\%q!}{!},%
6291  morestring=[s]{\%q\}{\},%
6292  morestring=[s]{\%q(}{(},%
6293  morestring=[s]{\%q[}{[},%
6294  morestring=[s]{\%q-}{-},%
6295  morestring=[s]{\%Q/}{/},%
6296  morestring=[s]{\%Q!}{!},%
6297  morestring=[s]{\%Q\}{\},%
6298  morestring=[s]{\%Q(}{(},%
6299  morestring=[s]{\%Q[}{[},%
6300  morestring=[s]{\%Q-}{-}%
6301  ][keywords,comments,strings]%
6302 %   \begin{macrocode}
6303 </lang2>

```

2.71 Scilab

Thanks go to Jean-Philippe Grivet.

```

6304 (*lang1)
6305 %%
6306 %% Scilab definition (c) 2002,2003 Jean-Philippe Grivet
6307 %%
6308 \lst@definlanguage{Scilab}%
6309 {morekeywords={abcd,abinv,abort,abs,acoshm,acosh,acosm,acos,addcolor,%
6310     addf,addinter,addmenu,add_edge,add_node,adj2sp,adj_lists,aff2ab,%
6311     amell,analpf,analyze,ans,apropos,arc_graph,arc_number,argn,arhmk,%
6312     arl2,arma2p,armac,armax1,armax,arma,arsimul,artest,articul,ascii,%
6313     asinhm,asinh,asinm,asin,atanhm,atanh,atanm,atan,augment,auread,%
6314     auwrite,balanc,balreal,bandwr,basename,bdiag,besseli,besselj,%
6315     besserk,bessely,best_match,bezout,bifish,bilin,binomial,black,%
6316     bloc2exp,bloc2ss,bode,bool2s,boolean,boucle,break,bstap,buttmag,%
6317     bvode,cainv,calerf,calfrq,call,canon,casc,case,ccontrg,cdfbet,%
6318     cdfbin,cdfchi,cdfchn,cdfnc,cdf,cdfgam,cdfnbn,cdfnor,cdfpoi,%
6319     cdft,ceil,center,cepstrum,chaintest,chain_struct,champ1,champ,%
6320     chart,chdir,cheb1mag,cheb2mag,check_graph,check_io,chepol,chfact,%
6321     chol,chsolve,circuit,classmarkov,clean,clearfun,clearglobal,%
6322     clear,close,cls2dls,cmb_lin,cmdred,cmoment,code2str,coeff,coffg,%
6323     coff,colcompr,colcomp,colinout,colormap,colregul,companion,comp,%
6324     cond,conj,connex,contour2di,contour2d,contourf,contour,%
6325     contract_edge,contrss,contr,cont_frm,cont_mat,convex_hull,convol,%
6326     convstr,con_nodes,copfac,copy,correl,corr,coshm,cosh,cosm,cos,%
6327     cotg,cothm,coth,covar,csim,cspect,ctr_gram,cumprod,cumsum,%
6328     curbloc,cycle_basis,czt,c_link,dasrt,dassl,datafit,date,dbphi,%
6329     dcf,ddp,debug,dec2hex,deff,definedfields,degree,delbpt,%
6330     delete_arcs,delete_nodes,delete,delip,delmenu,demos,denom,%

```

```

6331 derivative,derivat,des2ss,des2tf,determ,detr,det,dft,dhinf,%
6332 dhnorm,diag,diary,diff,diophant,dirname,dispbpt,dispfiles,disp,%
6333 dlgamma,double,dragrect,drawaxis,drawlater,drawnow,draw,driver,%
6334 dscr,dsearch,dsimul,dtsi,dt_ility,duplicate,edge_number,%
6335 edit_curv,edit_graph_menus,edit_graph,edit,eigenmarkov,ell1mag,%
6336 elseif,else,emptystr,endfunction,end,eqfir,eqiir,equil1,equil,%
6337 ereduc,erfcx,erfc,erf,errbar,errcatch,errclear,error,eval3dp,%
6338 eval3d,eval,evans,evstr,excel2sci,execstr,exec,exists,exit,expm,%
6339 exp,external,eye,fac3d,factors,faurre,fchamp,fcontour2d,fcontour,%
6340 fec,feedback,feval,ffilt,fftshift,fft,fgrayplot,figure,fileinfo,%
6341 file,filter,findm,findobj,findxOBD,find_freq,find_path,find,%
6342 findABCD,findAC,findBD,findBDK,findR,fit_dat,fix,floor,flts,foo,%
6343 formatman,format,fort,for,fourplan,fplot2d,fplot3d1,fplot3d,%
6344 fprintf,fprintfMat,frep2tf,freq,freson,frexp,frfit,frmag,fscanf,%
6345 fscanfMat,fsfirlin,fsolve,fspecg,fstabst,fstair,fstest,ftuneq,%
6346 fullrfrk,fullrf,full,fun2string,funcprot,functions,function,%
6347 funptr,fusee,gainplot,gamitg,gammaln,gamma,gcare,gcd,gcf,%
6348 genfac3d,genlib,genmarkov,gen_net,geom3d,geomean,getblocklabel,%
6349 getcolor,getcurblock,getcwd,getdate,getd,getenv,getfield,getfont,%
6350 getf,getio,getlinestyle,getmark,getpid,getsicosvars,getsymbol,%
6351 getvalue,getversion,get_function_path,get,gfare,gfrancis,girth,%
6352 givens,glever,glist,global,glue,gpeche,graduate,grand,%
6353 graphics_entities,graph_2_mat,graph_center,graph_complement,%
6354 graph_diameter,graph_power,graph_simp,graph_sum,graph_union,%
6355 graph-list,graycolormap,grayplot,graypolarplot,grep,group,%
6356 gr_menu,gschur,gsort,gspec,gstacksize,gtilde,g_margin,h2norm,halt,%
6357 hamilton,hankelsv,hank,harmean,havewindow,help,hermit,hess,%
6358 hex2dec,hilb,hinf,hist3d,histplot,horner,host,hotcolormap,%
6359 householder,hrmt,htrianr,hypermat,h_cl,h_inf_st,h_inf,h_norm,%
6360 iconvert,icon_edit,ieee,if,iirgroup,iirlp,iir,ilib_build,%
6361 ilib_compile,ilib_for_link,ilib_gen_gateway,ilib_gen_loader,%
6362 ilib_gen_Make,imag,impl,imrep2ss,imult,im_inv,inistate,input,%
6363 int16,int2d,int32,int3d,int8,intc,intdec,integrate,interp,%
6364 interp,intersci,intersect,intg,intl,intppty,intsplin,inttrap,%
6365 inttype,int,invr,invsyslin,inv_coeff,inv,iqr,isdef,isdir,isequal,%
6366 iserror,isglobal,isinf,isnan,isoview,isreal,is_connex,jmat,%
6367 justify,kalm,karmarkar,kernel,keyboard,knapsack,kpure,krac2,%
6368 kroneck,kron,lasterror,lattn,lattp,lcf,lcmdiag,lcm,ldivf,ldiv,%
6369 leastsq,legends,length,leqr,levin,lev,lex_sort,lft,lgfft,library,%
6370 lib,lin2mu,lincos,lindquist,lines,line_graph,linfn,linf,link,%
6371 linmeq,linpro,linsolve,linspace,lin,listfiles,list,lmisolver,%
6372 lmitool,loadmatfile,loadplots,loadwave,load_graph,load,locate,%
6373 log10,log1p,log2,logm,logspace,log,lotest,lqe,lqg2stan,lqg_ltr,%
6374 lqg,lqr,lsq,lsslist,lstcat,lstsize,ltitr,ludel,lufact,luget,%
6375 lusolve,lu,lyap,macglov,macr2lst,macrovar,macro,mad,make_graph,%
6376 make_index,manedit,man,mapsound,markp2ss,matfile2sci,matrix,%
6377 mat_2_graph,maxi,max_cap_path,max_clique,max_flow,max,mclearerr,%
6378 mclose,meanf,mean,median,meof,mese,mesh2d,mfft,mfile2sci,mgeti,%
6379 mgetl,mgetstr,mget,milk_drop,mine,mini,minreal,minss,%
6380 min_lcost_cflow,min_lcost_flow1,min_lcost_flow2,min_qcost_flow,%

```

