

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}[2019/02/27 1.8b 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> [2019/02/27 1.8b 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@definlanguage[R/3 6.10]{ABAP}[R/3 4.6C]{ABAP}%
95 {morekeywords={try,endtry},%
96 }[keywords,comments,strings]

97 \lst@definlanguage[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{=>}{\Rightarrow}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@definlanguage[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 \lstdefinlanguage[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=[1] "%
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 \lstdefinlanguage[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 scartcl 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 </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 <*lang1>
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,minterval,%
216     merror,xerror,nsteps,procedural,save,schedule,sort,%
217     table,terminal,termt,variable},%
218     sensitive=false,%
219     morecomment=[1]!%
220   }[keywords, comments]%
221 </lang1>

```


2.4 Ada

Data come from

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

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

```
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         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@definlanguage[x86masm]{Assembler}%
294 {morekeywords={al,ah,ax,eax,bl,bh,bx,ebx,cl,ch,cx,ecx,dl,dh,dx,edx,%
295     si,esi,di,edi,ebp,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,idiv,imul,in,%
300     inc,ins,int,into,invd,invlpg,iret,ja,jae,jb,jbe,jc,jcxz,jecxz,%
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,nop,not,or,out,outs,pop,popa,popad,%
306     popf,popfd,push,pusha,pushad,pushf,pushfd,rcl,rcr,rep, repe,%
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,sez,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,fiacom,%
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,fxtract,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=[l];%
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,gensub,%
343 lshift,mktime,or,rshift,strftime,strtonum,systemtime,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>SaveToToolbar>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,ConfigChageCancelled,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@definlanguage{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@definlanguage [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@definlanguage [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@definlanguage [ANSI]{C++}[ISO]{C++}{}%
```

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

```

537 \lst@definlanguage [GNU]{C++}[ISO]{C++}%
538   {morekeywords={__attribute__,__extension__,__restrict__,__restrict__,%
539     typeof,__typeof__},%
540   }%
541 \lst@definlanguage [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@definlanguage [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 \lstdefinlanguage[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 </lang1>
    Jörg Viermann provided the keywords for Handel-C.
566 <*lang1>
567 %%
568 %% Handel-C definition, refer http://www.celoxica.com
569 %%
570 \lstdefinlanguage[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 </lang1>
578 <*lang1>
579 \lstdefinlanguage[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 </lang1>
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, vfixup,%
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 \lst@definlanguage{Comal 80}%
744 {morekeywords={AND, AUTO, CASE, DATA, DEL, DIM, DIV, DO, ELSE, ENDCASE, ENDF, %
745     ENDP, 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,chcp,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=[l]{rem},%
767 morecomment=[l]{reM},%
768 morecomment=[l]{rEm},%
769 morecomment=[l]{rEM},%
770 morecomment=[l]{Rem},%
771 morecomment=[l]{ReM},%
772 morecomment=[l]{REm},%
773 morecomment=[l]{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,elconstr,elcplbnd,elcplextr,elcplproj,%
789 elcplscalar,empty,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,femmeshep,femnlin,%
794 femplot,femsfun,femsim,femsimlowlevel,femsimsolver,femsol,%
795 femsolver,femstate,femstruct,femtime,femwave,festyle,fieldnames,%
796 fillet,fl1d,fl2d,fl3d,flaction,flafun,flappconvert,flappobj,%
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 fldsmsign,flvalmat,flexch,flexchprop,flfastgeom,flform,flgc,%
803 flgcb0,flgdconv,flgeom2cellstr,flgeomadj,flgeomarcize,flgeomec,%
804 flgeomed,flgeomepol,flgeomes,flgeomfc,flgeomfd,flgeomfdp,%
805 flgeomff1,flgeomff2,flgeomfn,flgeomfs,flgeomgetlocalsys,%
806 flgeominit,flgeominitprop,flgeomittransform,flgeomloft,flgeommesh,%
807 flgeomnbs,flgeomnes,flgeomnmr,flgeomnv,flgeompsin,flgeomrmsing,%
808 flgeomrotp,flgeomsd,flgeomdim,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,flsmsign,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,geomproputil,%
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,jproputil,jptr2geom,jptrgeom1,%
842 jptrgeom1_fl123,jptrgeom2,jptrgeom2_fl123,jptrgeom3,jptrgeom3_fl123,%

```

```

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 paramgeom,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,postprogui,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,splittoprim,square1,square2,stlread,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}[] {sh}%
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     morendkeywords={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, Of, 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, StrLComp, StrLComp, StrLCopy, StrLen, StrLFmt, StrLComp, %
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 2008) 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`.

```
1084 \lst@definlanguage[08]{Fortran}[03]{Fortran}{%
1085   morekeywords={ALL, BLOCK, CODIMENSION, CONCURRENT, CONTIGUOUS, CRITICAL,%
1086     ERROR, LOCK, SUBMODULE, SYNC, UNLOCK},%
```

New procedures in Fortran 2008:

```
1087   morekeywords=[3]{ACOSH, ASINH, ATANH, ATOMIC_DEFINE, ATOMIC_REF,%
1088     BESSEL_J0, BESSEL_J1, BESSEL_JN, BESSEL_Y0, BESSEL_Y1, BESSEL_YN,%
1089     BGE, BGT, BLE, BLT, C_SIZEOF, COMPILER_OPTIONS, COMPILER_VERSION,%
1090     DSHIFTL, DSHIFTR, ERF, ERFC, ERFC_SCALED, EXECUTE_COMMAND_LINE,%
1091     FINDLOC, GAMMA, HYPOT, IALL, IANY, IMAGE_INDEX, IPARITY, LCOBOUND,%
1092     LEADZ, LOG_GAMMA, MASKL, MASKR, MERGE_BITS, NORM2, NUM_IMAGES,%
1093     PARITY, POPCNT, POPPAR, SHIFTA, SHIFTL, SHIFTR, STORAGE_SIZE,%
1094     THIS_IMAGE, TRAILZ, UCOBOUND}%
1095 }%
```

Fortran 2003 introduces the following keywords:

```
1096 \lst@definlanguage[03]{Fortran}[95]{Fortran}{%
1097   morekeywords={ABSTRACT, ASSOCIATE, ASYNCHRONOUS, BIND, CLASS, DEFERRED,%
1098     ENUM, ENUMERATOR, EXTENDS, FINAL, FLUSH, GENERIC, IMPORT,%
1099     NON_OVERRIDABLE, NOPASS, PASS, PROTECTED, VALUE, VOLATILE, WAIT},%
```

These are new options/specifiers:

```
1100   morekeywords=[2]{DECIMAL, ENCODING, IOMSG, ROUND},%
```

And also some new procedures:

```
1101   morekeywords=[3]{C_ASSOCIATED, C_F_POINTER, C_F_PROCPOINTER, C_FUNLOC,%
1102     C_LOC, COMMAND_ARGUMENT_COUNT, EXTENDS_TYPE_OF, GET_COMMAND,%
1103     GET_COMMAND_ARGUMENT, GET_ENVIRONMENT_VARIABLE, IS_IOSTAT_END,%
1104     MOVE_ALLOC,NEW_LINE,SAME_TYPE_AS, SELECTED_CHAR_KIND}%
1105 }%
```

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

```
1106 \lst@definlanguage[90]{Fortran}[95]{Fortran}{}
```

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

```
1107 \lst@definelanguage[95]{Fortran}[77]{Fortran}{%
1108   deletekeywords=SAVE,%
1109   morekeywords={ALLOCATABLE, ALLOCATE, ASSIGNMENT, CASE, CONTAINS, CYCLE,%
1110     DEALLOCATE, DEFAULT, EXIT, INCLUDE, IN, NONE, OUT, INTENT, INTERFACE,%
1111     MODULE, NAMELIST, NULLIFY, ONLY, OPERATOR, OPTIONAL, OUT, POINTER,%
1112     PRIVATE, PUBLIC, RECURSIVE, RESULT, SELECT, SEQUENCE, TARGET, USE,%
1113     WHERE, WHILE, BLOCKDATA, DOUBLEPRECISION, ENDBLOCKDATA, ENDFILE,%
1114     ENDFUNCTION, ENDINTERFACE, ENDMODULE, ENDPROGRAM, ENDSELECT,%
1115     ENDSUBROUTINE, ENDTYPE, ENDWHERE, INOUT, SELECTCASE,%
```

Theses keys were missing from the 1.4 version of listings:

```
1116     ELEMENTAL, ELSEWHERE, FORALL, PURE,%
```

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

```
1117     PROCEDURE},%
```

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

```
1118   morekeywords=[2]{ACTION, ADVANCE, DELIM, IOLENGTH, LEN, NAME, NML, PAD,%
1119     POSITION, READWRITE, SIZE, STAT},% corrected NML from NMT
```

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

```
1120   morekeywords=[3]{ACHAR, ADJUSTL, ADJUSTR, ALL, ALLOCATED, ANY, ASSOCIATED,%
1121     BIT_SIZE, BTEST, CEILING, COUNT, CPU_TIME, CSHIFT, DATE_AND_TIME, DIGITS,%
1122     DOT_PRODUCT, EOSHIFT, EPSILON, EXPONENT, FLOOR, FRACTION, HUGE, IACHAR,%
1123     IAND, IBCLR, IBITS, IBSET, ICHAR, IEBOR, IOR, ISHFT, ISHFTC, KIND, LBOUND,%
1124     LEN_TRIM,% left out LOGICAL
1125     MATMUL, MAXEXPONENT, MAXLOC, MAXVAL, MERGE, MINEXPONENT, MINLOC, MINVAL,%
1126     MODULO, MVBITS, NEAREST, NOT, NULL, PACK, PRECISION, PRESENT, PRODUCT,%
1127     RADIX, RANDOM_NUMBER, RANDOM_SEED, RANGE, RANK, REPEAT, RESHAPE,%
1128     RRSPACING, SCALE, SCAN, SELECTED_INT_KIND, SELECTED_REAL_KIND,%
1129     SET_EXPONENT, SHAPE, SINH, SIZE, SPACING, SPREAD, SUM, SYSTEM_CLOCK,%
1130     TINY, TRANSFER, TRANSPOSE, TRIM, UBOUND, UNPACK, VERIFY},%
1131   deletacomment=[f],% no fixed comment line: 1998 Magne Rudshaug
1132   morecomment=[1]!%
1133 }%
```

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’).

```
1134 \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.

```
1135   morekeywords={ASSIGN, BACKSPACE, CALL, CHARACTER, %
1136     CLOSE, COMMON, COMPLEX, CONTINUE, DATA, DIMENSION, DO, DOUBLE, %
1137     ELSE, ELSEIF, END, ENDIF, ENDDO, ENTRY, EQUIVALENCE, EXTERNAL, %
1138     FILE, FORMAT, FUNCTION, GO, TO, GOTO, IF, IMPLICIT, %
```

```

1139    INQUIRE, INTEGER, INTRINSIC, LOGICAL, %
1140    OPEN, PARAMETER, PAUSE, PRECISION, PRINT, PROGRAM, READ, REAL, %
1141    RETURN, REWIND, STOP, SUBROUTINE, THEN, %
1142    WRITE, SAVE},%
1143    morekeywords=[2]{ACCESS, BLANK, BLOCK, DIRECT, EOF, ERR, EXIST,%
1144    FMT, FORM, FORMATTED, IOSTAT, NAMED, NEXTREC, NUMBER, OPENED,%
1145    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!)

```

1146    morekeywords=[3]{INT, DBLE, CMPLX, ICHAR, CHAR, AINT, ANINT,% left out real
1147    NINT, ABS, MOD, SIGN, DIM, DPROD, MAX, MIN, AIMAG, CONJG, SQRT,%
1148    EXP, LOG, LOG10, SIN, COS, TAN, ASIN, ACOS, ATAN, ATAN2, SINH,%
1149    COSH, TANH, LGE, LGT, LLE, LLT, LEN, INDEX},%

```

And here is the last list: fortran operators:

```

1150    morekeywords=[4]{AND, EQ, EQV, FALSE, GE, GT, OR, LE, LT, NE, NEQV,%
1151    NOT, TRUE},%
1152    sensitive=f,% not Fortran-77 standard, but allowed in Fortran-95 %%
1153    morecomment=[f]*,%
1154    morecomment=[f]C,%
1155    morecomment=[f]c,%
1156    morestring=[d]" ,%% not Fortran-77 standard, but allowed in Fortran-95 %%
1157    morestring=[d]'%
1158    }[keywords,comments,strings]%

```

```

1159 </lang1>

```

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

```

1160 <*fortran-prf>
1161 \usepackage[rgb, x11names]{xcolor}
1162
1163 % common settings
1164 \lstset{%
1165     frame=tlb,%         the frame is open on the right side
1166     resetmargins=false,%
1167     rulesepcolor=\color{black},%
1168     numbers=left,%      % left
1169     numberstyle=\tiny,%
1170     numbersep=5pt,%
1171     firstnumber=1,%
1172     stepnumber=5,%
1173     columns=fixed,%     % to prevent inserting spaces
1174     fontadjust=true,%
1175     keepspaces=true,%
1176     basewidth=0.5em,%
1177     captionpos=t,%
1178     abovecaptionskip=\smallskipamount,% same amount as default
1179     belowcaptionskip=\smallskipamount,% in caption package
1180 }
1181 % settings for colored printing

```



```

1182 \lstdefinestyle{fortran}{%
1183   backgroundcolor=\color{yellow!10},%
1184   basicstyle=\small\ttfamily,%
1185   identifierstyle=\color{black},%
1186   keywordstyle=\color{blue},%
1187   keywordstyle={[2]\color{cyan}},%
1188   keywordstyle={[3]\color{olive}},%
1189   stringstyle=\color{teal},%
1190   commentstyle=\itshape\color{orange},%
1191 }%
1192 % settings for back and white printing
1193 \lstdefinestyle{fortranbw}{%
1194   backgroundcolor={},%
1195   basicstyle=\small\ttfamily,%
1196   identifierstyle={},%
1197   keywordstyle=\bfseries,%
1198   stringstyle=\itshape,%
1199   commentstyle=\slshape,%
1200   rulesepcolor=\color{black},%
1201 }%

```

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

```
1202 </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.