```

6381 min_weight_tree,min,mlist,mode,modulo,moment,mopen,move,%
6382 mps2linpro,mputl,mputstr,mput,mrfit,msd,mseek,mtell,mtlb_load,%
6383 mtlb_mode,mtlb_save,mtlb_sparse,mu2lin,mulf,mvvcov,m_circle,%
6384 names,nand2mean,nanmax,nanmeanf,nanmean,nanmedian,nanmin,%
6385 nanstdev,nansum,narsimul,ndims,nearfloat,nehari,neighbors,%
6386 netclose,netwindows,netwindow,newest,newfun,nextpow2,nf3d,nfreq,%
6387 nlev,nnz,nodes_2_path,nodes_degrees,node_number,noisegen,norm,%
6388 null,numdiff,numer,nyquist,obscont1,obscont,observer,obsvss,%
6389 obsv_mat,obs_gram,odedc,odedi,odeoptions,ode_discrete,ode_root,%
6390 ode,oldload,oldsave,ones,optim,orth,param3d1,param3d,%
6391 paramfplot2d,parrot,part,pathconvert,path_2_nodes,pause,pbig,%
6392 pdiv,pen2ea,pencan,penlaur,perctl,perfect_match,pertrans,pfss,%
6393 phasemag,phc,pinv,pipe_network,playsnd,plot2d1,plot2d2,plot2d3,%
6394 plot2d4,plot2d,plot3d1,plot3d2,plot3d3,plot3d,plotframe,%
6395 plotprofile,plot_graph,plot,plzr,pmodulo,pol2des,pol2str,pol2tex,%
6396 polarplot,polar,polfact,poly,portr3d,portrait,power,ppol,prbs_a,%
6397 predecessors,predef,printf,printing,print,prod,profile,projsl,%
6398 projspec,proj,psmall,pspect,pvm_addhosts,pvm_barrier,pvm_bcast,%
6399 pvm_bufinfo,pvm_config,pvm_delhosts,pvm_error,pvm_exit,%
6400 pvm_f772sci,pvm_getinst,pvm_gettid,pvm_get_timer,pvm_gsize,%
6401 pvm_halt,pvm_joingroup,pvm_kill,pvm_lvgroup,pvm_mytid,pvm_parent,%
6402 pvm_probe,pvm_recv,pvm_reduce,pvm_sci2f77,pvm_send,pvm_set_timer,%
6403 pvm_spawn_independent,pvm_spawn,pvm_start,pvm_tasks,%
6404 pvm_tidtohost,pvm,pwd,p_margin,qassign,qr,quapro,quart,quaskro,%
6405 quit,randpencil,rand,range,ransqr,rankqr,rank,rat,rcond,rdivf,read4b,%
6406 readb,readc_,readmps,read,real,recur,reglin,regress,remezb,remez,%
6407 repfreq,replot,residu,resume,return,riccati,riccsl,ricc,ric_desc,%
6408 rlist,roots,rotate,round,routh_t,rowcompr,rowcomp,rowinout,%
6409 rowregul,rowshuff,rpem,rref,rtitr,rubberbox,salesman,savewave,%
6410 save_graph,save,scaling,scanf,schur,sci2exp,sci2for,sci2map,%
6411 sciargs,scicosim,scicos,scifunc_block,sd2sci,secto3d,select,%
6412 semidef,sensi,setbpt,seventhandler,setfield,setmenu,%
6413 setsicosvars,set,sfact,sgrid,shortest_path,showprofile,%
6414 show_arcs,show_graph,show_nodes,sident,signm,sign,simp_mode,simp,%
6415 sincd,sinc,sinc,sinhm,sinh,sinm,sin,size,sm2des,sm2ss,smooth,%
6416 solve,sorder,sort,sound,sp2adj,spaninter,spanplus,spantwo,sparse,%
6417 spchol,spcompact,specfact,spec,speye,spget,splin,split_edge,%
6418 spones,sprand,sprintf,spzeros,sqroot,sqrtm,sqrt,squarewave,%
6419 square,srfaur,srkf,ss2des,ss2ss,ss2tf,sscanf,sskf,ssprint,ssrand,%
6420 stabil,stacksize,standard_define,standard_draw,standard_input,%
6421 standard_origin,standard_output,startup,stdevf,stdev,steadycos,%
6422 str2code,strange, strcat, strindex, strings, string, stripblanks,%
6423 strong_connex, strong_con_nodes, strsubst, st_deviation, st_ility,%
6424 subf, subgraph, subplot, successors, sum, supernode, sva, svd, svplot,%
6425 sylv,sylv,sysconv,sysdiag,sysfact,syslin,sysssize,systems,system,%
6426 systmat,tabul,tangent,tanhm,tanh,tanm,tan,tdinit,testmatrix,%
6427 texprint,tf2des,tf2ss,then,thrownan,timer,time_id,titlepage,%
6428 tk_getdir,tk_getfile,tlist,toeplitz,tokenpos,tokens,trace,%
6429 translatepaths,trans_closure,trans,trfmod,tranfml,tril,trimmean,%
6430 trisolve, triu, trzeros, typename, typeof, type, uicontrol, uimenu,%

```

```

6431      uint16,uint32,uint8,ui_observer,ulink,unglue,union,unique,unix_g,%
6432      unix_s,unix_w,unix_x,unix,unobs,unsetmenu,user,varargin,%
6433      varargout,variancef,variance,varn,warning,wavread,wavwrite,%
6434      wcenter,wfir,what,whereami,whereis,where,while,whos,who_user,who,%
6435      wiener,wigner>window,winsid,with_gtk,with_pvm,with_texmacs,%
6436      with_tk,writb,write4b,write,xarcs,xarc,xarrows,xaxis,xbasf,%
6437      xbasimp,xbasr,xchange,xclear,xclea,xclick,xclip,xdel,xend,xfarcs,%
6438      xfarc,xfpolys,xfpoly,xirect,xgetech,xgetfile,xgetmouse,xget,%
6439      xgraduate,xgrid,xinfo,xinit,xlfont,xload,xname,xnumb,xpause,%
6440      xpolys,xpoly,xrects,xrect,xrpoly,xs2fig,xs2gif,xs2ppm,xs2ps,%
6441      xsave,xsegs,select,xsetech,xsetm,xset,xstringb,xstringl,xstring,%
6442      xtape,xtitle,x_choices,x_choose,x_dialog,x_matrix,x_mdialog,%
6443      x_message_modeless,x_message,yulewalk,zeropen,zeros,zgrid,zpbutt,%
6444      zpchl,zpch2,zpell,mfprintf,mfscanf,mprintf,mscanf,msprintf,%
6445      msscanf,mucomp,%
6446      ABSBLK_f,AFFICH_f,ANDLOG_f,ANIMXY_f,BIGSOM_f,CLINDUMMY_f,CLKIN_f,%
6447      CLKINV_f,CLKOUT_f,CLKOUTV_f,CLKSOM_f,CLKSOMV_f,CLKSPLIT_f,%
6448      CLOCK_f,CLR_f,CLSS_f,CONST_f,COSBLK_f,CURV_f,DELAY_f,DELAYV_f,%
6449      DEMUX_f,DLR_f,DLRADAPT_f,DLSS_f,EVENTSCOPE_f,EVTDLY_f,EVTGEN_f,%
6450      EXPBLK_f,G_make,GAIN_f,GAINBLK_f,GENERAL_f,GENERIC_f,GENSIN_f,%
6451      GENSQR_f,HALT_f,IFTHEL_f,IN_f,INTEGRAL_f,INTRP2BLK_f,INTRPLBLK_f,%
6452      INVBLK_f,LOGBLK_f,LOOKUP_f,Matplot1,Matplot,MAX_f,MCLOCK_f,%
6453      MFCLCK_f,MIN_f,MUX_f,NDcost,NEGTOPOS_f,OUT_f,POSTONEG_f,POWBLK_f,%
6454      PROD_f,QUANT_f,RAND_f,READC_f,REGISTER_f,RELAY_f,RFILE_f,%
6455      ScilabEval,Sfgrayplot,Sgrayplot,SAMPLEHOLD_f,SAT_f,SAWTOOTH_f,%
6456      SCOPE_f,SCOPXY_f,SELECT_f,SINBLK_f,SOM_f,SPLIT_f,STOP_f,SUPER_f,%
6457      TANBLK_f,TCLSS_f,TEXT_f,TIME_f,TK_EvalFile,TK_EvalStr,TK_GetVar,%
6458      TK_SetVar,TRASH_f,WFILE_f,WRITEC_f,ZCROSS_f,%
6459      \%asn,\%helps,\%k,\%sn},%
6460      alsoletter=\\,% chmod
6461      sensitive,%
6462      morecomment=[l]//,%
6463      morestring=[b]" ,%
6464      morestring=[m]'%
6465      }[keywords,comments,strings]%
6466 </lang1>

```

2.72 SHELXL

Thanks to Aidan Philip Heerdegen for mailing this definition.

```

6467 <*lang2>
6468 %%
6469 %% SHELXL definition (c) 1999 Aidan Philip Heerdegen
6470 %%
6471 \lstdefinlanguage{SHELXL}%
6472 {morekeywords={TITL,CELL,ZERR,LATT,SYMM,SFAC,DISP,UNIT,LAUE,%
6473      REM,MORE,TIME,END,HKLF,OMIT,SHEL,BASF,TWIN,EXTI,SWAT,%
6474      MERG,SPEC,RESI,MOVE,ANIS,AFIX,HFIX,FRAG,FEND,EXYZ,EADP,%

```

```

6475      EQIV, OMIT, CONN, PART, BIND, FREE, DFIX, BUMP, SAME, SADI, CHIV, %
6476      FLAT, DELU, SIMU, DEFS, ISOR, SUMP, L.S., CGLS, SLIM, BLOC, DAMP, %
6477      WGHT, FVAR, BOND, CONF, MPLA, RTAB, LIST, ACTA, SIZE, TEMP, WPDB, %
6478      FMAP, GRID, PLAN, MOLE}, %
6479      sensitive=false, %
6480      alsoother=_, % Makes the syntax highlighting ignore the underscores
6481      morecomment=[1]{! }, %
6482      }%
6483 </lang2>

```

2.73 Simula

Took data from

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

```

6484 (*lang3)
6485 \lst@definlanguage[IBM]{Simula}[DEC]{Simula}{}%
6486 \lst@definlanguage[DEC]{Simula}[67]{Simula}%
6487 {morekeywords={and,eq,eqv,ge,gt,hidden,imp,le,long,lt,ne,not,%
6488     options,or,protected,short}}%
6489 }%
6490 \lst@definlanguage[CII]{Simula}[67]{Simula}%
6491 {morekeywords={and,equiv,exit,impl,not,or,stop}}%
6492 \lst@definlanguage[67]{Simula}%
6493 {morekeywords={activate,after,array,at,before,begin,boolean,%
6494     character,class,comment,delay,detach,do,else,end,external,false,%
6495     for,go,goto,if,in,inner,inspect,integer,is,label,name,new,none,%
6496     notext,otherwise,prior,procedure,qua,reactivate,real,ref,resume,%
6497     simset,simulation,step,switch,text,then,this,to,true,until,value,%
6498     virtual,when,while},%
6499     sensitive=f,%
6500     keywordcommentsemicolon={end}{else,end,otherwise,when}{comment},%
6501     morestring=[d]" ,%
6502     morestring=[d]' %
6503 }[keywords,keywordcomments,strings]%
6504 </lang3>

```

2.74 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.

```

6505 (*lang3)

```

```

6506 %%
6507 %% SPARQL definition (c) 2006 Christoph Kiefer
6508 %%
6509 \lst@definelanguage{SPARQL}%
6510 {morekeywords={BASE,PREFIX,SELECT,DISTINCT,CONSTRUCT,DESCRIBE,ASK,%
6511 FROM,NAMED,WHERE,ORDER,BY,ASC,DESC,LIMIT,OFFSET,OPTIONAL,%
6512 GRAPH,UNION,FILTER,a,STR,LANG,LANGMATCHES,DATATYPE,BOUND,%
6513 isIRI,isURI,isBLANK,isLITERAL,REGEX,true,false},%
6514 sensitive=false,%
6515 morecomment=[l]\#,%
6516 morestring=[d]',%
6517 morestring=[d]"%
6518 }[keywords,comments,strings]%
6519 </lang3>

```

2.75 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.