```

1203 <*lang2>
1204 %%
1205 %% GAP definition
1206 %% (c) 2013 Heiko Oberdiek
1207 %%
1208 \lst@definlanguage{GAP}{%
1209   morekeywords={%
1210     Assert,Info,IsBound,QUIT,%
1211     TryNextMethod,Unbind,and,break,%
1212     continue,do,elif,%
1213     else,end,false,fi,for,%
1214     function,if,in,local,%
1215     mod,not,od,or,%
1216     quit,rec,repeat,return,%
1217     then,true,until,while%
1218   },%
1219   sensitive,%
1220   morecomment=[1]\#,%

```

```

1221  morestring=[b]",%
1222  morestring=[b]',%
1223  }[keywords,comments,strings]
1224 </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.

```

1225 <*lang3>
1226 %%
1227 %% Go definition
1228 %% (c) 2018 Christian Maurer
1229 %%
1230 \lst@definlanguage{Go}{%
1231  morekeywords={append,bool,break,byte,case,chan,close,complex,%
1232  complex128,complex64,const,continue,copy,default,defer,delete,%
1233  else,error,fallthrough,false,float32,float64,for,func,go,goto,%
1234  if,imag,import,int,int16,int32,int64,int8,interface,iota,len,%
1235  make,map,new,nil,package,panic,print,println,range,real,%
1236  recover,return,rune,select,string,struct,switch,true,type,%
1237  uint,uint16,uint32,uint64,uint8,uintptr,var},%
1238  sensitive,%
1239  morecomment=[s]{/*}{*/},%
1240  morecomment=[l]//,%
1241  morestring=[b]',%
1242  morestring=[b]",%
1243  morestring=[s]{'}{'},%
1244  }[keywords,comments,strings]%
1245 </lang3>

```

2.27 Guarded Command Language (GCL)

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

```

1246 <*lang2>
1247 %%
1248 %% Guarded Command Language (GCL) definition
1249 %% (c) 2002 Mark van Eijk
1250 %%
1251 \lst@definlanguage{GCL}{%
1252  {morekeywords={const,con,var,array,of,skip,if,fi,do,od,div,mod},%
1253  literate={|[]}{\ensuremath{\| \hspace{-0.1em[]}}2%

```

```

1254         {}|}{\ensuremath{|\hspace -0.1em|}}2%
1255     {[]}{\ensuremath{[\hspace -0.1em]}}2%
1256     {->}{\ensuremath{\rightarrow}}2%
1257     {==}{\ensuremath{\equiv}}2%
1258     {>=}{\ensuremath{\geq}}2%
1259     {<=}{\ensuremath{\leq}}2%
1260     {/\}\}{\ensuremath{\land}}2%
1261     {\}\}{\ensuremath{\lor}}2%
1262     {!}{\ensuremath{\lnot}}1%
1263     {!=}{\ensuremath{\neq}}2%
1264     {max}{\ensuremath{\uparrow}}1%
1265     {min}{\ensuremath{\downarrow}}1,%
1266     sensitive=f,%
1267     morecomment=[s]{\}{\},%
1268     morestring=[d]'%
1269 }[keywords,comments,strings]%
1270 </lang2>

```

2.28 Gnuplot

Thanks to Dr. Christoph Giess for providing this definition.

```

1271 <*lang2>
1272 %%
1273 %% gnuplot definition (c) Christoph Giess
1274 %%
1275 \lst@definlanguage{Gnuplot}%
1276 {keywords={abs,acos,acosh,arg,asin,asinh,atan,atan2,atanh,besj0,%
1277     besj1,besy0,besy1,ceil,cos,cosh,erf,erfc,exp,floor,gamma,ibeta,%
1278     inverf,igamma,imag,invnorm,int,lgamma,log,log10,norm,rand,real,%
1279     sgn,sin,sinh,sqrt,tan,tanh,column,tm_hour,tm_mday,tm_min,tm_mon,%
1280     tm_sec,tm_wday,tm_yday,tm_year,valid,cd,call,clear,exit,fit,%
1281     help,if,load,pause,plot,print,pwd,quit,replot,reread,reset,save,%
1282     set,show,shell,split,test,update,angles,arrow,autoscale,border,%
1283     boxwidth,clabel,clip,ctrparam,contour,data,dgrid3d,dummy,%
1284     format,function,functions,grid,hidden3d,isosamples,key,keytitle,%
1285     label,logscale,mapping,offsets,output,parametric,pointsize,%
1286     polar,rrange,samples,size,style,surface,terminal,tics,time,%
1287     timefmt,title,trange,urange,variables,view,vrange,xdata,xlabel,%
1288     xmargin,xrange,xtics,mxtics,mytics,xdtics,xmtics,xzeroaxis,%
1289     ydata,ylabel,yrange,ytics,ydtics,ymtics,yzeroaxis,zdata,zero,%
1290     zeroaxis,zlabel,zrange,ztics,zdtics,zmtics,timefm,using,title,%
1291     with,index,every,thru,smooth},%
1292     sensitive,%
1293     comment=[l]\#,%
1294     morestring=[b]" ,%
1295     morestring=[b]' ,%
1296 }[keywords,comments,strings]%
1297 </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>).

```
1298 (*lang2)
1299 \lst@definlanguage{hansl}{%
1300 showstringspaces = false, %
1301 morekeywords={ % hansl commands:
1302 add, adf, anova, append, ar, ar1, arbond, arch, arima, biprobit, break,%
1303 boxplot, chow, clear, coeffsum, coint, coint2, corr, corrgm, cusum,%
1304 data, dataset, delete, diff, difftest, discrete, dpanel, dummify,%
1305 duration, elif, else, end, endif, endloop, eqnprint, equation,%
1306 estimate, eval, fcast, flush, foreign, fractint, freq, function,%
1307 funcerr, garch, genr, gmm, gnuplot, graphpg, hausman, heckit, help,%
1308 hfplot, hsk, hurst, if, include, info, intreg, join, kpss, labels, lad,%
1309 lags, ldiff, leverage, levinlin, logistic, logit, logs, loop, mahal,%
1310 makepkg, markers, meantest, midasreg, mle, modeltab, modprint, modtest,%
1311 mpi, mpols, negbin, nls, normtest, nulldata, ols, omit, open, orthdev,%
1312 outfile, panel, pca, pergm, plot, poisson, print, printf, probit,%
1313 pvalue, quantreg, qlrtest, qqplot, quit, rename, reset, restrict,%
1314 rmpplot, run, runs, scatters, sdiff, set, setinfo, setobs, setopt,%
1315 setmiss, smpl, spearman, square, store,%
1316 summary, system, tabprint, textplot, tobit, tsls, var, varlist,%
1317 vartest, vecm, vif, wls, xcorrgm, xtab, debug, return, catch, pkg,%
1318 arma, deriv, params, hessian, for, foreach, while, const},%
1319 morekeywords=[2]{ % accessors:
1320 \ $nobs, \ $nvars, \ $pd, \ $t1, \ $t2, \ $tmax, \ $datatype, \ $test,%
1321 \ $pvalue, \ $qlrbreak, \ $rlnl, \ $stopwatch, \ $unit, \ $obsmajor,%
1322 \ $obsminor, \ $obsmicro, \ $obsdate, \ $windows, \ $version, \ $error,%
1323 \ $seed, \ $huge, \ $ess, \ $T, \ $rsq, \ $sigma, \ $df, \ $ncoeff, \ $lnl,%
1324 \ $gmmcrit, \ $aic, \ $bic, \ $hq, \ $strsq, \ $dw, \ $dwpval, \ $Fstat,%
1325 \ $chisq, \ $diagtest, \ $diagpval, \ $pmanteau, \ $uhat, \ $yhat, \ $llt,%
1326 \ $ahat, \ $sample, \ $h, \ $coeff, \ $stderr, \ $vcv, \ $rho, \ $compan,%
1327 \ $xtxinv, \ $vecGamma, \ $vma, \ $fevd, \ $evals, \ $jalpha, \ $jbeta,%
1328 \ $jvbeta, \ $s00, \ $s11, \ $s01, \ $ec, \ $hausman, \ $sargan, \ $sysGamma,%
1329 \ $sysA, \ $sysB, \ $fcast, \ $fcse, \ $coeff_ci, \ $ehat, \ $mnlprobs,%
1330 \ $xlist, \ $ylist, \ $command, \ $deivar, \ $model, \ $system, \ $sysinfo},%
1331 morekeywords=[3]{ % functions
1332 BFGSmax, BFGSmax, GSSmax, I, NMmax, NRmax, abs, acos, acosh,%
1333 aggregate, argname, array, asin, asinh, atan, atanh, atof, bessel,%
1334 bkfilt, bootci, bootpval, boxcox, bread, bwfilt, bwrite, cdemean, cdf,%
1335 cdiv, cdummify, ceil, cholesky, chowlin, cmult, cnameget, cnameset,%
1336 cnorm, cnumber, cols, corr, corrgm, cos, cosh, cov, critical, cum,%
1337 curl, dayspan, defarray, defbundle, deflist, deseas, det, diag,%
1338 diagcat, diff, digamma, dnorm, dropcoll, dsort, dummify, easterday,%
1339 ecdf, eigengen, eigensym, eigsolve, epochday, errmsg, exists, exp,%
1340 fcstats, fdjac, feval, fevd, fft, ffti, filter, firstobs, fixname,%
1341 floor, fracdiff, fraclag, freq, gammafun, genseries, getenv, getinfo,%
```

```

1342 getkeys, getline, ghk, gini, ginv, grab, halton, hdprod, hfdiff,%
1343 hflags, hflldiff, hflist, hpfilt, imaxc, imaxr, imhof, iminc, iminr,%
1344 inbundle, infnorm, inlist, instring, int, inv, invcdf, invmills, invpd,%
1345 irf, irr, isconst, isdiscrete, isdummy, isnan, isoconv, isodate,%
1346 iwishart, jsonget, jsongetb, juldate, kdensity, kdsmooth, kfilter,%
1347 kmeier, kpsscric, ksetup, ksimdata, ksimul, ksmooth, kurtosis, lags,%
1348 lastobs, ldet, ldiff, lincomb, linearize, ljungbox, lngamma, loess,%
1349 log, log10, log2, logistic, lower, lrcovar, lrvar, max, maxc, maxr,%
1350 mcorr, mcov, mcovg, mean, meanc, meanr, median, mexp, mgradient, min,%
1351 minc, minr, missing, misszero, mlag, mlincomb, mnormal, mols, monthlen,%
1352 movavg, mpiallred, mpibcast, mpirecv, mpireduce, mpiscatter, mpisend,%
1353 mpols, mrandgen, mread, mreverse, mrls, mshape, msortby, muniform,%
1354 mweights, mwrite, mxtab, naalen, nadarwat, nelem, ngetenv, nlines,%
1355 nobs, normal, normtest, npcorr, npv, nullspace, numhess, obslabel,%
1356 obsnum, ok, onenorm, ones, orthdev, pdf, pergm, pexpand, pmax, pmean,%
1357 pmin, pnobs, polroots, polyfit, princomp, printf, prodc, prodr, psd,%
1358 psdroot, pshrink, psum, pvalue, pxnobs, pxsum, qform, qlrpval, qnorm,%
1359 qrdecomp, quadtable, quantile, randgen, randgen1, randint, rank,%
1360 ranking, rcond, readfile, regsub, remove, replace, resample, rnameget,%
1361 rnameset, round, rows, sd, sdc, sdiff, seasonals, selifc, selifr, seq,%
1362 setnote, simann, sin, sinh, skewness, sleep, smlspan, sort, sortby,%
1363 sprintf, sqrt, square, sscanf, sst, stringify, strlen, strncmp,%
1364 strsplit, strstr, strstrip, strsub, strvals, substr, sum, sumall, sumc,%
1365 sumr, svd, svm, tan, tanh, toepsolv, tolower, toupper, tr, transp,%
1366 trimr, typeof, typestr, uniform, uniq, unvech, upper, urcpval, values,%
1367 var, varname, varnames, varnum, varsimul, vec, vech, weekday, wmean,%
1368 wsd, wvar, xmax, xmin, xmlget, zeromiss, zeros, NMmin, GSSmin,%
1369 BFGScmin, BFGSmin },%
1370 morekeywords=[4]{ % genr aliases:
1371     null, series, scalar, matrix, string, list, bundle, strings, matrices,%
1372     bundles, lists%
1373 },%
1374 sensitive=t,%
1375 morecomment=[1]{\#},%
1376 morecomment=[s]{/*}{*/},%
1377 morestring=[b]{"}%
1378 }%
1379 \lstalias{gretl}{hansl}
1380 </lang2>

```

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

```

1381 <*hansl-prf>
1382 \usepackage[rgb, x11names]{xcolor}
1383
1384 % settings for black and white
1385 \lstdefinestyle{hanslbw}{%
1386     keywordstyle = \bfseries,
1387     keywordstyle = [2]\bfseries,

```

```

1388 keywordstyle = [3]\itshape,
1389 keywordstyle = [4]\underbar,
1390 commentstyle = \ttfamily,
1391 stringstyle = \ttfamily
1392 }
1393 % settings for colored printing
1394 \lstdefinestyle{hanslcolor}{%
1395   basicstyle = \small\ttfamily,
1396   keywordstyle = \color{red},
1397   keywordstyle = [2]\color{green},
1398   keywordstyle = [3]\color{cyan},
1399   keywordstyle = [4]\color{olive},
1400   commentstyle = \color{blue}\rmfamily,%
1401   stringstyle = \color{magenta},
1402   moredelim = [1][\color{green}]{--}
1403 }%

```

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

```
1404 </hansl-prf>
```

2.30 Haskell

Thanks to Peter Bartke for providing the new definition.

```

1405 <*lang2>
1406 %%
1407 %% Haskell98 as implemented in Hugs98. See http://www.haskell.org
1408 %% All keywords from Prelude and Standard Libraries
1409 %% (c) 1999 Peter Bartke
1410 %%
1411 \lst@definelanguage{Haskell}%
1412 {otherkeywords={=>}},%
1413   morekeywords={abstype,if,then,else,case,class,data,default,deriving,%
1414     hiding,if,in,infix,infixl,infixr,import,instance,let,module,%
1415     newtype,of,qualified,type,where,do,AbsoluteSeek,AppendMode,%
1416     Array,BlockBuffering,Bool,BufferMode,Char,Complex,Double,Either,%
1417     FilePath,Float,Int,Integer,IO,IOError,Ix,LineBuffering,Maybe,%
1418     Ordering,NoBuffering,ReadMode,ReadWriteMode,ReadS,RelativeSeek,%
1419     SeekFromEnd,SeekMode,ShowS,StdGen,String,Void,Bounded,Enum,Eq,%
1420     Eval,ExitCode,exitFailure,exitSuccess,Floating,Fractional,%
1421     Functor,Handle,HandlePosn,IOMode,Integral,List,Monad,MonadPlus,%
1422     MonadZero,Num,Numeric,Ord,Random,RandomGen,Ratio,Rational,Read,%
1423     Real,RealFloat,RealFrac,Show,System,Prelude,EQ,False,GT,Just,%
1424     Left,LT,Nothing,Right,WriteMode,True,abs,accum,accumArray,%
1425     accumulate,acos,acosh,all,and,any,ap,appendFile,applyM,%
1426     approxRational,array,asTypeOf,asin,asinh,assocs,atan,atan2,atanh,%
1427     bounds,bracket,bracket_,break,catch,catMaybes,ceiling,chr,cis,%
1428     compare,concat,concatMap,conjugate,const,cos,cosh,curry,cycle,%
1429     decodeFloat,delete,deleteBy,deleteFirstsBy,denominator,%

```

```

1430 digitToInt,div,divMod,drop,dropWhile,either,elem,elems,elemIndex,%
1431 elemIndices,encodeFloat,enumFrom,enumFromThen,enumFromThenTo,%
1432 enumFromTo,error,even,exitFailure,exitWith,exp,exponent,fail,%
1433 filter,filterM,find,findIndex,findIndices,flip,floatDigits,%
1434 floatRadix,floatRange,floatToDigits,floor,foldl,foldM,foldl1,%
1435 foldr,foldr1,fromDouble,fromEnum,fromInt,fromInteger,%
1436 fromIntegral,fromJust,fromMaybe,fromRat,fromRational,%
1437 fromRealFrac,fst,gcd,genericLength,genericTake,genericDrop,%
1438 genericSplitAt,genericIndex,genericReplicate,getArgs,getChar,%
1439 getContents,getEnv,getline,getProgName,getStdGen,getStdRandom,%
1440 group,groupBy,guard,hClose,hFileSize,hFlush,hGetBuffering,%
1441 hGetChar,hGetContents,hGetLine,hGetPosn,hIsClosed,hIsEOF,hIsOpen,%
1442 hIsReadable,hIsSeekable,hIsWritable,hLookAhead,hPutChar,hPutStr,%
1443 hPutStrLn,hPrint,hReady,hSeek,hSetBuffering,hSetPosn,head,%
1444 hugsIsEOF,hugsHIsEOF,hugsIsSearchErr,hugsIsNameErr,%
1445 hugsIsWriteErr,id,ioError,imagPart,index,indices,init,inits,%
1446 inRange,insert,insertBy,interact,intersect,intersectBy,%
1447 intersperse,intToDigit,ioeGetErrorString,ioeGetFileName,%
1448 ioeGetHandle,isAlreadyExistsError,isAlreadyInUseError,isAlpha,%
1449 isAlphaNum,isAscii,isControl,isDenormalized,isDoesNotExistError,%
1450 isDigit,isEOF,isEOFError,isFullError,isHexDigit,isIEEE,%
1451 isIllegalOperation,isInfinite,isJust,isLower,isNaN,%
1452 isNegativeZero,isNothing,isOctDigit,isPermissionError,isPrefixOf,%
1453 isPrint,isSpace,isSuffixOf,isUpper,isUserError,iterate,ixmap,%
1454 join,last,lcm,length,lex,lexDigits,lexLitChar,liftM,liftM2,%
1455 liftM3,liftM4,liftM5,lines,listArray,listToMaybe,log,logBase,%
1456 lookup,magnitude,makePolar,map,mapAccumL,mapAccumR,mapAndUnzipM,%
1457 mapM,mapM_,mapMaybe,max,maxBound,maximum,maximumBy,maybe,%
1458 maybeToList,min,minBound,minimum,minimumBy,mkPolar,mkStdGen,%
1459 mplus,mod,msum,mzero,negate,next,newStdGen,not,notElem,nub,nubBy,%
1460 null,numerator,odd,openFile,or,ord,otherwise,partition,phase,pi,%
1461 polar,pred,print,product,properFraction,putChar,putStr,putStrLn,%
1462 quot,quotRem,random,randomIO,randomR,randomRIO,randomRs,randoms,%
1463 rangeSize,read,readDec,readFile,readFloat,readHex,readInt,readIO,%
1464 readList,readLitChar,readLn,readParen,readOct,readSigned,reads,%
1465 readsPrec,realPart,realToFrac,recip,rem,repeat,replicate,return,%
1466 reverse,round,scaleFloat,scanl,scanl1,scanr,scanr1,seq,sequence,%
1467 sequence_,setStdGen,show,showChar,showEFloat,showFFloat,%
1468 showFloat,showGFloat,showInt,showList,showLitChar,showParen,%
1469 showSigned,showString,shows,showsPrec,significand,signum,sin,%
1470 sinh,snd,sort,sortBy,span,split,splitAt,sqrt,stderr,stdin,stdout,%
1471 strict,subtract,succ,sum,system,tail,tails,take,takeWhile,tan,%
1472 tanh,toEnum,toInt,toInteger,toLower,toRational,toUpper,transpose,%
1473 truncate,try,uncurry,undefined,unfoldr,union,unionBy,unless,%
1474 unlines,until,unwords,unzip,unzip3,unzip4,unzip5,unzip6,unzip7,%
1475 userError,when,words,writeFile,zero,zip,zip3,zip4,zip5,zip6,zip7,%
1476 zipWith,zipWithM,zipWithM_,zipWith3,zipWith4,zipWith5,zipWith6,%
1477 zipWith7},%
1478 sensitive,%
1479 morecomment=[1]--,%

```

```

1480   morecomment=[n]{\{-}\{-\}},%
1481   morestring=[b]"%
1482   }[keywords,comments,strings]%
1483 </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.

```

1484 <*lang1>
1485 \lst@definelanguage{HTML}%
1486   {morekeywords={A, ABBR, ACRONYM, ADDRESS, APPLET, AREA, B, BASE, BASEFONT, %
1487     BDO, BIG, BLOCKQUOTE, BODY, BR, BUTTON, CAPTION, CENTER, CITE, CODE, COL, %
1488     COLGROUP, DD, DEL, DFN, DIR, DIV, DL, DOCTYPE, DT, EM, FIELDSET, FONT, FORM, %
1489     FRAME, FRAMESET, HEAD, HR, H1, H2, H3, H4, H5, H6, HTML, I, IFRAME, IMG, INPUT, %
1490     INS, ISINDEX, KBD, LABEL, LEGEND, LH, LI, LINK, LISTING, MAP, META, MENU, %
1491     NOFRAMES, NOSCRIPT, OBJECT, OPTGROUP, OPTION, P, PARAM, PLAINTEXT, PRE, %
1492     OL, Q, S, SAMP, SCRIPT, SELECT, SMALL, SPAN, STRIKE, STRING, STRONG, STYLE, %
1493     SUB, SUP, TABLE, TBODY, TD, TEXTAREA, TFOOT, TH, THEAD, TITLE, TR, TT, U, UL, %
1494     VAR, XMP, %
1495     accesskey, action, align, alink, alt, archive, axis, background, bgcolor, %
1496     border, cellpadding, cellspacing, charset, checked, cite, class, classid, %
1497     code, codebase, codetype, color, cols, colspan, content, coords, data, %
1498     datetime, defer, disabled, dir, event, error, for, frameborder, headers, %
1499     height, href, hreflang, hspace, http-equiv, id, ismap, label, lang, link, %
1500     longdesc, marginwidth, marginheight, maxlength, media, method, multiple, %
1501     name, nohref, noresize, noshade, nowrap, onblur, onchange, onclick, %
1502     ondblclick, onfocus, onkeydown, onkeypress, onkeyup, onload, onmousedown, %
1503     profile, readonly, onmousemove, onmouseout, onmouseover, onmouseup, %
1504     onselect, onunload, rel, rev, rows, rowspan, scheme, scope, scrolling, %
1505     selected, shape, size, src, standby, style, tabindex, text, title, type, %
1506     units, usemap, valign, value, valuetype, vlink, vspace, width, xmlns}, %
1507   tag=**[s]<>,%
1508   sensitive=f,%
1509   morestring=[d]" ,% ??? doubled

```

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

```

1510   MoreSelectCharTable=%
1511     \lst@CArgX--\relax\lst@DefDelimB{}{}%
1512     {\ifnum\lst@mode=\lst@tagmode\else
1513       \expandafter\@gobblethree
1514       \fi}%
1515     \lst@BeginComment\lst@commentmode{\lst@commentstyle}}%
1516     \lst@CArgX--\relax\lst@DefDelimE{}{}{}%
1517     \lst@EndComment\lst@commentmode
1518   }[keywords,comments,strings,html]%

```


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

1519 `\</lang1>`

2.32 IDL

The definition is from Jürgen Heim.

1520 `*lang2>`

```
1521 %%
1522 %% IDL definition (c) 1998 Juergen Heim
1523 %%
1524 \lst@definlanguage{IDL}%
1525 {morekeywords={and,begin,case,common,do,else,end,endcase,endelse,%
1526     endfor,endif,endrep,endwhile,eq,for,function,ge,goto,gt,if,le,lt,%
1527     mod,ne,not,of,on_ioerror,or,pro,repeat,return,then,until,while,%
1528     xor,on_error,openw,openr,openu,print,printf,printu,plot,read,%
1529     readf,readu,writew,stop},%
1530     sensitive=f,%
1531     morecomment=[l];,%
1532     morestring=[d]’%
1533 }[keywords,comments,strings]%
```

1534 `\</lang2>`

2.33 Inform

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

1535 `*lang2>`

```
1536 %%
1537 %% Inform definition (c) 2003 Jonathan Sauer
1538 %%
1539 \lst@definlanguage{inform}{%
1540     % Language keywords
1541     morekeywords={breakdo,else,false,for,has,hasnt,if,%
1542         in,indirect,jump,notin,nothing,NULL,objectloop,ofclass,%
1543         private,property,provides,return,rfalse,rtrue,self,string,%
1544         switch,to,true,until,while,with,%
1545         creature,held,multiexcept,multiheld,multiinside,noun,number,%
1546         scope,topic},%
1547     %
1548     % Inform functions
1549     morekeywords=[2]{box,child,children,font,give,inversion,metaclass,move,%
1550         new_line,parent,print,print_ret,read,remove,restore,sibling,%
1551         save,spaces,quit,style,bold,underline,reverse,roman remaining,%
1552         create,destroy,recreate,copy},%
1553     %
```

```

1554 % Inform definitions
1555 morekeywords=[3]{Attribute,Array,Class,Constant,Default,End,Endif,Extend,%
1556   Global,Ifdef,Iffalse,Ifndef,Ifnot,Iftrue,Include,Object,%
1557   Property,Verb,Release,Serial,Statusline},%
1558 %
1559 % Library attributes
1560 morekeywords=[4]{absent,animate,clothing,concealed,container,door,edible,%
1561   enterable,female,general,light,lockable locked,male,moved,%
1562   neuter,on,open,openable,pluralname,proper,scenery,scored,%
1563   static,supporter,switchable,talkable,transparent,visited,%
1564   workflag,worn},%
1565 %
1566 % Library properties
1567 morekeywords=[5]{n_to,s_to,e_to,w_to,ne_to,nw_to,se_to,sw_to,in_to,%
1568   out_to,u_to,d_to,add_to_scope,after,article,articles,before,%
1569   cant_go,capacity,daemon,describe,description,door_dir,door_to,%
1570   each_turn,found_in,grammar,initial,inside_description,invent,%
1571   life,list_together,name number,orders,parse_name,plural,%
1572   react_after,react_before,short_name,short_name_indef,time_left,%
1573   time_out,when_closed,when_open,when_on,when_off,%
1574   with_key},%
1575 %
1576 % Library routines
1577 morekeywords=[6]{Achieved,AfterRoutines,AllowPushDir,Banner,ChangePlayer,%
1578   CommonAncestor,DictionaryLookup,GetGNAOfObject,HasLightSource,%
1579   IndirectlyContains,IsSeeThrough,Locale,LoopOverScope,LTI_Insert,%
1580   MoveFloatingObjects,NextWord,NextWordStopped,NounDomain,%
1581   ObjectIsUntouchable OffersLight,ParseToken,PlaceInScope,PlayerTo,%
1582   PronounNotice,PronounValue,ScopeWithin,SetPronoun,SetTime,%
1583   StartDaemon,StartTimer,StopDaemon,StopTimer,TestScope,TryNumber,%
1584   UnsignedCompare,WordAddress,WordInProperty,WordLength,%
1585   WriteListFrom,YesOrNo},%
1586 %
1587 % Library,entry points
1588 morekeywords=[7]{AfterLife,AfterPrompt,Amusing,BeforeParsing,ChooseObjects,%
1589   DarkToDark,DeathMessage,GamePostRoutine GamePreRoutine,%
1590   Initialise,InScope,LookRoutine,NewRoom,ParseNoun,ParseNumber,%
1591   ParserError,PrintRank,PrintTaskName,PrintVerb,TimePasses,%
1592   UnknownVerb},%
1593 %
1594 % Library constants
1595 morekeywords=[8]{NEWLINE_BIT,INDENT_BIT,FULLINV_BIT,ENGLISH_BIT,%
1596   RECURSE_BIT,ALWAYS_BIT,TERSE_BIT,PARTINV_BIT,DEFART_BIT,%
1597   WORKFLAG_BIT,ISARE_BIT,CONCEAL_BIT},%
1598 %
1599 % Library,meta actions
1600 morekeywords=[9]{Pronouns,Quit,Restart,Restore,Save,Verify,ScriptOn,%
1601   ScriptOff,NotifyOn,NotifyOff,Places,Objects,Score,FullScore,Version,%
1602   LMode1,LMode2,LMode3},%
1603 %

```

```

1604 % Library,main actions
1605 morekeywords=[10]{Close,Disrobe,Drop,Eat,Empty,EmptyT,Enter,Examine,%
1606   Exit,GetOff,Give,Go,GoIn,Insert,Inv,InvTall,InvWide,Lock,Look,Open,%
1607   PutOn,Remove,Search,Show,SwitchOff,SwitchOn,Take,Transfer,%
1608   Unlock VagueGo, Wear},%
1609 %
1610 % Library,stub actions
1611 morekeywords=[11]{Answer,Ask,AskFor,Attack,Blow,Burn,Buy,Climb,%
1612   Consult,Cut,Dig,Drink,Fill,Jump,JumpOver,Kiss,Listen,LookUnder,%
1613   Mild,No,Pray,Pull,Push,PushDir,Rub,Set,SetTo,Sing,Sleep,Smell,%
1614   Sleep,Smell,Sorry,Squeeze,Strong,Swim,Swing,Taste,Tell,Think,%
1615   ThrowAt,Tie,Touch,Turn,
1616   Wait,Wake,WakeOther,Wave,WaveHands,Yes},%
1617 %
1618 otherkeywords={->,->-},%
1619 sensitive=false,%
1620 morestring=[d]{"},%
1621 morecomment=[1]{!}%
1622 }[keywords,comments,strings]%
1623 </lang2>

```

2.34 Java and other JVM based languages

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

```

1624 <*lang1>
1625 %%
1626 %% AspectJ definition (c) Robert Wenner
1627 %%
1628 \lst@definlanguage[AspectJ]{Java}[] {Java}%
1629 {morekeywords={%
1630   adviceexecution,after,args,around,aspect,aspectOf,before,%
1631   call,cflow,cflowbelow,%
1632 % declare error,declare parents,declare precedence,
1633 % declare soft,declare warning,
1634   execution,get,handler,if,initialization,issingleton,pointcut,%
1635   percflow,percflowbelow,perthis,pertarget,preinitialization,%
1636   privileged,proceed,returning,set,staticinitialization,strictfp,%
1637   target,this,thisEnclosingJoinPoint,thisJoinPoint,throwing,%
1638   within,withincode},%
1639 MoreSelectCharTable=%
1640   \lst@DefSaveDef{'.'}\lst@umdot{\lst@umdot\global\let\lst@derefop\@empty}%
1641   \ifx\lst@derefinstalled\@empty\else
1642     \global\let\lst@derefinstalled\@empty
1643 \lst@AddToHook{Output}%
1644 {\lst@ifkeywords
1645   \ifx\lst@derefop\@empty
1646     \global\let\lst@derefop\relax
1647     \ifx\lst@thestyle\lst@gkeywords@sty

```

```

1648         \ifx\lst@currstyle\relax
1649             \let\lst@thestyle\lst@identifierstyle
1650         \else
1651             \let\lst@thestyle\lst@currstyle
1652         \fi
1653     \fi
1654 \fi
1655 \fi}
1656 \lst@AddToHook{BOL}{\global\let\lst@derefop\relax}%
1657 \lst@AddTo\lst@ProcessSpace{\global\let\lst@derefop\relax}%
1658     \fi
1659 }%
1660 </lang1>

    Got data from http://java.sun.com.
1661 <*lang1>
1662 \lst@definelanguage{Java}%
1663 {morekeywords={abstract,boolean,break,byte,case,catch,char,class,%
1664     const,continue,default,do,double,else,extends,false,final,%
1665     finally,float,for,goto,if,implements,import,instanceof,int,%
1666     interface,label,long,native,new,null,package,private,protected,%
1667     public,return,short,static,super,switch,synchronized,this,throw,%
1668     throws,transient,true,try,void,volatile,while},%
1669     sensitive,%
1670     morecomment=[l]//,%
1671     morecomment=[s]{/*}{*/},%
1672     morestring=[b]" ,%
1673     morestring=[b]' ,%
1674 }[keywords,comments,strings]%

    Herbert Voss added the keyword label.
1675 </lang1>

    Martine Gautier made the following contribution.
1676 <*lang1>
1677 %%
1678 %% ByteCodeJava definition (c) 2004 Martine Gautier
1679 %%
1680 \lst@definelanguage{JVMIS}%
1681 {morekeywords={aaload,astore,acnst_null,aload,aload_0,aload_1,%
1682     aload_2,aload_3,anewarray,areturn,arraylength,astore,astore_0,%
1683     astore_1,astore_2,astore_3,athrow,baload,bastore,bipush,caload,%
1684     castore,checkcast,d2f,d2i,d2l,dadd,daload,dastore,dcmpg,dcmpl,%
1685     dconst_0,dconst_1,ddiv,dload,dload_0,dload_1,dload_2,dload_3,%
1686     dmul,dneg,drem,dreturn,dstore,dstore_0,dstore_1,dstore_2,%
1687     dstore_3,dsub,dup,dup_x1,dup_x2,dup2,dup2_x1,dup2_x2,f2d,%
1688     f2i,f2l,fadd,faload,fastore,fcmpg,fcmpl,fconst_0,fconst_1,%
1689     fconst_2,fdiv,fload,fload_0,fload_1,fload_2,fload_3,fmul,%
1690     fneg,frem,freturn,fstore,fstore_0,fstore_1,fstore_2,fstore_3,%