```

6520 (*lang1)
6521 %%
6522 %% SQL definition (c) 1998 Christian Haul
6523 %% (c) 2002 Neil Conway
6524 %% (c) 2002 Robert Frank
6525 %% (c) 2003 Dirk Jesko
6526 %%
6527 \lst@definelanguage{SQL}%
6528 {morekeywords={ABSOLUTE,ACTION,ADD,ALLOCATE,ALTER,ARE,AS,ASSERTION,%
6529 AT,BEGIN,BETWEEN,BIT_LENGTH,BOTH,BY,CASCADE,CASCADE,CASE,CAST,%
6530 CATALOG,CHAR_LENGTH,CHARACTER_LENGTH,CLUSTER,COALESCE,%
6531 COLLATE,COLLATION,COLUMN,CONNECT,CONNECTION,CONSTRAINT,%
6532 CONSTRAINTS,CONVERT,CORRESPONDING,CREATE,CROSS,CURRENT_DATE,%
6533 CURRENT_TIME,CURRENT_TIMESTAMP,CURRENT_USER,DAY,DEALLOCATE,%
6534 DEC,DEFERRABLE,DEFERED,DESCRIBE,DESCRIPTOR,DIAGNOSTICS,%
6535 DISCONNECT,DOMAIN,DROP,ELSE,END,EXEC,EXCEPT,EXCEPTION,EXECUTE,%
6536 EXTERNAL,EXTRACT,FALSE,FIRST,FOREIGN,FROM,FULL,GET,GLOBAL,%
6537 GRAPHIC,HAVING,HOURL,IDENTITY,IMMEDIATE,INDEX,INITIALLY,INNER,%
6538 INPUT,INSENSITIVE,INSERT,INTO,INTERSECT,INTERVAL,%
6539 ISOLATION,JOIN,KEY,LAST,LEADING,LEFT,LEVEL,LIMIT,LOCAL,LOWER,%
6540 MATCH,MINUTE,MONTH,NAMES,NATIONAL,NATURAL,NCHAR,NEXT,NO,NOT,NULL,%
6541 NULLIF,OCTET_LENGTH,ON,ONLY,ORDER,ORDERED,OUTER,OUTPUT,OVERLAPS,%
6542 PAD,PARTIAL,POSITION,PREPARE,PRESERVE,PRIMARY,PRIOR,READ,%
6543 RELATIVE,RESTRICT,REVOKE,RIGHT,ROWS,SCROLL,SECOND,SELECT,SESSION,%
6544 SESSION_USER,SIZE,SPACE,SQLSTATE,SUBSTRING,SYSTEM_USER,%
6545 TABLE,TEMPORARY,THEN,TIMEZONE_HOUR,%
6546 TIMEZONE_MINUTE,TRAILING,TRANSACTION,TRANSLATE,TRANSLATION,TRIM,%
6547 TRUE,UNIQUE,UNKNOWN,UPPER,USAGE,USING,VALUE,VALUES,%

```

```

6548     VARGRAPHIC,VARYING,WHEN,WHERE,WRITE,YEAR,ZONE,%
6549     AND,ASC,avg,CHECK,COMMIT,count,DECODE,DESC,DISTINCT,GROUP,IN,% FF
6550     LIKE,NUMBER,ROLLBACK,SUBSTR,sum,VARCHAR2,% FF
6551     MIN,MAX,UNION,UPDATE,% RF
6552     ALL,ANY,CUBE,CUBE,DEFAULT,DELETE,EXISTS,GRANT,OR,RECURSIVE,% DJ
6553     ROLE,ROLLUP,SET,SOME,TRIGGER,VIEW},% DJ
6554     morendkeywords={BIT,BLOB,CHAR,CHARACTER,CLOB,DATE,DECIMAL,FLOAT,% DJ
6555     INT,INTEGER,NUMERIC,SMALLINT,TIME,TIMESTAMP,VARCHAR},% moved here
6556     sensitive=false,% DJ
6557     morecomment=[l]--,%,
6558     morecomment=[s]{/*}{*/},%,
6559     morestring=[d]',%,
6560     morestring=[d]"%
6561   }[keywords,comments,strings]%
6562 </lang1>

```

2.76 Swift

The definition for Swift was provided by Stefan Jager.

```

6563 (*lang3)
6564 \lst@definlanguage{Swift}{%
6565     morekeywords={associatedtype,class,deinit,enum,extension,fileprivate,%
6566     func,import,init,inout,internal,let,open,operator,private,protocol,%
6567     public,static,struct,subscript,typealias,var,break,case,continue,%
6568     default,defer,do,else,fallthrough,for,guard,if,in,repeat,return,%
6569     switch,where,while,as,Any,catch,false,is,nil,rethrows,super,self,%
6570     Self,throw,throws,true,try,_,associativity,convenience,dynamic,%
6571     didSet,final,get,infix,indirect,lazy,left,mutating,none,%
6572     nonmutating,optional,override,postfix,precedence,prefix,Protocol,%
6573     required,right,set,Type,unowned,weak,willSet},%
6574     sensitive,%
6575     morecomment=[s]{/*}{*/},%,
6576     morecomment=[s]{/**}{*/},%,
6577     morecomment=[l]//,%,
6578     morecomment=[l]///,%,
6579     morestring=[b]",%,
6580     morestring=[b]""",%,
6581     moredelim=[directive]\#,%,
6582     moredirectives={available,colorLiteral,column,else,elseif,endif,file,%
6583     fileLiteral,function,if,imageLiteral,line,selector,sourceLocation}%
6584   }[keywords,comments,strings,directives]%
6585 </lang3>

```

2.77 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.

```
6586 (*lang2)
6587 %%
6588 %% Tcl/Tk definition (c) Gerd Neugebauer
6589 %%
6590 \lst@definlanguage[tk]{tcl}[]{}{tcl}%
6591   {morekeywords={activate,add,separator,radiobutton,checkboxbutton,%
6592     command,cascade,all,bell,bind,bindtags,button,canvas,canvasx,%
6593     canvasy,cascade,cget,checkboxbutton,config,configur,%
6594     configure,clipboard,create,arc,bitmap,image,line,oval,polygon,%
6595     rectangle,text,textwindow,curselection,delete,destroy,end,entry,%
6596     entrycget,event,focus,font,actual,families,measure,metrics,names,%
6597     frame,get,grab,current,release,status,grid,columnconfigure,%
6598     rowconfigure,image,image,create,bitmap,photo,delete,height,types,%
6599     width,names,index,insert,invoke,itemconfigure,label,listbox,lower,%
6600     menu,menubutton,message,move,option,add,clear,get,readfile,pack,%
6601     photo,place,radiobutton,raise,scroll,scrollbar,search,see,%
6602     selection,send,stdin,stdout,stderr,tag,bind,text,tk,tkerror,%
6603     tkwait>window,variable,visibility,toplevel,unknown,update,winfo,%
6604     class,exists,ismapped,parent,reqwidth,reqheight,rootx,rooty,%
6605     width,height,wm,aspect,client,command,deiconify,focusmodel,frame,%
6606     geometry,group,iconbitmap,iconify,iconmask,iconname,iconposition,%
6607     iconwindow,maxsize,minsize,overrideredirect,positionfrom,%
6608     protocol,sizefrom,state,title,transient,withdraw,xview,yview,%
6609     yposition,%
6610     -accelerator,-activebackground,-activeborderwidth,%
6611     -activeforeground,-after,-anchor,-arrow,-arrowshape,-aspect,%
6612     -async,-background,-before,-bg,-bigincrement,-bitmap,-bordermode,%
6613     -borderwidth,-button,-capstyle,-channel,-class,-closeenough,%
6614     -colormap,-column,-columnspan,-command,-confine,-container,%
6615     -count,-cursor,-data,-default,-detail,-digits,-direction,%
6616     -displayof,-disableforeground,-elementborderwidth,-expand,%
6617     -exportselection,-extend,-family,-fg,-file,-fill,-focus,-font,%
6618     -fontmap,-foreground,-format,-from,-gamma,-global,-height,%
6619     -highlightbackground,-highlightcolor,-highlightthickness,-icon,%
6620     -image,-in,-insertbackground,-insertborderwidth,-insertofftime,%
6621     -insertontime,-insertwidth,-ipadx,-ipady,-joinstyle,-jump,%
6622     -justify,-keycode,-keysym,-label,-lastfor,-length,-maskdata,%
6623     -maskfile,-menu,-message,-mode,-offvalue,-onvalue,-orient,%
6624     -outlien,-outlinestipple,-overstrike,-override,-padx,-pady,%
6625     -pageanchor,-pageheight,-pagewidth,-pagey,-pagey,-palette,%
6626     -parent,-place,-postcommand,-relheight,-relief,-relwidth,-relx,%
6627     -rely,-repeatdelay,-repeatinterval,-resolution,-root,-rootx,%
```

```

6628     -rooty,-rotate,-row,-rowspan,-screen,-selectcolor,-selectimage,%
6629     -sendevent,-serial,-setgrid,-showvalue,-shrink,-side,-size,%
6630     -slant,-sliderlength,-sliderrelief,-smooth,-splinesteps,-state,%
6631     -sticky,-stipple,-style,-subsample,-subwindow,-tags,-takefocus,%
6632     -tearoff,-tearoffcommand,-text,-textvariable,-tickinterval,-time,%
6633     -title,-to,-troughcolor,-type,-underline,-use,-value,-variable,%
6634     -visual,-width,-wrap,-wraplength,-x,-xscrollcommand,-y,%
6635     -bgstipple,-fgstipple,-lmargin1,-lmargin2,-rmargin,-spacing1,%
6636     -spacing2,-spacing3,-tabs,-yscrollcommand,-zoom,%
6637     activate,add,addtag,bbox,cget,clone,configure,coords,%
6638     curselection,debug,delete,delta,deselect,dlineinfo,dtag,dump,%
6639     entrycget,entryconfigure,find,flash,fraction,get,gettext,handle,%
6640     icursor,identify,index,insert,invoke,itemcget,itemconfigure,mark,%
6641     moveto,own,post,postcascade,postscript,put,redither,ranges,%
6642     scale,select,show,tag,type,unpost,xscrollcommand,xview,%
6643     yscrollcommand,yview,yposition}%
6644 }%

6645 \lst@definelanguage[] {tcl}%
6646   {alsoletter={.:,*=&-},%
6647   morekeywords={after,append,array, names,exists, anymore,donesearch,%
6648     get,nextelement,set,size,startsearch,auto_mkindex,binary,break,%
6649     case,catch,cd,clock,close,concat,console,continue,default,else,%
6650     elseif,eof,error,eval,exec,-keepnewline,exit,expr,fblocked,%
6651     fconfigure,fcopy,file,atime,dirname,executable,exists,extension,%
6652     isdirectory,isfile,join,lstat,mtime,owned,readable,readlink,%
6653     rootname,size,stat,tail,type,writable,-permissions,-group,-owner,%
6654     -archive,-hidden,-readonly,-system,-creator,-type,-force,%
6655     fileevent,flush,for,foreach,format,gets,glob,global,history,if,%
6656     incr,info,argsbody,cmdcount,commands,complete,default,exists,%
6657     globals,level,library,locals,patchlevel,procs,script,tclversion,%
6658     vars,interp,join,lappend,lindex,linsert,list,llength,lrange,%
6659     lreplace,lsearch,-exact,-regexp,-glob,lsort,-ascii,-integer,%
6660     -real,-dictionary,-increasing,-decreasing,-index,-command,load,%
6661     namespace,open,package,forget,ifneeded,provide,require,unknown,%
6662     vcompare,versions,vsatisfies,pid,proc,puts,-nonewline,pwd,read,%
6663     regexp,-indices,regsub,-all,-nocasereaname,return,scan,seek,set,%
6664     socket,source,split,string,compare,first,index,last,length,match,%
6665     range,tolower,toupper,trim,trimleft,trimright,subst,switch,tell,%
6666     time,trace,variable,vdelete,vinfo,unknown,unset,uplevel,upvar,%
6667     vwait,while,acos,asin,atan,atan2,ceil,cos,cosh,exp,floor,fmod,%
6668     hypot,log,log10,pow,sin,sinh,sqrt,tan,tanh,abs,double,int,round%
6669     },%
6670   morestring=[d] "%,%
6671   morecomment=[f] \#,%
6672   morecomment=[l] {;\#},%
6673   morecomment=[l] {[\#},%
6674   morecomment=[l] {\{\#}%
6675 } [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.

6676 \langle /lang2

2.78 Statistical languages

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

6677 \langle *lang3

```
6678 \lst@definelanguage{S}[] {R}{-}
6679 \lst@definelanguage[PLUS]{S}[] {R}{-}
6680 \lst@definelanguage{R}%
6681   {keywords={abbreviate,abline,abs,acos,acosh,action,add1,add,%
6682     aggregate,alias,Alias,alist,all,anova,any,aov,aperm,append,apply,%
6683     approx,approxfun,apropos,Arg,args,array,arrows,as,asin,asinh,%
6684     atan,atan2,atanh,attach,attr,attributes,autoload,autoloader,ave,%
6685     axis,backsolve,barplot,basename,besselI,besselJ,besselK,besselY,%
6686     beta,binomial,body,box,boxplot,break,browser,bug,builtins,bxp,by,%
6687     c,C,call,Call,case,cat,category,cbind,ceiling,character,char,%
6688     charmatch,check,chol,chol2inv,choose,chull,class,close,cm,codes,%
6689     coef,coefficients,co,col,colnames,colors,colours,commandArgs,%
6690     comment,complete,complex,conflicts,Conj,contents,contour,%
6691     contrasts,contr,control,helmert,contrib,convolve,cooks,coords,%
6692     distance,coplot,cor,cos,cosh,count,fields,cov,covratio,wt,CRAN,%
6693     create,crossprod,cummax,cummin,cumprod,cumsum,curve,cut,cycle,D,%
6694     data,dataentry,date,dbeta,dbinom,dcauchy,dchisq,de,debug,%
6695     debugger,Defunct,default,delay,delete,deltat,demo,de,density,%
6696     deparse,dependencies,Deprecated,deriv,description,detach,%
6697     dev2bitmap,dev,cur,deviance,off,prev,,dexp,df,dfbetas,dffits,%
6698     dgamma,dgeom,dget,dhyper,diag,diff,digamma,dim,dimnames,dir,%
6699     dirname,dlnorm,dlogis,dnbinom,dnchisq,dnorm,do,dotplot,double,%
6700     download,dpois,dput,drop,drop1,dsignrank,dt,dummy,dump,dunif,%
6701     duplicated,dweibull,dwilcox,dyn,edit,eff,effects,eigen,else,%
6702     emacs,end,environment,env,erase,eval,equal,evalq,example,exists,%
6703     exit,exp,expand,expression,External,extract,extractAIC,factor,%
6704     fail,family,fft,file,filled,find,fitted,fivenum,fix,floor,for,%
6705     For,formals,format,formatC,formula,Fortran,forwardsolve,frame,%
6706     frequency,ftable,ftable2table,function,gamma,Gamma,gammaCody,%
6707     gaussian,gc,gcinfo,gctorture,get,getenv,geterrmessage,getOption,%
6708     getwd,gl,glm,globalenv,gnome,GNOME,graphics,gray,grep,greyscale,%
6709     gsub,hasTsp,hathat,heat,help,hist,home,hsv,httpclient,I,identify,if,%
6710     ifelse,Im,image,\%in\%,index,influence,measures,inherits,install,%
6711     installed,integer,interaction,interactive,Internal,intersect,%
6712     inverse,invisible,IQR,is,jitter,kappa,kronecker,labels,lapply,%
6713     layout,lbeta,lchoose,lcm,legend,length,levels,lgamma,library,%
6714     licence,license,lines,list,lm,load,local,locator,log,log10,log1p,%
6715     log2,logical,loglin,lower,lowess,ls,lsfit,lsf,ls,machine,Machine,%
6716     mad,mahalanobis,make,link,margin,match,Math,matlines,mat,matplot,%
6717     matpoints,matrix,max,mean,median,memory,menu,merge,methods,min,%
6718     missing,Mod,mode,model,response,mosaicplot,mtext,mvfft,na,nan,%
```

```

6719     names,omit,nargs,nchar,ncol,NCOL,new,next,NextMethod,nextn,%
6720     nlevels,nlm,noquote,NotYetImplemented,NotYetUsed,nrow,NROW,null,%
6721     numeric,\%o\%,objects,offset,old,on,Ops,optim,optimise,optimize,%
6722     options,or,order,ordered,outer,package,packages,page,pairst,%
6723     pairs,palette,panel,par,parent,parse,paste,path,pbeta,pbinom,%
6724     pcauchy,pchisq,pentagamma,persp,pexp,pf,pgamma,pgeom,phyper,pico,%
6725     pictex,piechart,Platform,plnorm,plogis,plot,pmatch,pmax,pmin,%
6726     pnbinom,pnchisq,pnorm,points,poisson,poly,polygon,polyroot,pos,%
6727     postscript,power,ppoints,ppois,predict,preplot,pretty,Primitive,%
6728     print,prmatrix,proc,prod,profile,proj,prompt,prop,provide,%
6729     psigrank,ps,pt,ptukey,punif,pweibull,pwilcox,q,qbeta,qbinom,%
6730     qcauchy,qchisq,qexp,qf,qgamma,qgeom,qhyper,qlnorm,qlogis,qnbinom,%
6731     qnchisq,qnorm,qpois,qqline,qqnorm,qqplot,qz,Q,qty,qy,qsignrank,%
6732     qt,qtukey,quantile,quasi,quit,qunif,quote,qweibull,qwilcox,%
6733     rainbow,range,rank,rbeta,rbind,rbinom,rcauchy,rchisq,Re,read,csv,%
6734     csv2,fwf,readline,socket,real,Recall,rect,reformulate,regexpr,%
6735     relevel,remove,rep,repeat,replace,replications,report,require,%
6736     resid,residuals,restart,return,rev,rexp,rf,rgamma,rgb,rgeom,R,%
6737     rhyper,rle,rlnorm,rlogis,rm,rnbinom,RNGkind,rnorm,round,row,%
6738     rownames,rowsum,rpois,rsignrank,rstandard,rstudent,rt,rug,runif,%
6739     rweibull,rwilcox,sample,sapply,save,scale,scan,scan,screen,sd,se,%
6740     search,searchpaths,segments,seq,sequence,setdiff,setequal,set,%
6741     setwd,show,sign,signif,sin,single,sinh,sink,solve,sort,source,%
6742     spline,splinefun,split,sqrt,stars,start,stat,stem,step,stop,%
6743     storage,strsrheight,stripplot,strsplit,structure,strwidth,sub,%
6744     subset,substitute,substr,substring,sum,summary,sunflowerplot,svd,%
6745     sweep,switch,symbol,symbols,symnum,sys,status,system,t,table,%
6746     tabulate,tan,tanh,tapply,tempfile,terms,terrain,tetragamma,text,%
6747     time,title,topo,trace,traceback,transform,tri,trigamma,trunc,try,%
6748     ts,tsp,typeof,unclass,undebg,undoc,union,unique,uniroot,unix,%
6749     unlink,unlist,unname,untrace,update,upper,url,UseMethod,var,%
6750     variable,vector,Version,vi,warning,warnings,weighted,weights,%
6751     which,while>window,write,\%x\%,x11,X11,xedit,xemacs,xinch,xor,%
6752     xpdrows,xy,xyinch,yinch,zapsmall,zip},%
6753     otherkeywords={!,!=,~, $,*,\&,\%/\%,\%*\%,\%\%,<-,<<-,_,/},%
6754     alsoother={._$},%
6755     sensitive,%
6756     morecomment=[l]\#,%
6757     morestring=[d]" ,%
6758     morestring=[d]'% 2001 Robert Denham
6759 }%