```

```

1691     fsub,getfield,getstatic,goto,goto_w,i2b,i2c,i2d,i2f,i2l,i2s,%
1692     iadd,iaload,iand,iastore,iconst_0,iconst_1,iconst_2,iconst_3,%
1693     iconst_4,iconst_5,idev,if_acmpeq,if_acmpne,if_icmpeq,if_icmpne,%
1694     if_icmplt,if_cmpge,if_cmpgt,if_cmple,ifeq,ifne,iflt,ifge,ifgt,%
1695     ifle,ifnonnull,ifnull,iinc,iload,iload_0,iload_1,iload_2,%
1696     iload_3,imul,ineg,instanceof,invokeinterface,invokespecial,%
1697     invokestatic,invokevirtual,ior,irem,ireturn,ishl,ishr,istore,%
1698     istore_0,istore_1,istore_2,istore_3,isub,iushr,ixor,jsr,jsr_w,%
1699     l2d,l2f,l2i,ladd,laload,land,lastore,lcmp,lconst_0,lconst_1,%
1700     ldc,ldc_w,ldc2_w,ldiv,lload,lload_0,lload_1,lload_2,lload_3,%
1701     lmul,lneg,lookupswitch,lor,lrem,lreturn,lshl,lshr,lstore,%
1702     lstore_0,lstore_1,lstore_2,lstore_3,lsub,lushr,lxor,%
1703     monitorenter,monitorexit,multianewarray,new,newarray,nop,pop,%
1704     pop2,putfield,putstatic,ret,return,saload,sastore,sipush,swap,%
1705     tableswitch,wide,limit,locals,stack},%
1706 }[keywords]%
1707 </lang1>

```

2.34.1 Scala

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

```

1708 <*lang3>
1709 \lst@definelanguage{Scala}%
1710 {morekeywords={abstract,case,catch,class,def,%
1711     do,else,extends,false,final,finally,%
1712     for,if,implicit,import,lazy,match,mixin,%
1713     new,null,object,override,package,%
1714     private,protected,requires,return,sealed,%
1715     super,this,trait,true,try,%
1716     type,val,var,while,with,yield},%+
1717 % otherkeywords={_,: ,=>,<<:,<\%,>:,\#,@},%
1718 otherkeywords={=,>,<-,<\%,<:,>:,\#,@},%
1719     sensitive,%
1720     morecomment=[l]//,%
1721     morecomment=[n]{/*}{*/},%
1722     morestring=[b]" ,%
1723     morestring=[b]' ,%
1724     morestring=[b]"" ,%
1725 }[keywords,comments,strings]%
1726 </lang3>

```

2.35 ksh

Thanks to Jeffrey Ratcliffe for this language definition.

```

1727 <*lang3>

```

```

1728 \lst@definlanguage{ksh}
1729   {morekeywords={alias,awk,cat,echo,else,elif,fi,exec,exit,%
1730     for,in,do,done,select,case,esac,while,until,function,%
1731     time,export,cd,eval,fc,fg,kill,let,pwd,read,return,rm,%
1732     glob,goto,history,if,logout,nice,nohup,onintr,repeat,sed,%
1733     set,setenv,shift,source,switch,then,umask,unalias,%
1734     unset,wait,@,env,argv,child,home,ignoreeof,noclobber,%
1735     noglob,nomatch,path,prompt,shell,status,verbose,print,printf,%
1736     sqrt,BEGIN,END},%
1737   morecomment=[l]\#,%
1738   morestring=[d]" ,%
1739   morestring=[d]' ,%
1740   morestring=[d]' %
1741   }[keywords,comments,strings]%
1742 %   \begin{macrocode}
1743 </lang3>

```

Herbert Voss suggested to add the string delimiter ‘.

2.36 Lingo

Thanks to Mark Schade for this language definition.

```

1744 <*lang3>
1745 \lst@definlanguage{Lingo}{%
1746   morekeywords={abort, after, and, before, do, down, halt, me, new, not,%
1747     of, on, or, otherwise, pass, put, result, return, set, tell, the, then,%
1748     to, with, repeat, while, case, if, else, true, false, global, property,%
1749     \_global, \_key, \_mouse, \_movie, \_player, \_sound, \_system, abbr,%
1750     abbrev, abbreviated, abs, actionsenabled, activateapplication,%
1751     activatewindow, active3drenderer, activecastlib, activewindow,%
1752     actorlist, add, addat, addbackdrop, addcamera, addchild, addmodifier,%
1753     addoverlay, addprop, addtoward, addvertex, alert, alerthook,%
1754     alignment, allowcustomcaching, allowgraphicmenu, allowsavelocal,%
1755     allowtransportcontrol, allowvolumecontrol, allowzooming,%
1756     alphathreshold, ambient, ambientcolor, ancestor, angle, anglebetween,%
1757     animationenabled, antialias, antialiasthreshold, append,%
1758     applicationname, applicationpath, appminimize, atan, attenuation,%
1759     attributevalue, auto, autoblend, automask, autotab, axisangle, back,%
1760     backcolor, backdrop, backgroundcolor, backspace, beep, beepon,%
1761     beginrecording, beginsprite, beveldepth, beveltype, bgcolor, bias,%
1762     bitand, bitmap, bitmapsizes, bitnot, bitor, bitrate, bitspersample,%
1763     bitxor, blend, blendconstant, blendconstantlist, blendfactor,%
1764     blendfunction, blendfunctionlist, blendlevel, blendrange, blendsource,%
1765     blendsourcelist, blendtime, bone, bonesplayer, border, both, bottom,%
1766     bottomcap, bottomradius, bottomspacing, boundary, boundingSphere, box,%
1767     boxdropshadow, boxtype, breakconnection, breakloop, brightness,%
1768     broadcastprops, browsername, buffersize, build, buttonsenabled,%
1769     buttonstyle, buttontype, bytesstreamed, boolean, cachedocverify,%
1770     cachesize, call, callancestor, camera, cameracount, cameraposition,%

```

1771 camerarotation, cancelidleload, castlib, castlibnum, castmemberlist,%
1772 center, centerregpoint, centerstage, changearea, channelcount, char,%
1773 characteraset, charpostoloc, chars, charspacing, chartonum,%
1774 checkboxaccess, checkboxtype, checkmark, checknetmessages, child,%
1775 chunksize, clearatrender, clearcache, clearerror, clearframe,%
1776 clearglobals, clearvalue, clickloc, clickmode, clickon, clone,%
1777 clonedeep, clonemodelfromcastmember, clonemotionfromcastmember, close,%
1778 closed, closewindow, closexlib, collision, collisiondata,%
1779 collisionnormal, color, world, colorbuffer, colorbufferdepth,%
1780 colordepth, colorlist, colorrange, colors, colorsteps, commanddown,%
1781 comments, compressed, connecttonetserver, constrainh, constraint,%
1782 constrainv, continue, controldown, controller, copypixels,%
1783 copyrightinfo, copyto, copytoclipboard, cos, count, cpuhogticks,%
1784 creaseangle, creases, [contains], createfolder, createmask,%
1785 creatematte, creationdate, creator, crop, cross, crossproduct,%
1786 cuepassed, cuepointnames, cuepointtimes, currentloopstate,%
1787 currentspritenum, currenttime, cursor, cursorsize, curve, cylinder,%
1788 ate, day, deactivateapplication, deactivatewindow, debug,%
1789 debugplaybackenabled, decaymode, defaultrect, defaultrectmode, delay,%
1790 delete, deleteall, deleteat, deletecamera, deletefolder, deleteframe,%
1791 deletegroup, deletelight, deletemodel, deletemodelresource,%
1792 deletemotion, deleteone, deleteprop, deleteshader, deletetexture,%
1793 deletevertex, density, depth, depthbufferdepth, desktoprectlist,%
1794 diffuse, diffusecolor, diffuselightmap, digitalvideotimescale,%
1795 digitalvideotype, direction, directionalcolor, directionalpreset,%
1796 directstogage, disableimagingtransformation, displayface, displaymode,%
1797 distanceto, distribution, dither, done, doneparsing, dot, dotproduct,%
1798 doubleclick, downloadnetthing, drag, draw, drawrect, dropshadow,%
1799 duplicate, duplicateframe, duration, editable, editshortcutsenabled,%
1800 elapsedtime, emissive, emitter, empty, emulatemultibuttonmouse,%
1801 enabled, enablehotspot, end, endangle, endcolor, endframe,%
1802 endrecording, endsprite, endtime, enter, enterframe, environment,%
1803 erase, error, eventpassmode, exchange, exists, exit, exitframe,%
1804 exitlock, exp, externalevent, externalparamcount, externalparamname,%
1805 externalparamvalue, extractalpha, extrude3d, face, fadein, fadeout,%
1806 fadeto, far, field, fieldofview, filename, fill, fillcolor, fillcycles,%
1807 filldirection, filled, fillmode, filloffset, fillscale, findempty,%
1808 findlabel, findpos, findposnear, finishidleload, firstindent,%
1809 fixedlinespace, fixedrate, fixstagesize, flashrect, flashtostage, flat,%
1810 fliph, flipv, float, floatp, floatprecision, flush, flushinputevents,%
1811 fog, folderchar, font, fontsize, fontstyle, forecolor, forget, frame,%
1812 framecount, framelabel, framepalette, framerate, frameready,%
1813 framescript, framesound1, framesound2, framestohms, frametempo,%
1814 frametransition, freeblock, freebytes, fromcastmember, fromimageobject,%
1815 front, frontwindow, generatenormals, getaprop, getat,%
1816 getbehaviordescription, getbehaviortooltip, getboneid, geterror,%
1817 geterrorstring, gethardwareinfo, gethotspotrect, getlast,%
1818 getlatestnetid, getnetaddresscookie, getneterrorstring, getnetmessage,%
1819 getnetoutgoingbytes, getnettext, getnormalized, getnthfilenameinfolder,%
1820 getnumberwaitingnetmessages, getone, getpeerconnectionlist, getpixel,%

1821 getplaylist, getpos, getpref, getprop, getpropat,%
1822 getpropertydescriptionlist, getrendererservices, getstreamstatus,%
1823 gettemppath, getworldtransform, globals, glossmap, go, gotoframe,%
1824 gotonetmovie, gotonetpage, gradienttype, gravity, group, handler,%
1825 handlers, height, heightvertices, high, highlightpercentage,%
1826 highlightstrength, hilite, hither, hittest, hmstoframes, hold, hotspot,%
1827 html, hyperlink, hyperlinkclicked, hyperlinkrange, hyperlinks,%
1828 hyperlinkstate, id3tags, identity, idle, idlehandlerperiod,%
1829 idlleaddone, idlleloadmode, idlleloadperiod, idlleloadtag,%
1830 idlreadchunksiz, ilk, image, imagecompression, imageenabled,%
1831 imagequality, immovable, importfileinto, inflate, ink, inker,%
1832 inlineimeenabled, insertbackdrop, insertframe, insertoverlay, inside,%
1833 installmenu, instance, integer, integerp, interface, interpolate,%
1834 interpolateto, intersect, index, interval, inverse, invert, invertmask,%
1835 isbusy, isinworld, isoktoattach, ispastcuepoint, item, itemdelimiter,%
1836 kerning, kerningthreshold, key, keyboardfocussprite, keycode, keydown,%
1837 keydownscript, keyframeplayer, keypressed, keyup, keyupscript, label,%
1838 labellist, last, lastchannel, lastclick, lastevent, lastframe, lastkey,%
1839 lastroll, left, leftindent, length, lengthvertices, level, lifetime,%
1840 light, line, linearlist, linecolor, linecount, linedirection,%
1841 lineheight, lineoffset, linepostolocv, linesize, linkas, linked, list,%
1842 listp, loaded, loadfile, loc, loch, locked, locktranslation,%
1843 loctocharpos, locv, locvtolinepos, locz, lod, log, long, loop,%
1844 loopcount, loopendtime, loopsremaining, loopstarttime, machinetype,%
1845 magnitude, map, mapImageToStage, mapmembertostage, mapstagetomember,%
1846 margin, marker, markerlist, mask, max, maxinteger, maxspeed, mci,%
1847 media, mediaready, member, membernum, members, memorysize, menu, mesh,%
1848 meshdeform, milliseconds, min, minspeed, modal, mode, model, modela,%
1849 modelb, modelresource, modelsunderloc, modelsunderray, modelunderloc,%
1850 modified, modifiedby, modifieddate, modifier, modifiers, month,%
1851 mostrecentcuepoint, motion, mousechar, mousedown, mousedownscript,%
1852 mouseenter, mouseh, mouseitem, mouseleave, mouselevel, mouseline,%
1853 mouseloc, mousemember, mouseoverbutton, mouseup, mouseupoutside,%
1854 mouseupscript, mousev, mousewithin, mouseword, move, moveablesprite,%
1855 movetoback, movetofront, movevertex, movevertexhandle, movewindow,%
1856 movie, movieaboutinfo, moviecopyrightinfo, moviefilefreesize,%
1857 moviefilesize, moviefileversion, movieimagecompression,%
1858 movieimagequality, moviename, moviepath, movierate, movietime,%
1859 moviextralist, mpegplayer, multiply, multisound, name, near,%
1860 nearfiltering, neighbor, netabort, netdone, neterror, netlastmoddate,%
1861 netmime, netpresent, netstatus, nettextrresult, netthrottleticks,%
1862 newcamera, newcurve, newgroup, newlight, newmesh, newmodel,%
1863 newmodelresource, newmotion, newshader, newtexture, next, none,%
1864 normalize, normallist, normals, nothing, notify, nudge, number,%
1865 numchannels, numparticles, numsegments, numtochar, objectp, offset,%
1866 open, openresfile, openwindow, openxlib, optiondown, organizationname,%
1867 originalfont, originh, originmode, originpoint, originv, orthoheight,%
1868 overlay, pageheight, palette, palettemapping, paletteref, paletteindex,%
1869 pan, paragraph, param, paramcount, parent, parsestring, particle,%
1870 pasteclipboardinto, path, pathname, pathstrength, pattern, pause,%