```

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

```

6760 \lst@definelanguage{SAS}{%
6761     procnamekeys={proc},%
6762     morekeywords={DATA, AND, OR, NOT, EQ, GT, LT, GE, LE, NE, INFILE, INPUT,%
6763     DO, BY, TO, SIN, COS, OUTPUT, END, PLOT, RUN, LIBNAME, VAR, TITLE,%
6764     FIRSTOBS, OBS, DELIMITER, DLM, EOF, ABS, DIM, HBOUND, LBOUND, MAX, MIN,%
6765     MOD, SIGN, SQRT, CEIL, FLOOR, FUZZ, INT, ROUND, TRUNC, DIGAMMA, ERF,%

```

```

6766   ERFC, EXP, GAMMA, LGAMMA, LOG, LOG2, LOG10, ARCOS, ARSIN, ATAN, COSH,%
6767   SINH, TANH, TAN, POISSON, PROBBETA, PROBBNML, PROBCHI, PROBF, PROBGAM,%
6768   PROBYHPR, PROBNEGB, PROBNORM, PROBT, BETAINV, CINV, FINV, GAMINV,%
6769   PROBIT, TINV, CSS, CV, KURTOSIS, MEAN, NMISS, RANGE, SKEWNESS, STD,%
6770   STDERR, SUM, USS, NORMAL, RANBIN, RANCAU, RANEXP, RANGAM, RANNOR,%
6771   RANPOI, RANTBL, RANTRI, RANUNI, UNIFORM, IF, THEN, ELSE, WHILE, UNTIL,%
6772   DROP, KEEP, LABEL, DEFAULT, ARRAY, MERGE, CARDS, CARDS4, PUT, SET,%
6773   UPDATE, ABORT, DELETE, DISPLAY, LIST, LOSTCARD, MISSING, STOP, WHERE,%
6774   ARRAY, DROP, KEEP, WINDOW, LENGTH, RENAME, RETAIN, MEANS, UNIVARIATE,%
6775   SUMMARY, TABULATE, CORR, FREQ, FOOTNOTE, NOTE, SHOW},%
6776   otherkeywords={!, !=, ~, $, *, \&, _ , / , < , > , = , < , > },%
6777   morestring=[d]’%
6778 }[keywords,comments,strings,procnames]%
6779 </lang3>

```

2.79 T_EX

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.

```

6780 (*lang3)
6781 \lst@definlanguage[AllLaTeX]{TeX}[LaTeX]{TeX}%
6782   {moretexcs={AtBeginDocument,AtBeginDvi,AtEndDocument,AtEndOfClass,%
6783     AtEndOfPackage,ClassError,ClassInfo,ClassWarning,%
6784     ClassWarningNoLine,CurrentOption,DeclareErrorFont,%
6785     DeclareFixedFont,DeclareFontEncoding,DeclareFontEncodingDefaults,%
6786     DeclareFontFamily,DeclareFontShape,DeclareFontSubstitution,%
6787     DeclareMathAccent,DeclareMathAlphabet,DeclareMathAlphabet,%
6788     DeclareMathDelimiter,DeclareMathRadical,DeclareMathSizes,%
6789     DeclareMathSymbol,DeclareMathVersion,DeclareOldFontCommand,%
6790     DeclareOption,DeclarePreloadSizes,DeclareRobustCommand,%
6791     DeclareSizeFunction,DeclareSymbolFont,DeclareSymbolFontAlphabet,%
6792     DeclareTextAccent,DeclareTextAccentDefault,DeclareTextCommand,%
6793     DeclareTextCommandDefault,DeclareTextComposite,%
6794     DeclareTextCompositeCommand,DeclareTextFontCommand,%
6795     DeclareTextSymbol,DeclareTextSymbolDefault,ExecuteOptions,%
6796     GenericError,GenericInfo,GenericWarning,IfExists,%
6797     InputIfExists,LoadClass,LoadClassWithOptions,MessageBreak,%
6798     OptionNotUsed,PackageError,PackageInfo,PackageWarning,%
6799     PackageWarningNoLine,PassOptionsToClass,PassOptionsToPackage,%
6800     ProcessOptionsProvidesClass,ProvidesFile,ProvidesFile,%
6801     ProvidesPackage,ProvideTextCommand,RequirePackage,%
6802     RequirePackageWithOptions,SetMathAlphabet,SetSymbolFont,%
6803     TextSymbolUnavailable,UseTextAccent,UseTextSymbol},%
6804   morekeywords={array,center,displaymath,document,enumerate,eqnarray,%
6805     equation,flushleft,flushright,itemize,list,lrbox,math,minipage,%
6806     picture,sloppypar,tabbing,tabular,trivlist,verbatim}%
6807   }%
6808 \lst@definlanguage[LaTeX]{TeX}[common]{TeX}%

```

```

6809  {moretexcs={a,AA,aa,addcontentsline,addpenalty,addtocontents,%
6810      addtocounter,addtolength,addtoversion,advspace,alph,Alph,and,%
6811      arabic,array,arraycolsep,arrayrulewidth,arraystretch,author,%
6812      baselinestretch,begin,bezier,bfseries,bibcite,bibdata,bibitem,%
6813      bibliography,bibliographystyle,bibstyle,bigskip,boldmath,%
6814      botfigrule,bottomfraction,Box,caption,center,CheckCommand,circle,%
6815      citation,cite,cleardoublepage,clearpage,cline,columnsep,%
6816      columnseprule,columnwidth,contentsline,dashbox,date,dblfigrule,%
6817      dblfloatpagefraction,dblfloatsep,dbltextfloatsep,dbltopfraction,%
6818      defaultscipratio,defaultscriptscipratio,depth,Diamond,%
6819      displaymath,document,documentclass,documentstyle,doublerulesep,%
6820      em,emph,endarray,endcenter,endedisplaymath,endedocument,%
6821      endenumerate,endeqnarray,endequation,endflushleft,endflushright,%
6822      enditemize,endlist,endlrbbox,endmath,endminipage,endpicture,%
6823      endsloppypar,endtabbing,endtabular,endtrivlist,endverbatim,%
6824      enlargethispage,ensuremath,enumerate,eqnarray,equation,%
6825      evensidemargin,extracolsep,fbox,fboxrule,fboxsep,filecontents,%
6826      fill,floatpagefraction,floatsep,flushbottom,flushleft,flushright,%
6827      fnsymbol,fontencoding,fontfamily,fontseries,fontshape,fontsize,%
6828      fontsubfuzz,footnotemark,footnotesep,footnotetext,footskip,frac,%
6829      frame,framebox,fussy,glossary,headheight,headsep,height,hline,%
6830      hspace,I,include,includeonly,index,inputlineno,intextsep,%
6831      itemindent,itemize,itemsep,iterate,itshape,Join,kill,label,%
6832      labelsep,labelwidth,LaTeX,LaTeXe,leadsto,lefteqn,leftmargin,%
6833      leftmargini,leftmarginii,leftmarginiii,leftmarginiv,leftmarginv,%
6834      leftmarginvi,leftmark,lhd,lim,linebreak,linespread,linethickness,%
6835      linewidth,list,listfiles,listfiles,listparindent,lrbbox,%
6836      makeatletter,makeatother,makebox,makeglossary,makeindex,%
6837      makelabel,MakeLowercase,MakeUppercase,marginpar,marginparpush,%
6838      marginparsep,marginparwidth,markboth,markright,math,mathbf,%
6839      mathellipsis,mathgroup,mathit,mathrm,mathsf,mathsterling,mathtt,%
6840      mathunderscore,mathversion,mbox,mdseries,mho,minipage,%
6841      multicolumn,multitup,NeedsTeXFormat,newcommand,newcounter,%
6842      newenvironment,newfont,newhelp,newlabel,newlength,newline,%
6843      newmathalphabet,newpage,newsavebox,newtheorem,nobreakspace,%
6844      nobreakspace,nocite,nocorr,nocorrlist,nofiles,nolinebreak,%
6845      nonumber,nopagebreak,normalcolor,normalfont,normalmarginpar,%
6846      numberline,obeycr,oddsidemargin,oldstylenums,onecolumn,oval,%
6847      pagebreak,pagenumbering,pageref,pagestyle,paperheight,paperwidth,%
6848      paragraphmark,parbox,parsep,partopsep,picture,poptabs,pounds,%
6849      protect,pushtabs,put,qbezier,qbeziermax,r,raggedleft,raisebox,%
6850      ref,refstepcounter,renewcommand,renewenvironment,restorecr,%
6851      reversemarginpar,rhd,rightmargin,rightmark,rmfamily,roman,Roman,%
6852      rootbox,rule,samepage,sbox,scshape,secdef,section,sectionmark,%
6853      selectfont,setcounter,settodepth,settoheight,settowidth,sffamily,%
6854      shortstack,showoutput,showoverfull,sloppy,sloppypar,slshape,%
6855      smallskip,sqsubset,sqsupset,SS,stackrel,stepcounter,stop,stretch,%
6856      subparagraphmark,subsectionmark,subsubsectionmark,sum,%
6857      suppressfloats,symbol,tabbing,tabbingsep,tabcolsep,tabular,%
6858      tabularnewline,textasciicircum,textasciitilde,textbackslash,%