1871 pausedatstart, pausestate, percentplayed, percentstreamed, period,%
1872 perpendicularto, persistent, pi, picture, picturep, plane, platform,%
1873 play, playbackmode, playfile, playing, playlist, playnext, playrate,%
1874 point, pointat, pointatorientation, pointinhyperlink, pointofcontact,%
1875 pointtochar, pointtoitem, pointtoline, pointtoparagraph, pointtoword,%
1876 position, positionreset, posterframe, postnettext, power,%
1877 preferred3drenderer, preload, preloadbuffer, preloadeventabort,%
1878 preloadmember, preloadmode, preloadmovie, preloadnetthing, preloadram,%
1879 preloaddtime, premultiply, prepareframe, preparemovie, prerotate,%
1880 prescale, pretranslate, previous, primitives, printfrom,%
1881 productversion, projection, projectionangle, propList, proxyserver,%
1882 pttohotspotid, puppet, puppetpalette, puppetsound, puppetsprite,%
1883 puppettempo, puppettransition, purgepriority, qtregisteraccesskey,%
1884 qtunregisteraccesskey, quad, quality, queue, quit, quote, radius,%
1885 ramneeded, random, randomseed, randomvector, rateshift, rawnew, read,%
1886 readvalue, recordfont, rect, ref, reflectionmap, reflectivity, region,%
1887 registerforevent, registerscript, regpoint, regpointvertex,%
1888 removebackdrop, removefromworld, removelast, removemodifier,%
1889 removeoverlay, rename, renderer, rendererdevicelist, renderformat,%
1890 renderstyle, resetworld, resizewindow, resolution, resolve, resolvea,%
1891 resolveb, resource, restart, resume, reverttoworlddefaults, rewind,%
1892 rgb, rgba4444, rgba5550, rgba5551, rgba5650, rgba8880, rgba8888, right,%
1893 rightindent, rightmousedown, rightmouseup, rollover, romanlingo,%
1894 rootlock, rootnode, rotate, rotation, rotationreset, rtf, runmode,%
1895 runpropertydialog, safeplayer, samplecount, samplerate, samplesize,%
1896 save, savedlocal, savemovie, scale, scalemode, score, scorecancel,%
1897 scoreselection, script, scriptexecutionstyle, scriptinstancelist,%
1898 scriptlist, scriptnum, scriptsenabled, scripttext, scripttype,%
1899 scrollbyline, scrollbypage, scrolltop, sds, searchcurrentfolder,%
1900 searchpath, searchpaths, seconds, selectedtext, selection, selend,%
1901 selstart, sendallsprites, sendevent, sendnetmessage, sendsprite,%
1902 serialnumber, setalpha, setaprop, setat, setcollisioncallback,%
1903 setflashproperty, setnetbufferlimits, setnetmessagehandler, setpixel,%
1904 setplaylist, setpref, setprop, setscriptlist, settrackenabled,%
1905 setvariable, shader, shaderlist, shadowpercentage, shadowstrength,%
1906 shapetype, shiftdown, shininess, shockwave3d, short, showglobals,%
1907 showlocals, showprops, showresfile, showxlib, shutdown, silhouettes,%
1908 sin, size, sizerange, skew, sleep, smoothness, sort, sound, soundbusy,%
1909 soundchannel, sounddevice, sounddevicelist, soundenabled,%
1910 soundkeepdevice, soundlevel, soundmixmedia, source, sourcecert, space,%
1911 specular, specularcolor, specularlightmap, sphere, spotangle,%
1912 spotdecay, sprite, spritenum, spritespacetoworldspace, sqrt, stage,%
1913 stagebottom, stagecolor, stageleft, stageright, stagetoflash, stagetop,%
1914 standard, startangle, startframe, startmovie, starttime, starttimer,%
1915 state, static, status, stepframe, stilldown, stop, stopevent,%
1916 stopmovie, stoptime, stream, streammode, streamname, streamsize,%
1917 streamstatus, string, stringp, strokecolor, strokewidth, style,%
1918 subdivision, sweep, swing, switchcolordepth, symbol, symbolp,%
1919 systemdate, tab, tabcount, tabs, tan, target, tellstreamstatus,%
1920 tension, text, texture, texturecoordinatelist, texturecoordinates,%

```

1921 texturelayer, texturelist, texturemember, texturemode, texturemodelist,%
1922 texturerenderformat, texturerepeat, texturerepeatlist,%
1923 texturetransform, texturetransformlist, texturetype, thumbnail, ticks,%
1924 tilt, time, timeout, timeouthandler, timeoutkeydown, timeoutlapsed,%
1925 timeoutlength, timeoutlist, timeoutmouse, timeoutplay, timeoutscript,%
1926 timer, timescale, title, titlevisible, toon, top, topcap, topradius,%
1927 topspacing, trace, traceload, tracelogfile, trackcount, trackenabled,%
1928 tracknextkeytime, tracknextsampletime, trackpreviouskeytime,%
1929 trackpreviousampletime, trackstarttime, trackstoptime, tracktext,%
1930 tracktype, trails, transform, transitiontype, translate,%
1931 triggercallback, trimwhitespace, tunneldepth, tweened, tweenmode, type,%
1932 [transparent], union, unload, unloadmember, unloadmovie,%
1933 unregistorallevents, update, updateframe, updatelock,%
1934 updatemovieenabled, updatestage, url, usealpha, usediffusewithtexture,%
1935 usefastquads, usehypertextstyles, uselineoffset, userdata, username,%
1936 value, vector, version, vertex, vertexlist, vertices, video,%
1937 videoforwindowspresent, viewh, viewpoint, viewscale, viewv, visibility,%
1938 visible, void, voidp, volume, volumeinfo, wait, waitfornetconnection,%
1939 warpmode, width, widthvertices, wind, window, windowlist,%
1940 windowpresent, windowtype, word, wordwrap, world, worldposition,%
1941 worldspacetospritespace, worldtransform, wraptransform,%
1942 wraptransformlist, write, writevalue, xaxis, xtra, xtralist, xtras,%
1943 yaxis, year, yon, zaxis, zoombox, zoomwindow, repeat, Conditional,%
1944 Boolean, TypeDef, Statement, Operator, String, Comment, Identifier,%
1945 Special, x, y, z},%
1946 sensitive=false,%
1947 morecomment=[1]{--},%
1948 morestring=[b]" ,%
1949 }[keywords,comments,strings]%
1950 % \begin{macrocode}
1951 \end{macrocode}

```

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 `caaaar`, ... functions. If anyone types them in, I’d like to get them. Hilmar Preußenformed about an issue mentioned at <https://bugs.debian.org/cgi-bin/bugreport.cgi?bug=499422> sensitive is false, the issue got corrected.

```

1952 \end{macrocode}
1953 \lstdefinestyle{Lisp}%
1954 {morekeywords={abort,abs,acons,acos,acosh,adjoin,alphanumericp,alter,%
1955 append,apply,apropos,aref,arrayp,ash,asin,asinh,assoc,atan,atanh,%

```

```

1956     atom,bit,boole,boundp,break,butlast,byte,catenate,ceiling,cerror,%
1957     char,character,characterp,choose,chunk,cis,close,clrhash,coerce,%
1958     collect,commonp,compile,complement,complex,complexp,concatenate,%
1959     conjugate,cons,consp,constantp,continue,cos,cosh,cotruncate,%
1960     count,delete,denominator,describe,directory,disassemble,%
1961     documentation,dpb,dribble,ed,eighth,elt,enclose,endp,eq,eql,%
1962     equal,equalp,error,eval,evalhook,evenp,every,exp,expand,export,%
1963     expt,fboundp,fceiling,fdefinition,ffloor,fifth,fill,find,first,%
1964     float,floatp,floor,fmakunbound,format,fourth,fround,ftruncate,%
1965     funcall,functionp,gatherer,gcd,generator,gensym,gentemp,get,getf,%
1966     gethash,identity,imagpart,import,inspect,integerp,intern,%
1967     intersection,tively,isqrt,keywordp,last,latch,lcm,ldb,ldiff,%
1968     length,list,listen,listp,load,log,logand,logbitp,logcount,logeqv,%
1969     logior,lognand,lognor,lognot,logtest,logxor,macroexpand,%
1970     makunbound,map,mapc,mapcan,mapcar,mapcon,maphash,mapl,maplist,%
1971     mask,max,member,merge,min,mingle,minusp,mismatch,mod,namestring,%
1972     nbutlast,nconc,nintersection,ninth,not,notany,notevery,nreconc,%
1973     nreverse,nsublis,nsubst,nth,nthcdr,null,numberp,numerator,nunion,%
1974     oddp,open,packagep,pairlis,pathname,pathnamep,phase,plusp,%
1975     position,positions,pprint,previous,princ,print,proclaim,provide,%
1976     random,rassoc,rational,rationalize,rationalp,read,readtablep,%
1977     realp,realpart,reduce,rem,remhash,remove,remprop,replace,require,%
1978     rest,revappend,reverse,room,round,rplaca,rplacd,sbit,scan,schar,%
1979     search,second,series,set,seventh,shadow,signal,signum,sin,sinh,%
1980     sixth,sleep,some,sort,split,sqrt,streamp,string,stringp,sublis,%
1981     subseq,subseries,subsetp,subst,substitute,subtypep,svref,svhash,%
1982     symbolp,tailp,tan,tanh,tenth,terpri,third,truename,truncate,%
1983     typep,unexport,unintern,union,until,values,vector,vectorp,warn,%
1984     write,zerop,and,assert,case,ccase,cond,ctypcase,defc,declaim,%
1985     defclass,defconstant,defgeneric,defmacro,defmethod,defpackage,%
1986     defparameter,defsetf,defstruct,deftype,defun,defvar,do,dolist,%
1987     dotimes,ecase,encapsulated,etypcase,flet,formatter,gathering,%
1988     incf,iterate,labels,let,locally,loop,macrolet,mapping,or,pop,%
1989     producing,prog,psetf,psetq,push,pushnew,remf,return,rotatef,%
1990     setf,shiftf,step,time,trace,typcase,unless,untrace,when},%
1991     sensitive=false,% ???
1992     alsodigit=-,%
1993     morecomment=[l];,%
1994     morecomment=[s]{|#|}{|#},% 1997 Aslak Raanes
1995     morestring=[b]"%
1996 }[keywords,comments,strings]%

1997 </lang2>
1998 <*lang2>

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

1999 %%
2000 %% AutoLISP/VisualLISP - Stefan Lagotzki, info@lagotzki.de
2001 %%
2002 \lst@definlanguage[Auto]{Lisp}%

```

```

2003 {morekeywords={abs,acad_colordlg,acad_helpdlg,acad_strlsort,%
2004   action_tile,add_list,alert,alloc,and,angle,angtof,angtos,append,%
2005   apply,arx,arxload,arxunload,ascii,assoc,atan,atof,atoi,atom,%
2006   atoms-family,autoarxload,autoload,Boole,boundp,caddr,cadr,car,%
2007   cdr,chr,client_data_tile,close,command,cond,cons,cos,cvunit,%
2008   defun,defun-q,defun-q-list-ref,defun-q-list-set,dictadd,dictnext,%
2009   dictremove,dictrename,dictsearch,dimx_tile,dimy_tile,distance,%
2010   distof,done_dialog,end_image,end_list,entdel,entget,entlast,%
2011   entmake,entmakex,entmod,entnext,entsel,entupd,eq,equal,*error*,%
2012   eval,exit,exp,expand,expt,fill_image,findfile,fix,float,foreach,%
2013   function,gc,gcd,get_attr,get_tile,getangle,getcfg,getcname,%
2014   getcorner,getdist,getenv,getfiled,getint,getkeyword,getorient,%
2015   getpoint,getreal,getstring,getvar,graphscr,grclear,grdraw,grread,%
2016   grtext,grvecs,handent,help,if,initdia,initget,inters,itoa,lambda,%
2017   last,layoutlist,length,list,listp,load,load_dialog,log,logand,%
2018   logior,lsh,mapcar,max,mem,member,menucmd,menugroup,min,minusp,%
2019   mode_tile,namedobjdict,nentsel,nentselp,new_dialog,not,nth,%
2020   null,numberp,open,or,osnap,polar,prin1,princ,print,progn,prompt,%
2021   quit,quote,read,read-char,read-line,redraw,regapp,rem,repeat,%
2022   reverse,rtos,set,set_tile,setcfg,setenv,setfunhelp,setq,%
2023   setvar,setview,sin,slide_image,snvalid,sqrt,ssadd,ssdel,ssget,%
2024   ssgetfirst,sslenght,ssmemb,ssname,ssnamex,sssetfirst,startapp,%
2025   start_dialog,start_image,start_list,strcase,strcat,strlen,subst,%
2026   substr,tablet,tblnext,tblobjname,tblsearch,term_dialog,terpri,%
2027   textbox,textpage,textscr,trace,trans,type,unload_dialog,untrace,%
2028   vector_image,ver,vl-acad-defun,vl-acad-undefun,vl-arx-import,%
2029   vl-bb-ref,vl-bb-set,vl-catch-all-apply,%
2030   vl-catch-all-error-message,vl-catch-all-error-p,vl-cmdf,vl-consp,%
2031   vl-directory-files,vl-doc-export,vl-doc-import,vl-doc-ref,%
2032   vl-doc-set,vl-every,vl-exit-with-error,vl-exit-with-value,%
2033   vl-file-copy,vl-file-delete,vl-file-directory-p,vl-file-rename,%
2034   vl-file-size,vl-file-systime,vl-filename-base,%
2035   vl-filename-directory,vl-filename-extension,vl-filename-mktemp,%
2036   vl-get-resource,vl-list*,vl-list->string,%
2037   vl-list-exported-functions,vl-list-length,vl-list-loaded-vlx,%
2038   vl-load-all,vl-load-com,vl-load-reactors,vl-member-if,%
2039   vl-member-if-not,vl-position,vl-prin1-to-string,%
2040   vl-princ-to-string,vl-propagate,vl-registry-delete,%
2041   vl-registry-descendents,vl-registry-read,vl-registry-write,%
2042   vl-remove,vl-remove-if,vl-remove-if-not,vl-some,vl-sort,%
2043   vl-sort-i,vl-string->list,vl-string-elt,vl-string-left-trim,%
2044   vl-string-mismatch,vl-string-position,vl-string-right-trim,%
2045   vl-string-search,vl-string-subst,vl-string-translate,%
2046   vl-string-trim,vl-symbol-name,vl-symbol-value,vl-symbolp,%
2047   vl-unload-vlx,vl-vbaload,vl-vbarun,vl-vlx-loaded-p,vlax-3D-point,%
2048   vlax-add-cmd,vlax-create-object,vlax-curve-getArea,%
2049   vlax-curve-getDistAtParam,vlax-curve-getDistAtPoint,%
2050   vlax-curve-getEndParam,vlax-curve-getEndPoint,%
2051   vlax-curve-getParamAtDist,vlax-curve-getParamAtPoint,%
2052   vlax-curve-getPointAtDist,vlax-curve-getPointAtParam,%

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```

2053     vlax-curve-getStartParam,vlax-curve-getStartPoint,%
2054     vlax-curve-isClosed,vlax-curve-isPeriodic,vlax-curve-isPlanar,%
2055     vlax-curve-getClosestPointTo,%
2056     vlax-curve-getClosestPointToProjection,vlax-curve-getFirstDeriv,%
2057     vlax-curve-getSecondDeriv,vlax-dump-object,%
2058     vlax-ename->vla-object,vlax-erased-p,vlax-for,%
2059     vlax-get-acad-object,vlax-get-object,vlax-get-or-create-object,%
2060     vlax-get-property,vlax-import-type-library,vlax-invoke-method,%
2061     vlax-ldata-delete,vlax-ldata-get,vlax-ldata-list,vlax-ldata-put,%
2062     vlax-ldata-test,vlax-make-safearray,vlax-make-variant,%
2063     vlax-map-collection,vlax-method-applicable-p,%
2064     vlax-object-released-p,vlax-product-key,%
2065     vlax-property-available-p,vlax-put-property,vlax-read-enabled-p,%
2066     vlax-release-object,vlax-remove-cmd,vlax-safearray-fill,%
2067     vlax-safearray-get-dim,vlax-safearray-get-element,%
2068     vlax-safearray-get-l-bound,vlax-safearray-get-u-bound,%
2069     vlax-safearray-put-element,vlax-safearray-type,%
2070     vlax-safearray->list,vlax-tmatrix,vlax-typeinfo-available-p,%
2071     vlax-variant-change-type,vlax-variant-type,vlax-variant-value,%
2072     vlax-vla-object->ename,vlax-write-enabled-p,vlisp-compile,%
2073     vlr-acdb-reactor,vlr-add,vlr-added-p,vlr-beep-reaction,%
2074     vlr-command-reactor,vlr-current-reaction-name,vlr-data,%
2075     vlr-data-set,vlr-deepclone-reactor,vlr-docmanager-reactor,%
2076     vlr-dwg-reactor,vlr-dxf-reactor,vlr-editor-reactor,%
2077     vlr-insert-reactor,vlr-linker-reactor,vlr-lisp-reactor,%
2078     vlr-miscellaneous-reactor,vlr-mouse-reactor,vlr-notification,%
2079     vlr-object-reactor,vlr-owner-add,vlr-owner-remove,vlr-owners,%
2080     vlr-pers,vlr-pers-list,vlr-pers-p,vlr-pers-release,%
2081     vlr-reaction-names,vlr-reaction-set,vlr-reactions,vlr-reactors,%
2082     vlr-remove,vlr-remove-all,vlr-set-notification,%
2083     vlr-sysvar-reactor,vlr-toolbar-reactor,vlr-trace-reaction,%
2084     vlr-type,vlr-types,vlr-undo-reactor,vlr-wblock-reactor,%
2085     vlr-window-reactor,vlr-xref-reactor,vports,wcmatch,while,%
2086     write-char,write-line,xdroom,xsize,zerop},%
2087     alsodigit=->,%
2088     otherkeywords={1+,1-},%
2089     sensitive=false,%
2090     morecomment=[1];,%
2091     morecomment=[1];;,%
2092     morestring=[b]"%
2093 }[keywords,comments,strings]%
2094 </lang2>
2095 <*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...