```

```

6859     textbar, textbf, textbraceleft, textbraceright, textbullet, %
6860     textcircled, textcompwordmark, textdagger, textdaggerdbl, textdollar, %
6861     textellipsis, textemdash, textendash, textexclamdown, textfloatsep, %
6862     textfraction, textgreater, textheight, textit, textless, textmd, %
6863     textnormal, textparagraph, textperiodcentered, textquestiondown, %
6864     textquotedblleft, textquotedblright, textquoteleft, textquoteright, %
6865     textregistered, textrm, textsc, textsection, textsf, textsl, %
6866     textsterling, textsuperscript, texttrademark, texttt, textunderscore, %
6867     textup, textvisiblespace, textwidth, thanks, thefootnote, thempfn, %
6868     thempfn, thempfootnote, thepage, thepage, thicklines, thinlines, %
6869     thispagestyle, title, today, topfigrule, topfraction, topmargin, %
6870     topsep, totalheight, tracingfonts, trivlist, ttfamily, twocolumn, %
6871     typein, typeout, unboldmath, unitlength, unlhd, unrhd, upshape, usebox, %
6872     usecounter, usefont, usepackage, value, vector, verb, verbatim, vline, %
6873     vspace, width, %
6874     normalsize, small, footnotesize, scriptsize, tiny, large, Large, LARGE, %
6875     huge, Huge}%
6876 }%

6877 \lst@definelanguage[plain]{TeX}[common]{TeX}%
6878 {moretexcs={advancepageno, beginsection, bf, bffam, bye, cal, cleartabs, %
6879     columns, dosupereject, endinsert, eqalign, eqalignno, fiverm, fivebf, %
6880     fivei, fivesy, folio, footline, hang, headline, it, itemitem, itfam, %
6881     leqalignno, magnification, makefootline, makeheadline, midinsert, mit, %
6882     mscount, nopagenumbers, normalbottom, of, oldstyle, pagebody, %
6883     pagecontents, pageinsert, pageno, plainoutput, preloaded, proclaim, rm, %
6884     settabs, sevenbf, seveni, sevensy, sevenrm, sl, slfam, supereject, %
6885     tabalign, tabs, tabsdone, tabsyet, tenbf, tenex, teni, tenit, tenrm, %
6886     tensl, tensy, tentt, textindent, topglue, topins, topinsert, tt, ttfam, %
6887     ttragedright, vfootnote}%
6888 }%

The following language is only a helper.

6889 \lst@definelanguage[common]{TeX}[primitive]{TeX}
6890 {moretexcs={active, acute, ae, AE, aleph, allocationnumber, allowbreak, %
6891     alpha, amalg, angle, approx, arccos, arcsin, arctan, arg, arrowvert, %
6892     Arrowvert, ast, asymp, b, backslash, bar, beta, bgroup, big, Big, bigbreak, %
6893     bigcap, bigcirc, bigcup, bigg, Bigg, biggl, Biggl, biggm, Biggm, biggr, %
6894     Biggr, bigl, Bigl, bigm, Bigm, bigodot, bigoplus, bigotimes, bigr, Bigr, %
6895     bigskip, bigskipamount, bigsqcup, bigtriangledown, bigtriangleup, %
6896     biguplus, bigvee, bigwedge, bmod, bordermatrix, bot, bowtie, brace, %
6897     braceleft, bracerd, braceru, bracevert, brack, break, breve, %
6898     buildrel, bullet, c, cap, cases, cdot, cdotp, cdots, centering, %
6899     centerline, check, chi, choose, circ, clubsuit, colon, cong, coprod, %
6900     copyright, cos, cosh, cot, coth, csc, cup, d, dag, dagger, dashv, ddag, %
6901     ddagger, ddot, ddots, deg, delta, Delta, det, diamond, diamondsuit, dim, %
6902     displaylines, div, do, dospecials, dot, doteq, dotfill, dots, downarrow, %
6903     Downarrow, downbracefill, egroup, eject, ell, empty, emptyset, endgraf, %
6904     endline, enskip, enspace, epsilon, equiv, eta, exists, exp, filbreak, %
6905     flat, fmtname, fmtversion, footins, footnote, footnoterule, forall, %
6906     frenchspacing, frown, gamma, Gamma, gcd, ge, geq, gets, gg, goodbreak, %

```

```

6907 grave,H,hath,hbar,heartsuit,hglue,hideskip,hidewidth,hom,%
6908 hookleftarrow,hookrightarrow,hphantom,hrulefill,i,ialign,iff,Im,%
6909 imath,in,inf,infty,int,interdisplaylinepenalty,%
6910 interfootnotelinepenalty,intop,iota,item,j,jmath,joinrel,jot,%
6911 kappa,ker,l,L,lambda,Lambda,land,langl,lbrace,lbrack,lceil,%
6912 ldotp,ldots,le,leavevmode,leftarrow,Leftarrow,leftarrowfill,%
6913 leftharpoondown,leftharpoonup,leftline,leftrightarrow,%
6914 Leftrightarrow,leq,lfloor,lg,lggroup,lhook,lim,liminf,limsup,line,%
6915 ll,llap,lmoustache,ln,lnot,log,longleftarrow,Longleftarrow,%
6916 longleftrightarrow,Longleftrightarrow,longmapsto,longrightarrow,%
6917 Longrightarrow,loop,lor,lq,magstep,magstep,magstephalf,mapsto,%
6918 mapstochar,mathhexbox,mathpalette,mathstrut,matrix,max,maxdimen,%
6919 medbreak,medskip,medskipamount,mid,min,models,mp,mu,multispan,%
6920 nabla,narrower,natural,ne,narrow,neg,negthinspace,neq,newbox,%
6921 newcount,newdimen,newfam,newif,newinsert,newlanguage,newmskip,%
6922 newread,newskip,newtoks,newwrite,next,ni,nobreak,nointerlineskip,%
6923 nonfrenchspacing,normalbaselines,normalbaselineskip,%
6924 normallineskip,normallineskiplimit,not,notin,nu,null,nwarrow,o,O,%
6925 oalign,obeylines,obeyspaces,odot,oe,OE,offinterlineskip,oint,%
6926 ointop,omega,Omega,ominus,oalign,openup,oplus,oslash,otimes,%
6927 overbrace,overleftarrow,overrightarrow,owns,P,parallel,partial,%
6928 perp,phantom,phi,Phi,pi,Pi,pm,pmatrix,pmod,Pr,prec,preceq,prime,%
6929 prod,propto,psi,Psi,qqquad,quad,raggedbottom,raggedright,rangle,%
6930 rbrace,rbrack,rceil,Re,relbar,Relbar,removelastskip,repeat,%
6931 rfloor,rgroup,rho,rhook,rightarrow,Rightarrow,rightarrowfill,%
6932 rightharpoondown,rightharpoonup,rightleftharpoons,rightline,rlap,%
6933 rmoustache,root,rq,S,sb,searrow,sec,setminus,sharp,showhyphens,%
6934 sigma,Sigma,sim,simeq,sin,sinh,skew,slash,smallbreak,smallint,%
6935 smallskip,smallskipamount,smash,smile,sp,space,spadesuit,sqcap,%
6936 sqcup,sqrt,sqsubsetq,sqsupsetq,ss,star,strut,strutbox,subset,%
6937 subseteq,succ,succeq,sum,sup,supset,supseteq,surd,swarrow,t,tan,%
6938 tanh,tau,TeX,theta,Theta,thinspace,tilde,times,to,top,tracingall,%
6939 triangle,triangleleft,triangleright,u,underbar,underbrace,%
6940 uparrow,Uparrow,upbracefill,updownarrow,Updownarrow,uplus,%
6941 upsilon,Upsilon,v,varepsilon,varphi,varpi,varrho,varsigma,%
6942 vartheta,vdash,vdots,vec,vee,vert,Vert,vglue,vphantom,wedge,%
6943 widehat,widetilde,wlog,wp,wr,xi,Xi,zeta}%
6944 }%

```

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

```

6945 \lst@definelanguage[primitive]{TeX}%
6946 {moretexcs={above,abovedisplaysshortskip,abovedisplayskip,aftergroup,%
6947 abovewithdelims,accent,adjdemerits,advance,afterassignment,atop,%
6948 atopwithdelims,badness,baselineskip,batchmode,begingroup,%
6949 belowdisplaysshortskip,belowdisplayskip,binoppenalty,botmark,box,%
6950 boxmaxdepth,brokenpenalty,catcode,char,chardef,cleaders,closein,%
6951 closeout,clubpenalty,copy,count,countdef,cr,crr,csname,day,%
6952 deadcycles,def,defaultshyphenchar,defaultskewchar,delcode,%
6953 delimiter,delimiterfactor,delimitershortfall,dimen,dimendef,%

```

```

6954 discretionary,displayindent,displaylimits,displaystyle,%
6955 displaywidowpenalty,displaywidth,divide,doublehyphenemerits,dp,%
6956 edef,else,emergencystretch,end,endcsname,endgroup,ending,%
6957 endlchar,eqno,errhelp,errmsg,errorcontextlines,%
6958 errorstopmode,escapechar,everycr,everydisplay,everyhbox,everyjob,%
6959 everymath,everypar,everyvbox,exhyphenpenalty,expandafter,fam,fi,%
6960 finalhyphenemerits,firstmark,floatingspenalty,font,fontdimen,%
6961 fontname,futurelet,gdef,global,globaldefs,halign,hangafter,%
6962 hangingindent,hbadness,hbox,hfil,hfill,hfilneg,hfuzz,hoffset,%
6963 holdinginserts,hrule,hsize,hskip,hss,ht,hyphenation,hyphenchar,%
6964 hyphenpenalty,if,ifcase,ifcat,ifdim,ifeof,iffalse,ifhbox,ifhmode,%
6965 ifinner,ifmmode,ifnum,ifodd,iftrue,ifvbox,ifvmode,ifvoid,ifx,%
6966 ignorespaces,immediate,indent,input,insert,insertpenalties,%
6967 interlinepenalty,jobname,kern,language,lastbox,lastkern,%
6968 lastpenalty,lastskip,lcode,leaders,left,lefthyphenmin,leftskip,%
6969 leqno,let,limits,linepenalty,lineskip,lineskiplimit,long,%
6970 looseness,lower,lowercase,mag,mark,mathaccent,mathbin,mathchar,%
6971 mathchardef,mathchoice,mathclose,mathcode,mathinner,mathop,%
6972 mathopen,mathord,mathpunct,mathrel,mathsurround,maxdeadcycles,%
6973 maxdepth,meaning,medmuskip,message,mkern,month,moveleft,%
6974 moveright,mskip,multiply,muskip,muskipdef,newlinechar,noalign,%
6975 noboundary,noexpand,noindent,nolimits,nonscript,nonstopmode,%
6976 nulldelimiterspace,nullfont,number,omit,openin,openout,or,outer,%
6977 output,outputpenalty,over,overfullrule,overline,overwithdelims,%
6978 pagedepth,pagefilllstretch,pagefillstretch,pagefilstretch,%
6979 pagegoal,pageshrink,pagewidth,pagetotal,par,parfillskip,%
6980 parindent,parshape,parskip,patterns,pausing,penalty,%
6981 postdisplaypenalty,predisplaypenalty,predisplaysize,pretolerance,%
6982 prevdepth,prevgraf,radical,raise,read,relax,relpenalty,right,%
6983 righthyphenmin,rightskip,romannumeral,scriptfont,%
6984 scriptscriptfont,scriptscriptstyle,scriptspace,scriptstyle,%
6985 scrollmode,setbox,setlanguage,sfcode,shipout,show,showbox,%
6986 showboxbreadth,showboxdepth,showlists,showthe,skewchar,skip,%
6987 skipdef,spacefactor,spaceskip,span,special,splitbotmark,%
6988 splitfirstmark,splitmaxdepth,splittopskip,string,tabskip,%
6989 textfont,textstyle,the,thickmuskip,thinmuskip,time,toks,toksdef,%
6990 tolerance,topmark,topskip,tracingcommands,tracinglostchars,%
6991 tracingmacros,tracingonline,tracingoutput,tracingpages,%
6992 tracingparagraphs,tracingrestores,tracingstats,uccode,uchyph,%
6993 underline,unhbox,unhcopy,unkern,unpenalty,unskip,unvbox,unvcopy,%
6994 uppercase,vadjust,valign,vbadness,vbox,vcenter,vfil,vfill,%
6995 vfilneg,vfuzz,voffset,vrule,vsize,vskip,vsplit,vss,vtop,wd,%
6996 widowpenalty,write,xdef,xleaders,xspaceskip,year},%
6997 sensitive,%
6998 alsoother={0123456789$_},%$ to make Emacs fontlocking happy
6999 morecomment=[1]\%%
7000 }[keywords,tex,comments]%
7001 </lang3>

```

2.80 VBScript

Sonja Weidmann VBScript sent me this language definition.

```
7002 (*lang2)
7003 %%
7004 %% VBScript definition (c) 2000 Sonja Weidmann
7005 %%
7006 \lst@definlanguage{VBScript}%
7007 {morekeywords={Call,Case,Const,Dim,Do,Each,Else,End,Erase,Error,Exit,%
7008     Explicit,For,Function,If,Loop,Next,On,Option,Private,Public,%
7009     Randomize,ReDim,Rem,Select,Set,Sub,Then,Wend,While,Abs,Array,Asc,%
7010     Atn,CBool,CByte,CDate,CDate,CDbl,Chr,CInt,CLng,Cos,CreateObject,%
7011     CSng,CStr,Date,DateAdd,DateDiff,DatePart,DateSerial,DateValue,%
7012     Day,Exp,Filter,Fix,FormatCurrency,FormatDateTime,FormatNumber,%
7013     FormatPercent,GetObject,Hex,Hour,InputBox,InStr,InStrRev,Int,%
7014     IsArray,IsDate,IsEmpty,IsNull,IsNumeric,IsObject,Join,LBound,%
7015     LCase,Left,Len,LoadPicture,Log,LTrim,Mid,Minute,Month,MonthName,%
7016     MsgBox,Now,Oct,Replace,RGB,Right,Rnd,Round,RTrim,ScriptEngine,%
7017     ScriptEngineBuildVersion,ScriptEngineMajorVersion,%
7018     ScriptEngineMinorVersion,Second,Sgn,Sin,Space,Split,Sqr,StrComp,%
7019     StrReverse,String,Tan,Time,TimeSerial,TimeValue,Trim,TypeName,%
7020     UBound,UCase,VarType,Weekday,WeekdayName,Year,And,Eqv,Imp,Is,%
7021     Mod,Not,Or,Xor,Add,BuildPath,Clear,Close,Copy,CopyFile,%
7022     CopyFolder,CreateFolder,CreateTextFile,Delete,DeleteFile,%
7023     DeleteFolder,Dictionary,Drive,DriveExists,Drives,Err,Exists,File,%
7024     FileExists,FileSystemObject,Files,Folder,FolderExists,Folders,%
7025     GetAbsolutePathName,GetBaseName,GetDrive,GetDriveName,%
7026     GetExtensionName,GetFile,GetFileName,GetFolder,%
7027     GetParentFolderName,GetSpecialFolder,GetTempName,Items,Keys,Move,%
7028     MoveFile,MoveFolder,OpenAsTextStream,OpenTextFile,Raise,Read,%
7029     ReadAll,ReadLine,Remove,RemoveAll,Skip,SkipLine,TextStream,Write,%
7030     WriteBlankLines,WriteLine,Alias,Archive,CDROM,Compressed,%
7031     Directory,Fixed,ForAppending,ForReading,ForWriting,Hidden,Normal,%
7032     RAMDisk,ReadOnly,Remote,Removable,System,SystemFolder,%
7033     TemporaryFolder,TristateFalse,TristateTrue,TristateUseDefault,%
7034     Unknown,Volume,WindowsFolder,vbAbortRetryIgnore,%
7035     vbApplicationModal,vbArray,vbBinaryCompare,vbBlack,vbBlue,%
7036     vbBoolean,vbByte,vbCr,vbCrLf,vbCritical,vbCurrency,vbCyan,%
7037     vbDataObject,vbDate,vbDecimal,vbDefaultButton1,vbDefaultButton2,%
7038     vbDefaultButton3,vbDefaultButton4,vbDouble,vbEmpty,vbError,%
7039     vbExclamation,vbFirstFourDays,vbFirstFullWeek,vbFirstJan1,%
7040     vbFormFeed,vbFriday,vbGeneralDate,vbGreen,vbInformation,%
7041     vbInteger,vbLf,vbLong,vbLongDate,vbLongTime,vbMagenta,vbMonday,%
7042     vbNewLine,vbNull,vbNullChar,vbNullString,vbOKC,ancel,vbOKOnly,%
7043     vbObject,vbObjectError,vbQuestion,vbRed,vbRetryCancel,vbSaturday,%
7044     vbShortDate,vbShortTime,vbSingle,vbString,vbSunday,vbSystemModal,%
7045     vbTab,vbTextCompare,vbThursday,vbTuesday,vbUseSystem,%
7046     vbUseSystemDayOfWeek,vbVariant,vbVerticalTab,vbWednesday,vbWhite,%
7047     vbYellow,vbYesNo,vbYesNoCancel},%
```

```

7048     sensitive=f,%
7049     morecomment=[1]',%
7050     morestring=[d]"%
7051   }[keywords,comments,strings]%
7052 </lang2>

```

2.81 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.

```

7053 (*lang3)
7054 %%
7055 %% Verilog definition (c) 2003 Cameron H. G. Wright <c.h.g.wright@ieee.org>
7056 %% Based on the IEEE 1364-2001 Verilog HDL standard
7057 %% Ref: S. Palnitkar, "Verilog HDL: A Guide to Digital Design and Synthesis,"
7058 %%       Prentice Hall, 2003. ISBN: 0-13-044911-3
7059 %%
7060 \lst@definlanguage{Verilog}%
7061 {morekeywords={% reserved keywords
7062     always,and,assign,automatic,begin,buf,bufif0,bufif1,case,casex,%
7063     casez,cell,cmos,config,deassign,default,defparam,design,disable,%
7064     edge,else,end,endcase,endconfig,endfunction,endgenerate,%
7065     endmodule,endprimitive,endspecify,entable,entask,event,for,%
7066     force,forever,fork,function,generate,genvar,highz0,highz1,if,%
7067     ifnone,incdir,include,initial,inout,input,instance,integer,join,%
7068     large,liblist,library,localparam,macromodule,medium,module,nand,%
7069     negege,nmos,nor,noshowcancelled,not,notif0,notif1,or,output,%
7070     parameter,pmos,posedge,primitive,pull0,pull1,pulldown,pullup,%
7071     pulsestyle_oneevent,pulsestyle_ondetect,rcmos,real,realtime,reg,%
7072     release,repeat,rnmos,rpmos,rtran,rtranif0,rtranif1,scalared,%
7073     showcanceled,signed,small,specify,specparam,strong0,strong1,%
7074     supply0,supply1,table,task,time,tran,tranif0,tranif1,tri,tri0,%
7075     tri1,triand,rior,triereg,unsigned,use,vectored,wait,wand,weak0,%
7076     weak1,while,wire,wor,xnor,xor},%
7077 morekeywords=[2]{% system tasks and functions
7078     $bitstoreal,$countdrivers,$display,$fclose,$fdisplay,$fmonitor,%
7079     $fopen,$fstrobe,$fwrite,$finish,$getpattern,$history,$incsave,%
7080     $input,$itor,$key,$list,$log,$monitor,$monitoroff,$monitoron,%
7081     $nokey},%
7082 morekeywords=[3]{% compiler directives
7083     'accelerate,'autoexpand_vectornets,'celldefine,'default_nettype,%
7084     'define,'else,'elsif,'endcelldefine,'endif,'endprotect,%
7085     'endprotected,'expand_vectornets,'ifdef,'ifndef,'include,%
7086     'no_accelerate,'noexpand_vectornets,'noremove_gatenames,%
7087     'nounconnected_drive,'protect,'protected,'remove_gatenames,%
7088     'remove_netnames,'resetall,'timescale,'unconnected_drive},%
7089 alsoletter='\',%

```

```

7090 sensitive,%
7091 morecomment=[s]{/*}{*/},%
7092 morecomment=[l]//,% nonstandard
7093 morestring=[b]"%
7094 }[keywords,comments,strings]%
7095 </lang3>

```

2.82 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.

```

7096 <*lang1>
7097 %%
7098 %% VHDL definition (c) 1997 Kai Wollenweber
7099 %%
7100 \lst@definlanguage{VHDL}%
7101 {morekeywords={ALL,ARCHITECTURE,ABS,AND,ASSERT,ARRAY,AFTER,ALIAS,%
7102 ACCESS,ATTRIBUTE,BEGIN,BODY,BUS,BLOCK,BUFFER,CONSTANT,CASE,%
7103 COMPONENT,CONFIGURATION,DOWNTO,ELSE,ELSIF,END,ENTITY,EXIT,%
7104 FUNCTION,FOR,FILE,GENERIC,GENERATE,GUARDED,GROUP,IF,IN,INOUT,IS,%
7105 INERTIAL,IMPURE,LIBRARY,LOOP,LABEL,LITERAL,LINKAGE,MAP,MOD,NOT,%
7106 NOR,NAND,NULL,NEXT,NEW,OUT,OF,OR,OTHERS,ON,OPEN,PROCESS,PORT,%
7107 PACKAGE,PURE,PROCEDURE,POSTPONED,RANGE,REM,ROL,ROR,REPORT,RECORD,%
7108 RETURN,REGISTER,REJECT,SIGNAL,SUBTYPE,SLL,SRL,SLA,SRA,SEVERITY,%
7109 SELECT,THEN,TYPE,TRANSPORT,TO,USE,UNITS,UNTIL,VARIABLE,WHEN,WAIT,%
7110 WHILE,XOR,XNOR,%
7111 DISCONNECT,ELIF,WITH},% Arnaud Tisserand
7112 sensitive=f,% 1998 Gaurav Aggarwal
7113 morecomment=[l]--,%
7114 morestring=[d]{"}%
7115 }[keywords,comments,strings]%