```

2096 \lst@definlanguage{elisp}[]{}{Lisp}{%
2097   morekeywords={begin, car, cdr, cons, define, display, drop, filter,%

```

```

2098     hash-ref, hash-set, if, load-file, lambda, length, map, message,%
2099     progn, quote, require, setq, string-append, take, vector,%
2100   },%
2101   sensitive,%
2102   alsodigit=->,%
2103   otherkeywords={1+,1-},%
2104   sensitive=true,%
2105   morecomment=[1];,%
2106   morecomment=[1];;%
2107   morestring=[b]"%
2108 }[keywords,comments,strings]%
2109 </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

```
2110 <*lang3>
```

```
2111 \lst@definelanguage{LLVM}{%
2112   morekeywords={%
```

- Instructions

```

2113     ret,br,switch,indirectbr,invoke,resume,unreachable,%
2114     add,fadd,sub,fsub,mul,fmul,udiv,sdiv,fdiv,urem,srem,frem,%
2115     shl,lshr,ashr,and,or,xor,%
2116     extractelement,insertelement,shufflevector,%
2117     extractvalue,insertvalue,%
2118     alloca,load,store,fence,cmpxchg,atomicrmw,getelementptr,%
2119     trunc,zext,sext,fptrunc,fpext,fptoui,fptosi,uitofp,sitofp,ptrtoint,%
2120     inttoptr,bitcast,to,%
2121     icmp,fcmp,phi,select,call,va_arg,landingpad,%

```

- Atomic operations – some duplication with the above

```
2122     xchg,add,sub,and,nand,or,xor,max,min,umax,umin,%
```

- Comparisons

```

2123     eq,ne,ugt,uge,ult,ule,sgt,sge,slt,sle,%
2124     false,oeq,ogt,oge,olt,ole,one,ord,ueq,ugt,uge,ult,ule,une,uno,true,%

```

- Linkage types

```

2125     private,linker_private,linker_private_weak,linker_private_weak_def_auto,%
2126     internal,available_externally,linkonce,common,weak,appending,extern_weak,%
2127     linkonce_odr,weak_odr,external,dllimport,dllexport,%

```

²In this section ‘I’ is Scott Pakin.

- Function headers


```
2128         define,declare,%
```
- Parameter attributes


```
2129         zeroext,signext,inreg,byval,sret,noalias,nocapture,next,%
```
- Garbage collector names


```
2130         gc,%
```
- Function attributes


```
2131         address_safety,alignstack,alwaysinline,nonlazybind,inlinehint,naked,%
2132         noimplicitfloat,noinline,noredzone,noreturn,nounwind,optsize,readnone,%
2133         readonly,returns_twice,ssp,sspreq,uwtable,%
```
- Module-level inline assembly


```
2134         module,asm,%
```
- Data layout


```
2135         target,datalayout,%
```
- Inline assembler expressions


```
2136         sideeffect,alignstack,%
```
- Other keywords – I’m probably missing some here.


```
2137         nuw,nsw,exact,inbounds,unnamed_addr},%
2138         morekeywords=[2]{%
```
- Types


```
2139         i1,i2,i4,i8,i16,i32,i64,i128,i256,i512,i1024,% <-- Most common integers
2140         half,float,double,x86_fp80,fp128,ppc_fp128,x86mmx,%
2141         void,label,metadata},%
2142         alsoletter=.%
2143         sensitive=false,%
2144         morecomment=[1];,%
2145         morestring=[b]"%
2146     }
```

```
2147 </lang3>
```

2.39 Logo

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

```
2148 <*lang3>
2149 \lst@definlanguage{Logo}%
2150 % ??? {end,unix} also keywords
2151 {morekeywords={and,atan,arctan,both,break,bf,bl,butfirst,butlast,%
2152     cbreak,close,co,continue,cos,count,clearscreen,cs,debquit,%
2153     describe,diff,difference,ed,edit,either,empty,equalp,er,erase,%
2154     errpause,errquit,fifp,filefprint,fifty,fileftype,fip,fileprint,%
2155     fird,fileread,fity,filetype,fiwd,fileword,f,first,or,fp,fprint,%
2156     fput,fty,ftype,full,fullscreen,go,bye,goodbye,gprop,greaterp,%
2157     help,if,iff,iffalse,ift,iftrue,nth,item,keyp,llast,lessp,list,%
2158     local,lput,make,max,maximum,memberp,memtrace,min,minimum,namep,%
2159     not,numberp,oflush,openr,openread,openw,openwrite,op,output,%
2160     pause,plist,pots,pow,pprop,pps,pr,print,product,quotient,random,%
2161     rc,readchar,rl,readlist,remprop,repcount,repeat,request,rnd,run,%
2162     se,sentence,sentencep,setc,setcolor,setipause,setqpause,po,show,%
2163     sin,split,splitscreen,sqrt,stop,sum,test,text,textscreen,thing,%
2164     to,tone,top,toplevel,type,untrace,wait,word,wordp,yaccdebug,is,%
2165     mod,remainder,trace,zerop,back,bk,bto,btouch,fd,forward,fto,%
2166     ftouch,getpen,heading,hit,hitoot,ht,hideturtle,loff,lampoff,lon,%
2167     lampon,lt,left,lot,lotoot,lto,ltouch,penc,pencolor,pd,pendown,pe,%
2168     penerase,penmode,pu,penup,px,penreverse,rt,right,rto,rtoch,%
2169     scrunch,seth,setheading,setscrun,setscrunch,setxy,shownp,st,%
2170     showturtle,towardsxy,clean,wipeclean,xcor,ycor,tur,turtle,%
2171     display,dpy},%
2172     sensitive=f% ???
2173 }[keywords]%
2174 </lang3>
```

2.40 Lua

Stephan Hennig contributed the Lua keywords.

```
2175 <*lang2>
2176 %%
2177 %% Lua definitions (c) 2013 Stephan Hennig
2178 %%
2179 \lst@definlanguage[5.0]{Lua}{%
2180     To enable highlighting of library keywords, the dot needs to be a letter.
2181     alsoletter={.},%
2182     The language definition knows
2183     • language keywords
2184     morekeywords=[1]{%
2185         and, break, do, else, elseif, end, false, for, function, if, in,%
```



```

2183         local, nil, not, or, repeat, return, then, true, until, while,%
2184     },%

    • the standard library identifiers

2185     morekeywords=[2]{%

        – coming from the base library

2186         _G, _LOADED, _REQUIREDNAME, _VERSION, LUA_PATH,%
2187         assert, collectgarbage, dofile, error, gcinfo, getfenv,%
2188         getmetatable, ipairs, loadfile, loadlib, loadstring, newproxy,%
2189         next, pairs, pcall, print, rawequal, rawget, rawset, require,%
2190         setfenv, setmetatable, tonumber, tostring, type, unpack, xpcall,%

        – coming from the coroutine library

2191         coroutine, coroutine.create, coroutine.resume,%
2192         coroutine.status, coroutine.wrap, coroutine.yield,%

        – the debug library

2193         _TRACEBACK, debug, debug.debug, debug.gethook, debug.getinfo,%
2194         debug.getlocal, debug.getupvalue, debug.sethook, debug.setlocal,%
2195         debug.setupvalue, debug.traceback,%

        – the io library

2196         io, io.close, io.flush, io.input, io.lines, io.open, io.output,%
2197         io.popen, io.read, io.stderr, io.stdin, io.stdout, io.tmpfile,%
2198         io.type, io.write,%

        – the mathematical library

2199         __pow, math, math.abs, math.acos, math.asin, math.atan, math.atan2,%
2200         math.ceil, math.cos, math.deg, math.exp, math.floor, math.frexp,%
2201         math.ldexp, math.log, math.log10, math.max, math.min, math.mod,%
2202         math.pi, math.pow, math.rad, math.random, math.randomseed, math.sin,%
2203         math.sqrt, math.tan,%

        – the os library

2204         os, os.clock, os.date, os.difftime, os.execute, os.exit, os.getenv,%
2205         os.remove, os.rename, os.setlocale, os.time, os.tmpname,%

        – the string library

2206         string, string.byte, string.char, string.dump, string.find,%
2207         string.format, string.gfind, string.gsub, string.len, string.lower,%
2208         string.rep, string.sub, string.upper,%

        – the table library

2209         table, table.concat, table.foreach, table.foreachi, table.getn,%
2210         table.insert, table.remove, table.setn, table.sort,%
2211     },%

```

```

and some additional identifiers
2212 morekeywords=[2]{%
2213   _PROMPT, _PROMPT2, arg,%
2214 },%

These are the common language settings
2215 sensitive=true,%
2216 % single line comments
2217 morecomment=[1]{--},%
2218 % multi line comments
2219 morecomment=[s]{--[[]-[]}],%
2220 % backslash escaped strings
2221 morestring=[b]",%
2222 morestring=[b]',%
2223 % multi line strings
2224 morestring=[s]{[[[]-[]}],%
2225 }[keywords,comments,strings]%

And here are the new definitions for Lua 5.1:
2226 \lst@definelanguage[5.1]{Lua}[5.0]{Lua}{%

There are some deletions
2227 deletekeywords=[2]{%
concerning


- the base library
2228     _LOADED, _REQUIREDNAME, LUA_PATH, gcinfo, loadlib,%
- the debug library
2229     _TRACEBACK,%
- the mathematical library
2230     __pow, math.mod,%
- the string library
2231     string.gfind,%
- the table library
2232     table.foreach, table.foreachi, table.getn, table.setn,%
2233     },%


and some new identifiers in standard libraries like
2234 morekeywords=[2]{%


- the base library
2235     load, select,%

```

- coroutine library


```
2236         coroutine.running,%
```
- debug library


```
2237         debug.getfenv, debug.getmetatable, debug.getregistry, debug.setfenv,%
2238         debug.setmetatable,%
```
- the mathematical library


```
2239         math.cosh, math.fmod, math.huge, math.modf, math.sinh, math.tanh,%
```
- the package library which itself is new in Lua 5.1


```
2240         module, package, package.config, package.cpath, package.loaded,%
2241         package.loaders, package.loadlib, package.path, package.preload,%
2242         package.seeall,%
```
- the string library and


```
2243         string.gmatch, string.match, string.reverse,%
```
- the table library


```
2244         table.maxn,%
2245     },%
```

In Lua 5.1 long bracket comments were introduced also

```
2246  morecomment=[s]{--[=[}{]=]},%
2247  morecomment=[s]{--[==[]}{]==]},%
2248  morecomment=[s]{--[===[]}{]===]},%
2249  morecomment=[s]{--[====[]}{]====]},%
2250  morecomment=[s]{--[=====[]}{]=====]},%
2251  morecomment=[s]{--[=====[[]]{]=====]},%
2252  morecomment=[s]{--[=====[]}{]=====]},%
2253  morecomment=[s]{--[=====[]}{]=====]},%
2254  morecomment=[s]{--[=====[]}{]=====]},%
2255  morecomment=[s]{--[=====[]}{]=====]},%
```

as well as long bracket strings

```
2256  morestring=[s]{[=[[]}{]=]},%
2257  morestring=[s]{[==[]}{]==]},%
2258  morestring=[s]{[===[]}{]===]},%
2259  morestring=[s]{[====[]}{]====]},%
2260  morestring=[s]{[=====[]}{]=====]},%
2261  morestring=[s]{[=====[[]]{]=====]},%
2262  morestring=[s]{[=====[]}{]=====]},%
2263  morestring=[s]{[=====[]}{]=====]},%
2264  morestring=[s]{[=====[]}{]=====]},%
2265  morestring=[s]{[=====[]}{]=====]},%
2266 }[keywords,comments,strings]%
```

Lua 5.2 again has some changed features. These are
2267 \lst@definelanguage[5.2]{Lua}[5.1]{Lua}{%

- new language keywords

```
2268     morekeywords=[1]{%  
2269         goto,%  
2270     },%
```

- deleted identifiers from the standard libraries like

```
2271     deletekeywords=[2]{%  
  
    – the base library  
2272         getfenv, loadstring, module, newproxy, setfenv, unpack,%  
  
    – the debug library  
2273         debug.getfenv, debug.setfenv,%  
  
    – the mathematical library  
2274         math.log10,%  
  
    – the package library and  
2275         package.loaders, package.seeall,%  
  
    – the table library  
2276         table.maxn,%  
2277     },%
```

Again there are some new identifiers in the standard libraries

```
2278     morekeywords=[2]{%
```

like

- the base library

```
2279         rawlen,%
```

- the bit library

```
2280         bit32, bit32.arshift, bit32.band, bit32.bnot, bit32.bor,%  
2281         bit32.btest, bit32.bxor, bit32.extract, bit32.lrotate,%  
2282         bit32.lshift, bit32.replace, bit32.rrotate, bit32.rshift,%
```

- the debug library

```
2283         debug.getuservalue, debug.setuservalue, debug.upvalueid,%  
2284         debug.upvaluejoin,%
```

- the package library

```
2285         package.searchers, package.searchpath,%
```

- the table library

```
2286         table.pack, table.unpack,%
2287     },%
```

There is a new additional identifier

```
2288     morekeywords=[2]{%
2289         _ENV,%
2290     },%
```

and labels are also new in Lua 5.2

```
2291     moredelim=[s][keywordstyle3]{::}{::},%
2292 }[keywords,comments,strings]%
```

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

```
2293 \lst@definelanguage[5.3]{Lua}[5.2]{Lua}{%
```

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

```
2294         deletekeywords=[2]{%
```

– the bit32 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 mathematical library

```
2298             math.atan2, math.cosh, math.frexp, math.ldexp, math.pow,%
2299             math.sinh, math.tanh,%
2300         },%
```

Again there are some new identifiers in the standard libraries

```
2301     morekeywords=[2]{%
```

like

- the coroutine library

```
2302         coroutine.isyieldable,%
```

- the mathematical library

```
2303         math.maxinteger, math.mininteger, math.tointeger, math.type,%
2304         math.ult,%
```

- the string library

```
2305         string.pack, string.packsize, string.unpack,%
```

- the table library

```
2306         table.move,%
```

- the utf-8 library

```

2307         utf8, utf8.char, utf8.charpattern, utf8.codepoint, utf8.codes,%
2308         utf8.len, utf8.offset,%
2309     },%
2310 }[keywords,comments,strings]%

2311 </lang2>

```

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

```

2312 <*lua-prf>

2313 \usepackage[rgb, x11names]{xcolor}
2314 \lstdefinestyle{Lua}{%
2315     language=[5.2]Lua,
2316     basicstyle=\ttfamily,
2317     columns=spaceflexible,
2318     keywordstyle=\bfseries\color{Blue4},% language keywords
2319     keywordstyle=[2]\bfseries\color{RoyalBlue3},% std. library identifiers
2320     keywordstyle=[3]\bfseries\color{Purple3},% labels
2321     stringstyle=\bfseries\color{Coral4},% strings
2322     commentstyle=\itshape\color{Green4},% comments
2323 }

```

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

```

2324 </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).