```

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

```

7116 %%
7117 %% VHDL-AMS definition (c) Steffen Klupsch
7118 %%
7119 \lst@definlanguage[AMS]{VHDL}[] {VHDL}%
7120 {morekeywords={ACROSS,ARRAY,BREAK,DISCONNECT,NATURE,NOISE,PORT,%
7121 PROCEDURAL,QUANTITY,SHARED,SPECTRUM,SUBNATURE,TERMINAL,THROUGH,%
7122 TOLERANCE,UNAFFECTED,UNITS}}
7123 </lang1>

```

2.83 VRML

This language is due to Oliver BaumVRML.

```

7124 <*lang2>

```

```

7125 %%
7126 %% VRML definition (c) 2001 Oliver Baum
7127 %%
7128 \lst@definlanguage[97]{VRML}{%
7129   morekeywords={DEF, EXTERNPROTO, FALSE, IS, NULL, PROTO, ROUTE, TO, TRUE,%
7130     USE, eventIn, eventOut, exposedField, field, Introduction, Anchor,%
7131     Appearance, AudioClip, Background, Billboard, Box, Collision, Color,%
7132     ColorInterpolator, Cone, Coordinate, CoordinateInterpolator, Cylinder,%
7133     CylinderSensor, DirectionalLight, ElevationGrid, Extrusion, Fog,%
7134     FontStyle, Group, ImageTexture, IndexedFaceSet, IndexedLineSet, Inline,%
7135     LOD, Material, MovieTexture, NavigationInfo, Normal,%
7136     NormalInterpolator, OrientationInterpolator, PixelTexture, PlaneSensor,%
7137     PointLight, PointSet, PositionInterpolator, ProximitySensor,%
7138     ScalarInterpolator, Script, Shape, Sound, Sphere, SphereSensor,%
7139     SpotLight, Switch, Text, TextureCoordinate, TextureTransform,%
7140     TimeSensor, TouchSensor, Transform, Viewpoint, VisibilitySensor,%
7141     WorldInfo},%
7142   morecomment=[l]\#,% bug: starts comment in the first column
7143   morestring=[b]"%
7144 }[keywords,comments,strings]
7145 </lang2>

```

2.84 XML et al

Bernhard Walle provided the following two definitions.

```

7146 <*lang1>
7147 \lst@definlanguage{XSLT}[] {XML}{%
7148   {morekeywords={%
7149     % main elements
7150     xsl:stylesheet, xsl:transform,%
7151     % childs of the main element
7152     xsl:apply-imports, xsl:attribute-set, xsl:decimal-format, xsl:import,%
7153     xsl:include, xsl:key, xsl:namespace-alias, xsl:output, xsl:param,%
7154     xsl:preserve-space, xsl:strip-space, xsl:template, xsl:variable,%
7155     % 21 directives
7156     xsl:apply-imports, xsl:apply-templates, xsl:attribute,%
7157     xsl:call-template, xsl:choose, xsl:comment, xsl:copy, xsl:copy-of,%
7158     xsl:element, xsl:fallback, xsl:for-each, xsl:if, xsl:message,%
7159     xsl:number, xsl:otherwise, xsl:processing-instruction, xsl:text,%
7160     xsl:value-of, xsl:variable, xsl:when, xsl:with-param},%
7161   alsodigit={-},%
7162 }%
7163 \lst@definlanguage{Ant}[] {XML}{%
7164   morekeywords={%
7165     project, target, patternset, include, exclude, excludesfile,%
7166     includesfile, filterset, filter, filtersfile, libfileset, custom,%
7167     classpath, fileset, none, depend, mapper, filename, not, date,%
7168     contains, selector, depth, or, and, present, majority, size, dirset,%

```

```

7169    filelist, pathelement, path, param, filterreader, extension,%
7170    filterchain, linecontainsregexp, regexp, classconstants, headfilter,%
7171    tabstospaces, striplinebreaks, tailfilter, stripjavacomments,%
7172    expandproperties, linecontains, replacetokens, token,%
7173    striplinecomments, comment, prefixlines, classfileset, rootfileset,%
7174    root, description, xmllcatalog, entity, dtd, substitution, extensionSet,%
7175    propertyfile, entry, vsscheckin, sql, transaction, cvspass, csc,%
7176    dirname, wlrn, wlclasspath, p4label, replaceregexp, get, jjtree,%
7177    sleep, jarlib, dependset, targetfileset, srcfileset, srcfilelist,%
7178    targetfilelist, zip, zipgroupfileset, zipfileset, patch, jspc, webapp,%
7179    style, test, arg, jvmarg, sysproperty, testlet, env, tstamp, format,%
7180    unwar, vsshhistory, icontract, cvschangelog, user, p4submit, ccmcheckin,%
7181    p4change, bzip2, vssadd, javadoc, bottom, source, doctitle, header,%
7182    excludepackage, bootclasspath, doclet, taglet, packageset, sourcepath,%
7183    link, footer, package, group, title, tag, translate, signjar, vajload,%
7184    vajproject, jarlib, extensionset, WsdLToDotnet, buildnumber,%
7185    jpcovmerge, tomcat, ejbjar, weblogictoplink, jboss, borland, weblogic,%
7186    iplanet, jonas, support, websphere, wasclasspath, war, manifest,%
7187    attribute, section, metainf, lib, classes, webinf, rename, sequential,%
7188    serverdeploy, generic, property, move, copydir, cccheckin, wljspc,%
7189    fixcrlf, sosget, pathconvert, map, record, p4sync, exec, p4edit,%
7190    maudit, rulespath, searchpath, antlr, netrexxc, jpcovreport, reference,%
7191    filters, coveragepath, execon, targetfile, srcfile, ccmcheckout, ant,%
7192    xmlvalidate, xslt, iplanet, ccmcheckintask, gzip, native2ascii,%
7193    starteam, ear, archives, input, rmic, extdirs, compilerarg, checksum,%
7194    mail, bcc, message, cc, to, from, loadfile, vsscheckout, stylebook,%
7195    soscheckin, mimemail, stlabel, gunzip, concat, cab, touch, parallel,%
7196    splash, antcall, cccheckout, typedef, p4have, xmlproperty, copy,%
7197    tomcat, antstructure, ccmcreatetask, rpm, delete, replace,%
7198    replacefilter, replacetokey, replacevalue, mmetrics, waitfor, isfalse,%
7199    equals, available, filepath, os, filesmatch, istrue, isset, socket,%
7200    http, uptodate, srcfiles, untar, loadproperties, echoproperties,%
7201    vajexport, stcheckout, bunzip2, copyfile, vsscreate, ejbc, unjar,%
7202    tomcat, wsdltodotnet, mkdir, condition, cvs, commandline, marker,%
7203    argument, tempfile, junitreport, report, taskdef, echo, ccupdate, java,%
7204    renameext, vsslable, basename, javadoc2, vsscp, tar, tarfileset,%
7205    tomcat, vajimport, setproxy, wlstop, p4counter, ilasm, soscheckout,%
7206    apply, ccuncheckout, jarlib, location, url, cvstagdiff, jlink,%
7207    mergefiles, addfiles, javacc, pvcs, pvcsproject, jarlib, options,%
7208    depends, chmod, jar, sound, fail, success, mparse, blgenclient, genkey,%
7209    dname, javah, class, ccmreconfigure, unzip, javac, src, p4add,%
7210    soslabel, jpcovage, triggers, method, vssget, deltree, ddcreator},%
7211    deletekeywords={default},%
7212 }
7213 </lang1>
    This is my first attempt to support XML. It is from 2000/07/18.
7214 <*lang1>
7215 \lst@definelanguage{XML}%

```

```

7216 {keywords={,CDATA,DOCTYPE,ATTLIST,termdef,ELEMENT,EMPTY,ANY,ID,%
7217     IDREF,IDREFS,ENTITY,ENTITIES,NMTOKEN,NMTOKENS,NOTATION,%
7218     INCLUDE,IGNORE,SYSTEM,PUBLIC,NDATA,PUBLIC,%
7219     PCDATA,REQUIRED,IMPLIED,FIXED,%%% preceded by #
7220     xml,xml:space,xml:lang,version,standalone,default,preserve},%
7221     alsoother=$,%
7222     alsoletter=:,%
7223     tag=**[s]<>,%
7224     morestring=[d]" ,% ??? doubled
7225     morestring=[d]' ,% ??? doubled
7226     MoreSelectCharTable=%
7227         \lst@CArgX--\relax\lst@DefDelimB{}{}%
7228         {\ifnum\lst@mode=\lst@tagmode\else
7229             \expandafter\@gobblethree
7230             \fi}%
7231         \lst@BeginComment\lst@commentmode{{\lst@commentstyle}}%
7232     \lst@CArgX--\relax\lst@DefDelimE{}{}{}%
7233         \lst@EndComment\lst@commentmode
7234     \lst@CArgX[CDATA[\relax\lst@CDef{}%
7235         {\ifnum\lst@mode=\lst@tagmode
7236             \expandafter\lst@BeginCDATA
7237             \else \expandafter\lst@CArgEmpty
7238             \fi}%
7239         \@empty
7240     \lst@CArgX]]\relax\lst@CDef{}%
7241         {\ifnum\lst@mode=\lst@GPmode
7242             \expandafter\lst@EndComment
7243             \else \expandafter\lst@CArgEmpty
7244             \fi}%
7245         \@empty
7246     }[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.

```
7247 </lang1>
```