```

2325 <*lang2>

2326 %%
2327 %% Make definitions (c) 2000 Rolf Niepraschk
2328 %%
2329 \lst@definlanguage[gnu]{make}%
2330 {morekeywords={SHELL,MAKE,MAKEFLAGS,$@,$\%,$<,$?,$^,$+,$*,%
2331     @,^,<,\%,+ ,? ,* ,% Markus Pahlow
2332     export,unexport,include,override,define,ifdef,ifneq,ifeq,else,%
2333     endif,vpath,subst,patsubst,strip,findstring,filter,filter-out,%
2334     sort,dir,notdir,suffix,basename,addsuffix,addprefix,join,word,%
2335     words,firstword,wildcard,shell,origin,foreach,%
2336     @D,@F,*D,*F,\%D,\%F,<D,<F,^D,^F,+D,+F,?D,?F,%
2337     AR,AS,CC,CXX,CO,CPP,FC,GET,LEX,PC,YACC,YACCR,MAKEINFO,TEXI2DVI,%
2338     WEAVE,CWEAVE,TANGLE,CTANGLE,RM,M2C,LINT,COMPILE,LINK,PREPROCESS,%
2339     CHECKOUT,%
2340     ARFLAGS,ASFLAGS,CFLAGS,CXXFLAGS,COFLAGS,CPPFLAGS,FFLAGS,GFLAGS,%
2341     LDFLAGS,LOADLIBES,LFLAGS,PFLAGS,RFLAGS,YFLAGS,M2FLAGS,MODFLAGS,%

```

```

2342     LINTFLAGS,MAKEINFO_FLAGS,TEXI2DVI_FLAGS,COFLAGS,GFLAGS,%
2343     OUTPUT_OPTION,SCCS_OUTPUT_OPTION,% missing comma: Markus Pahlow
2344     .PHONY, .SUFFIXES, .DEFAULT, .PRECIOUS, .INTERMEDIATE, .SECONDARY,%
2345     .IGNORE, .SILENT, .EXPORT_ALL_VARIABLES,MAKEFILES,VPATH,MAKESHELL,%
2346     MAKELEVEL,MAKECMDGOALS,SUFFIXES},%
2347     sensitive=true,
2348     morecomment=[l]\#,%
2349     morestring=[b]"%
2350 }[keywords,comments,strings,make]%

2351 \lst@definlanguage{make}
2352 {morekeywords={SHELL,MAKE,MAKEFLAGS,$@,$\%,$<,$?,$^,$+,$*},%
2353     sensitive=true,%
2354     morecomment=[l]\#,%
2355     morestring=[b]"%
2356 }[keywords,comments,strings,make]%

```

The two [b]-arguments have been added after a bug report by Dr. Jobst Hoffmann
2357 </lang2>

2.42 Matlab

I 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.

```

2358 <*lang1>

2359 \lst@definlanguage{Matlab}%
2360 {morekeywords={gt,lt,gt,lt,amp,abs,acos,acosh,acot,acoth,acsc,acsch,%
2361     all,angle,ans,any,asec,asech,asin,asinh,atan,atan2,atanh,auread,%
2362     auwrite,axes,axis,balance,bar,bessel,besselk,bessely,beta,%
2363     betainc,betaln,blanks,bone,break,brighten,capture,cart2pol,%
2364     cart2sph,caxis,cd,cdf2rdf,cedit,ceil,chol,cla,clabel,clc,clear,%
2365     clf,clock,close,colmmd,Colon,colorbar,colormap,ColorSpec,colperm,%
2366     comet,comet3,compan,compass,computer,cond,condest,conj,contour,%
2367     contour3,contourc,contrast,conv,conv2,cool,copper,corrcoef,cos,%
2368     cosh,cot,coth,cov,cplxpair,cputime,cross,csc,csch,csvread,%
2369     csvwrite,cumprod,cumsum,cylinder,date,dbclear,dbcont,dbdown,%
2370     dbquit,dbstack,dbstatus,dbstep,dbstop,dbtype,dbup,ddeadv,ddeexec,%
2371     ddeinit,ddepoke,ddereq,ddeterm,ddeunadv,deblank,dec2hex,deconv,%
2372     del2,delete,demo,det,diag,diary,diff,diffuse,dir,disp,dlmread,%
2373     dlmwrite,dmperm,dot,drawnow,echo,eig,ellipj,ellipke,else,elseif,%
2374     end,engClose,engEvalString,engGetFull,engGetMatrix,engOpen,%
2375     engOutputBuffer,engPutFull,engPutMatrix,engSetEvalCallback,%
2376     engSetEvalTimeout,engWinInit,eps,erf,erfc,erfcx,erfinv,error,%
2377     errorbar,etime,etree,eval,exist,exp,expint,expm,expo,eye,fclose,%
2378     feather,feof,ferror,feval,fft,fft2,fftshift,fgetl,fgets,figure,%
2379     fill,fill3,filter,filter2,find,findstr,finite,fix,flag,flipr,%
2380     flipud,floor,flops,fmin,fmins,fopen,for,format,fplot,fprintf,%
2381     fread,frewind,fscanf,fseek,ftell,full,function,funm,fwrite,fzero,%
2382     gallery,gamma,gammainc,gammaln,gca,gcd,gcf,gco,get,getenv,%
2383     getframe,ginput,global,gplot,gradient,gray,graymon,grid,griddata,%

```

```

2384 gtext, hadamard, hankel, help, hess, hex2dec, hex2num, hidden, hilb, hist, %
2385 hold, home, hostid, hot, hsv, hsv2rgb, if, ifft, ifft2, imag, image, %
2386 imagesc, Inf, info, input, int2str, interp1, interp2, interpft, inv, %
2387 invhilb, isempty, isglobal, ishold, isieee, isinf, isletter, isnan, %
2388 isreal, isspace, issparse, isstr, jet, keyboard, kron, lasterr, lcm, %
2389 legend, legendre, length, lin2mu, line, linspace, load, log, log10, log2, %
2390 loglog, logm, logspace, lookfor, lower, ls, lscov, lu, magic, matClose, %
2391 matDeleteMatrix, matGetDir, matGetFp, matGetFull, matGetMatrix, %
2392 matGetNextMatrix, matGetString, matlabrc, matlabroot, matOpen, %
2393 matPutFull, matPutMatrix, matPutString, max, mean, median, menu, mesh, %
2394 meshc, meshgrid, meshz, mexAtExit, mexCallMATLAB, mexdebug, %
2395 mexErrMsgTxt, mexEvalString, mexFunction, mexGetFull, mexGetMatrix, %
2396 mexGetMatrixPtr, mexPrintf, mexPutFull, mexPutMatrix, mexSetTrapFlag, %
2397 min, more, movie, moviein, mu2lin, mxMalloc, mxCopyCharacterToPtr, %
2398 mxCopyComplex16ToPtr, mxCopyInteger4ToPtr, mxCopyPtrToCharacter, %
2399 mxCopyPtrToComplex16, mxCopyPtrToInteger4, mxCopyPtrToReal8, %
2400 mxCopyReal8ToPtr, mxCreateFull, mxCreateSparse, mxCreateString, %
2401 mxFree, mxFreeMatrix, mxGetIr, mxGetJc, mxGetM, mxGetN, mxGetName, %
2402 mxGetNzmax, mxGetPi, mxGetPr, mxGetScalar, mxGetString, mxIsComplex, %
2403 mxIsFull, mxIsNumeric, mxIsSparse, mxIsString, mxIsTypeDouble, %
2404 mxSetIr, mxSetJc, mxSetM, mxSetN, mxSetName, mxSetNzmax, mxSetPi, %
2405 mxSetPr, NaN, nargchk, nargin, nargout, newplot, nextpow2, nnls, nnz, %
2406 nonzeros, norm, normest, null, num2str, nzmax, ode23, ode45, orient, orth, %
2407 pack, pascal, patch, path, pause, pcolor, pi, pink, pinv, plot, plot3, %
2408 pol2cart, polar, poly, polyder, polyeig, polyfit, polyval, polyvalm, %
2409 pow2, print, printopt, prism, prod, pwd, qr, qrdelete, qrinsert, quad, %
2410 quad8, quit, quiver, qz, rand, randn, randperm, rank, rat, rats, rbbox, %
2411 rcond, real, realmax, realmin, refresh, rem, reset, reshape, residue, %
2412 return, rgb2hsv, rgbplot, rootobject, roots, rose, rosset, rot90, rotate, %
2413 round, rref, rrefmovie, rsf2csf, save, saxis, schur, sec, sech, semilogx, %
2414 semilogy, set, setstr, shading, sign, sin, sinh, size, slice, sort, sound, %
2415 spalloc, sparse, spaugment, spconvert, spdiags, specular, speye, spfun, %
2416 sph2cart, sphere, spinmap, spline, spones, spparms, sprandn, sprandsym, %
2417 sprank, sprintf, spy, sqrt, sqrtm, sscanf, stairs, startup, std, stem, %
2418 str2mat, str2num, strcmp, strings, strrep, strtok, subplot, subscribe, %
2419 subspace, sum, surf, surface, surfc, surfl, surfnorm, svd, symbfact, %
2420 symmmd, symrcm, tan, tanh, tempdir, tempname, terminal, text, tic, title, %
2421 toc, toeplitz, trace, trapz, tril, triu, type, uicontrol, uigetfile, %
2422 uimenu, uiputfile, unix, unwrap, upper, vander, ver, version, view, %
2423 viewmtx, waitforbuttonpress, waterfall, wavread, wavwrite, what, %
2424 whatsnew, which, while, white, whitebg, who, whos, wilkinson, wk1read, %
2425 wk1write, xlabel, xor, ylabel, zeros, zlabel, zoom}, %
2426 sensitive, %
2427 morecomment=[1]\%, %
2428 morestring=[m]'%
2429 }[keywords, comments, strings]%
2430 </lang1>

```


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.

```
2431 (*lang1)
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2433   morekeywords={
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2444     "AdjacencyMatrix", "AdjustmentBox", "AdjustmentBoxOptions",%
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2447     "AffineTransform", "After", "AircraftData", "AirportData",%
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4210 GetLinebreakInformationPacket, GetMenusPacket,%
4211 GetPageBreakInformationPacket, Glaisher, GlobalPreferences,%
4212 GlobalSession, Gradient, GraphicsData, GraphicsGrouping, Gray, Green,%
4213 Grid, GridBaseline, GridBox, GridBoxOptions, GridCreationSettings,%
4214 GridDefaultElement, GridFrame, GridFrameMargins, GroupPageBreakWithin,%
4215 HarmonicNumber, Hash, HashTable, HeadCompose, HelpBrowserLookup,%
4216 HelpBrowserNotebook, HelpBrowserSettings, HessenbergDecomposition,%
4217 Hessian, HoldAllComplete, HoldComplete, HoldPattern, Horizontal,%
4218 HorizontalForm, HorizontalScrollPosition, HTMLSave,%
4219 Hypergeometric0F1Regularized, Hypergeometric1F1Regularized,%
4220 Hypergeometric2F1Regularized, HypergeometricPFQ,%
4221 HypergeometricPFQRRegularized, HyperlinkCreationSettings, Hyphenation,%
4222 HyphenationOptions, IgnoreCase, ImageCache, ImageCacheValid,%
4223 ImageMargins, ImageOffset, ImageRangeCache, ImageRegion,%

4224 ImageResolution, ImageRotated, ImageSize, Import,%
4225 ImportAutoReplacements, ImportString, IncludeFileExtension,%
4226 IncludeSingularTerm, IndentingNewlineSpacings, IndentMaxFraction,%
4227 IndexCreationOptions, Inequality, InexactNumberQ, InexactNumbers,%
4228 Inherited, InitializationCell, InitializationCellEvaluation,%
4229 InitializationCellWarning, InlineCounterAssignments,%
4230 InlineCounterIncrements, InlineRules, InputAliases, InputAutoFormat,%
4231 InputAutoReplacements, InputGrouping, InputNamePacket, InputNotebook,%
4232 InputPacket, InputSettings, InputStringPacket, InputToBoxFormPacket,%
4233 InputToInputForm, InputToStandardForm, InsertionPointObject,%
4234 IntegerExponent, IntegerPart, Integers, Interactive, Interlaced,%
4235 InterpolationOrder, InterpolationPoints, InterpolationPrecision,%
4236 InterpretationBox, InterpretationBoxOptions, InterpretTemplate,%
4237 InterruptSettings, Interval, IntervalIntersection, IntervalMemberQ,%
4238 IntervalUnion, InverseBetaRegularized, InverseEllipticNomeQ,%
4239 InverseErf, InverseErfc, InverseFourierCosTransform,%
4240 InverseFourierSinTransform, InverseFourierTransform,%
4241 InverseGammaRegularized, InverseJacobiCD, InverseJacobiCN,%
4242 InverseJacobiCS, InverseJacobiDC, InverseJacobiDN, InverseJacobiDS,%
4243 InverseJacobiNC, InverseJacobiND, InverseJacobiNS, InverseJacobiSC,%
4244 InverseJacobiSD, InverseLaplaceTransform, InverseWeierstrassP,%
4245 InverseZTransform, Jacobian, JacobiCD, JacobiCN, JacobiCS, JacobiDC,%
4246 JacobiDN, JacobiDS, JacobiNC, JacobiND, JacobiNS, JacobiSC, JacobiSD,%
4247 JordanDecomposition, K, Khinchin, KleinInvariantJ, KroneckerDelta,%
4248 Language, LanguageCategory, LaplaceTransform, Larger, Launch,%
4249 LayoutInformation, Left, LetterCharacter, Lexicographic, LicenseID,%
4250 LimitsPositioning, LimitsPositioningTokens, LinearSolveFunction,%
4251 LinebreakAdjustments, LineBreakWithin, LineForm, LineIndent,%
4252 LineSpacing, LineWrapParts, LinkActivate, LinkClose, LinkConnect,%
4253 LinkConnectedQ, LinkCreate, LinkError, LinkFlush, LinkHost,%
4254 LinkInterrupt, LinkLaunch, LinkMode, LinkObject, LinkOpen, LinkOptions,%
4255 LinkPatterns, LinkProtocol, LinkRead, LinkReadHeld, LinkReadyQ, Links,%
4256 LinkWrite, LinkWriteHeld, ListConvolve, ListCorrelate, Listen,%
4257 ListInterpolation, ListQ, LiteralSearch, LongestMatch, LongForm,%
4258 Loopback, LUBackSubstitution, LUdecomposition, MachineID, MachineName,%
4259 MachinePrecision, MacintoshSystemPageSetup, Magenta, Magnification,%
4260 MakeBoxes, MakeExpression, MakeRules, Manual, MatchLocalNameQ,%
4261 MathematicaNotation, MathieuC, MathieuCharacteristicA,%
4262 MathieuCharacteristicB, MathieuCharacteristicExponent, MathieuCPrime,%
4263 MathieuS, MathieuSPrime, MathMLForm, MathMLText, MatrixRank, Maximize,%
4264 MaxIterations, MaxPlotPoints, MaxPoints, MaxRecursion, MaxStepFraction,%
4265 MaxSteps, MaxStepSize, Mean, Median, MeijerG, MenuPacket,%
4266 MessageOptions, MessagePacket, MessagesNotebook, MetaCharacters,%
4267 Method, MethodOptions, Minimize, MinRecursion, MinSize, Mode,%
4268 ModularLambda, MonomialOrder, MonteCarlo, Most, MousePointerNote,%
4269 MultiDimensional, MultilaunchWarning, MultilineFunction,%
4270 MultiplicativeOrder, Multiplicity, Nand,%
4271 NeedCurrentFrontEndPackagePacket, NeedCurrentFrontEndSymbolsPacket,%
4272 NestedScriptRules, NestWhile, NestWhileList, NevilleThetaC,%
4273 NevilleThetaD, NevilleThetaN, NevilleThetaS, Newton, Next, NHoldAll,%

4274 NHoldFirst, NHoldRest, NMaximize, NMinimize, NonAssociative,%
4275 NonPositive, Nor, Norm, NormalGrouping, NormalSelection, NormFunction,%
4276 Notebook, NotebookApply, NotebookAutoSave, NotebookClose,%
4277 NotebookConvert, NotebookConvertSettings, NotebookCreate,%
4278 NotebookCreateReturnObject, NotebookDefault, NotebookDelete,%
4279 NotebookDirectory, NotebookFind, NotebookFindReturnObject, NotebookGet,%
4280 NotebookGetLayoutInformationPacket, NotebookGetMisspellingsPacket,%
4281 NotebookInformation, NotebookLocate, NotebookObject, NotebookOpen,%
4282 NotebookOpenReturnObject, NotebookPath, NotebookPrint, NotebookPut,%
4283 NotebookPutReturnObject, NotebookRead, NotebookResetGeneratedCells,%
4284 Notebooks, NotebookSave, NotebookSaveAs, NotebookSelection,%
4285 NotebookSetupLayoutInformationPacket, NotebooksMenu, NotebookWrite,%
4286 NotElement, NProductExtraFactors, NProductFactors, NRoots,%
4287 NSumExtraTerms, NSumTerms, NumberMarks, NumberMultiplier, NumberString,%
4288 NumericFunction, NumericQ, NValues, Offset, OLEData,%
4289 OneStepRowReduction, Open, OpenFunctionInspectorPacket,%
4290 OpenSpecialOptions, OptimizationLevel, OptionInspectorSettings,%
4291 OptionQ, OptionsPacket, OptionValueBox, OptionValueBoxOptions, Orange,%
4292 Ordering, Oscillatory, OutputAutoOverwrite, OutputFormData,%
4293 OutputGrouping, OutputMathEditExpression, OutputNamePacket,%
4294 OutputToOutputForm, OutputToStandardForm, Over, Overflow, Overlaps,%
4295 Overscript, OverscriptBox, OverscriptBoxOptions, OwnValues, PadLeft,%
4296 PadRight, PageBreakAbove, PageBreakBelow, PageBreakWithin,%
4297 PageFooterLines, PageFooters, PageHeaderLines, PageHeaders,%
4298 PalettePath, PaperWidth, ParagraphIndent, ParagraphSpacing,%
4299 ParameterVariables, ParentConnect, ParentForm, Parenthesize,%
4300 PasteBoxFormInlineCells, Path, PatternTest, PeriodicInterpolation,%
4301 Pick, Piecewise, PiecewiseExpand, Pink, Pivoting, PixelConstrained,%
4302 Placeholder, Plain, Plot3Matrix, PointForm, PolynomialForm,%
4303 PolynomialReduce, Polynomials, PowerModList, Precedence,%
4304 PreferencesPath, PreserveStyleSheet, Previous, PrimaryPlaceholder,%
4305 Primes, PrincipalValue, PrintAction, PrintingCopies, PrintingOptions,%
4306 PrintingPageRange, PrintingStartingPageNumber,%
4307 PrintingStyleEnvironment, PrintPrecision, PrivateCellOptions,%
4308 PrivateEvaluationOptions, PrivateFontOptions, PrivateNotebookOptions,%
4309 PrivatePaths, ProductLog, PromptForm, Purple, Quantile,%
4310 QuasiMonteCarlo, QuasiNewton, RadicalBox, RadicalBoxOptions,%
4311 RandomSeed, RationalFunctions, Rationals, RawData, RawMedium,%
4312 RealBlockForm, Reals, Reap, Red, Refine, Refresh, RegularExpression,%
4313 Reinstall, Release, Removed, RenderingOptions, RepeatedString,%
4314 ReplaceList, Rescale, ResetMenusPacket, Resolve, ResumePacket,%
4315 ReturnExpressionPacket, ReturnInputFormPacket, ReturnPacket,%
4316 ReturnTextPacket, Right, Root, RootReduce, RootSum, Row, RowAlignments,%
4317 RowBox, RowLines, RowMinHeight, RowsEqual, RowSpacings, RSolve,%
4318 RuleCondition, RuleForm, RulerUnits, Saveable, SaveAutoDelete,%
4319 ScreenRectangle, ScreenStyleEnvironment, ScriptBaselineShifts,%
4320 ScriptLevel, ScriptMinSize, ScriptRules, ScriptSizeMultipliers,%
4321 ScrollingOptions, ScrollPosition, Second, SectionGrouping, Selectable,%
4322 SelectedNotebook, Selection, SelectionAnimate, SelectionCell,%
4323 SelectionCellCreateCell, SelectionCellDefaultStyle,%

4324 SelectionCellParentStyle, SelectionCreateCell, SelectionDuplicateCell,%
4325 SelectionEvaluate, SelectionEvaluateCreateCell, SelectionMove,%
4326 SelectionSetStyle, SelectionStrategy, SendFontInformationToKernel,%
4327 SequenceHold, SequenceLimit, SeriesCoefficient, SetBoxFormNamesPacket,%
4328 SetEvaluationNotebook, SetFileLoadingContext, SetNotebookStatusLine,%
4329 SetOptionsPacket, SetSelectedNotebook, SetSpeechParametersPacket,%
4330 SetValue, ShortestMatch, ShowAutoStyles, ShowCellBracket,%
4331 ShowCellLabel, ShowCellTags, ShowClosedCellArea, ShowContents,%
4332 ShowCursorTracker, ShowGroupOpenCloseIcon, ShowPageBreaks,%
4333 ShowSelection, ShowShortBoxForm, ShowSpecialCharacters,%
4334 ShowStringCharacters, ShrinkWrapBoundingBox, SingleLetterItalics,%
4335 SingularityDepth, SingularValueDecomposition, SingularValueList,%
4336 SinhIntegral, Smaller, Socket, SolveDelayed, SoundAndGraphics, Sow,%
4337 Space, SpaceForm, SpanAdjustments, SpanCharacterRounding,%
4338 SpanLineThickness, SpanMaxSize, SpanMinSize, SpanningCharacters,%
4339 SpanSymmetric, Sparse, SparseArray, SpeakTextPacket,%
4340 SpellingDictionaries, SpellingDictionariesPath, SpellingOptions,%
4341 SpellingSuggestionsPacket, Spherical, Split, SqrtBox, SqrtBoxOptions,%
4342 StandardDeviation, StandardForm, StartingStepSize, StartOfLine,%
4343 StartOfString, StartupSound, StepMonitor, StieltjesGamma, StoppingTest,%
4344 StringCases, StringCount, StringExpression, StringFreeQ, StringQ,%
4345 StringReplaceList, StringReplacePart, StringSplit, StripBoxes,%
4346 StripWrapperBoxes, StructuredSelection, StruveH, StruveL, StyleBox,%
4347 StyleBoxAutoDelete, StyleBoxOptions, StyleData, StyleDefinitions,%
4348 StyleForm, StyleMenuListing, StyleNameDialogSettings, StylePrint,%
4349 StyleSheetPath, Subresultants, SubscriptBox, SubscriptBoxOptions,%
4350 Subsets, Subsuperscript, SubsuperscriptBox, SubsuperscriptBoxOptions,%
4351 SubtractFrom, SubValues, SugarCube, SuperscriptBox,%
4352 SuperscriptBoxOptions, SuspendPacket, SylvesterMatrix, SymbolName,%
4353 Syntax, SyntaxForm, SyntaxPacket, SystemException, SystemHelpPath,%
4354 SystemStub, Tab, TabFilling, TabSpacings, TagBox, TagBoxOptions,%
4355 TaggingRules, TagStyle, TargetFunctions, TemporaryVariable, TensorQ,%
4356 TeXSave, TextAlignment, TextBoundingBox, TextData, TextJustification,%
4357 TextLine, TextPacket, TextParagraph, TextRendering, TextStyle,%
4358 ThisLink, TimeConstraint, TimeVariable, TitleGrouping, ToBoxes,%
4359 ToColor, ToFileName, Toggle, ToggleFalse, Tolerance, TooBig, Top,%
4360 ToRadicals, Total, Tr, TraceAction, TraceInternal, TraceLevel,%
4361 TraditionalForm, TraditionalFunctionNotation, TraditionalNotation,%
4362 TraditionalOrder, TransformationFunctions, TransparentColor,%
4363 Trapezoidal, TrigExpand, TrigFactor, TrigFactorList, TrigReduce,%
4364 TrigToExp, Tuples, UnAlias, Underflow, Underoverscript,%
4365 UnderoverscriptBox, UnderoverscriptBoxOptions, Underscript,%
4366 UnderscriptBox, UnderscriptBoxOptions, UndocumentedTestFEParserPacket,%
4367 UndocumentedTestGetSelectionPacket, UnitStep, Up, URL, Using, V2Get,%
4368 Value, ValueBox, ValueBoxOptions, ValueForm, Variance, Verbatim,%
4369 Verbose, VerboseConvertToPostScriptPacket, VerifyConvergence,%
4370 VerifySolutions, Version, VersionNumber, Vertical, VerticalForm,%
4371 ViewPointSelectorSettings, Visible, VisibleCell,%
4372 WeierstrassHalfPeriods, WeierstrassInvariants, WeierstrassSigma,%
4373 WeierstrassZeta, White, Whitespace, WhitespaceCharacter,%

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4374 WindowClickSelect, WindowElements, WindowFloating, WindowFrame,%
4375 WindowFrameElements, WindowMargins, WindowMovable, WindowSize,%
4376 WindowTitle, WindowToolbars, WindowWidth, WordBoundary, WordCharacter,%
4377 WynnDegree, XMLElement},%
4378 morendkeywords={,$, $AddOnsDirectory, $AnimationDisplayFunction,%
4379 $AnimationFunction,%
4380 $Assumptions, $BaseDirectory, $BoxForms, $ByteOrdering,%
4381 $CharacterEncoding, $ConditionHold, $CurrentLink, $DefaultPath,%
4382 $ExportEncodings, $ExportFormats, $FormatType, $FrontEnd,%
4383 $HistoryLength, $HomeDirectory, $ImportEncodings, $ImportFormats,%
4384 $InitialDirectory, $InstallationDate, $InstallationDirectory,%
4385 $InterfaceEnvironment,%
4386 $LaunchDirectory, $LicenseExpirationDate, $LicenseID, $LicenseProcesses,%
4387 $LicenseServer, $MachineDomain, $MaxExtraPrecision, $MaxLicenseProcesses,%
4388 $MaxNumber, $MaxPiecewiseCases, $MaxPrecision, $MaxRootDegree,%
4389 $MinNumber, $MinPrecision, $NetworkLicense, $NumberMarks,%
4390 $Off, $OutputForms, $ParentLink, $ParentProcessID,%
4391 $PasswordFile, $PathnameSeparator, $PreferencesDirectory, $PrintForms,%
4392 $PrintLiteral, $ProcessID, $ProcessorType, $ProductInformation,%
4393 $ProgramName, $PSDirectDisplay, $RandomState, $RasterFunction,%
4394 $RootDirectory, $SetParentLink, $SoundDisplay, $SuppressInputFormHeads,%
4395 $SystemCharacterEncoding, $SystemID, $TemporaryPrefix, $TextStyle,%
4396 $TopDirectory, $TraceOff, $TraceOn, $TracePattern,%
4397 $TracePostAction, $TracePreAction, $UserAddOnsDirectory, $UserBaseDirectory,%
4398 $UserName, Constant, Flat, HoldAll,%
4399 HoldAllComplete, HoldFirst, HoldRest, Listable,%
4400 Locked, NHoldAll, NHoldFirst, NHoldRest,%
4401 NumericFunction, OneIdentity, Orderless, Protected,%
4402 ReadProtected, SequenceHold},%
4403 }%

4404 %%
4405 %% Mathematica definitions (c) 1999 Michael Wiese
4406 %%
4407 \lst@definlanguage[3.0]{Mathematica}[1.0]{Mathematica}%
4408 {morekeywords={Abort, AbortProtect, AbsoluteDashing, AbsolutePointSize,%
4409 AbsoluteThickness, AbsoluteTime, AccountingFormAiry, AiPrime, AiryBi,%
4410 AiryBiPrime, Alternatives, AnchoredSearch, AxesEdge, AxesOrigin,%
4411 AxesStyle, Background, BetaRegularized, BoxStyle, C, CheckAbort,%
4412 Circle, ClebschGordan, CMYKColor, ColorFunction, ColorOutput, Compile,%
4413 Compiled, CompiledFunction, ComplexExpand, ComposeList, Composition,%
4414 ConstrainedMax, ConstrainedMin, Contexts, ContextToFilename,%
4415 ContourLines, Contours, ContourShading, ContourSmoothing,%
4416 ContourStyle, CopyDirectory, CopyFile, CosIntegral, CreateDirectory,%
4417 Cuboid, Date, DeclarePackage, DefaultColor, DefaultFont, Delete,%
4418 DeleteCases, DeleteDirectory, DeleteFile, Dialog, DialogIndent,%
4419 DialogProlog, DialogSymbols, DigitQ, Directory, DirectoryStack, Disk,%
4420 Dispatch, DownValues, DSolve, Encode, Epilog, Erfc, Evaluate,%
4421 ExponentFunction, FaceGrids, FileByteCount, FileDate, FileNames,%
4422 FileType, Find, FindList, FixedPointList, FlattenAt, Fold, FoldList,%

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4423     Frame,FrameLabel,FrameStyle,FrameTicks,FromCharCode,%
4424     FromDate,FullGraphics,FullOptions,GammaRegularized,%
4425     GaussianIntegers,GraphicsArray,GraphicsSpacing,GridLines,%
4426     GroebnerBasis,Heads,HeldPart,HomeDirectory,Hue,IgnoreCases,%
4427     InputStream,Install,InString,IntegerDigits,InterpolatingFunction,%
4428     InterpolatingPolynomial,Interpolation,Interrupt,InverseFunction,%
4429     InverseFunctions,JacobiZeta,LetterQ,LinearProgramming,ListPlay,%
4430     LogGamma,LowerCaseQ,MachineNumberQ,MantissaExponent,MapIndexed,%
4431     MapThread,MatchLocalNames,MatrixExp,MatrixPower,MeshRange,%
4432     MeshStyle,MessageList,Module,NDSolve,NSolve,NullRecords,%
4433     NullWords,NumberFormat,NumberPadding,NumberSigns,OutputStream,%
4434     PaddedForm,ParentDirectory,Pause,Play,PlayRange,PlotRegion,%
4435     PolygonIntersections,PolynomialGCD,PolynomialLCM,PolynomialMod,%
4436     PostScript,PowerExpand,PrecisionGoal,PrimePi,Prolog,%
4437     QRDecomposition,Raster,RasterArray,RealDigits,Record,RecordLists,%
4438     RecordSeparators,ReleaseHold,RenameDirectory,RenameFile,%
4439     ReplaceHeldPart,ReplacePart,ResetDirectory,Residue,%
4440     RiemannSiegelTheta,RiemannSiegelZ,RotateLabel,SameTest,%
4441     SampleDepth,SampledSoundFunction,SampledSoundList,SampleRate,%
4442     SchurDecomposition,SessionTime,SetAccuracy,SetDirectory,%
4443     SetFileDate,SetPrecision,SetStreamPosition,Shallow,SignPadding,%
4444     SinIntegral,SixJSymbol,Skip,Sound,SpellingCorrection,%
4445     SphericalRegion,Stack,StackBegin,StackComplete,StackInhibit,%
4446     StreamPosition,Streams,StringByteCount,StringConversion,%
4447     StringDrop,StringInsert,StringPosition,StringReplace,%
4448     StringReverse,StringTake,StringToStream,SurfaceColor,%
4449     SyntaxLength,SyntaxQ,TableAlignments,TableDepth,%
4450     TableDirections,TableHeadings,TableSpacing,ThreeJSymbol,TimeUsed,%
4451     TimeZone,ToCharCode,ToDate,ToHeldExpression,TokenWords,%
4452     ToLowerCase,ToUpperCase,Trace,TraceAbove,TraceBackward,%
4453     TraceDepth,TraceDialog,TraceForward,TraceOff,TraceOn,%
4454     TraceOriginal,TracePrint,TraceScan,Trig,Unevaluated,Uninstall,%
4455     UnsameQ,UpperCaseQ,UpValues,ViewCenter,ViewVertical,With,Word,%
4456     WordSearch,WordSeparators},%
4457     moreendkeywords={Stub,Temporary,$Aborted,$BatchInput,$BatchOutput,%
4458     $CreationDate,$DefaultFont,$DumpDates,$DumpSupported,$Failed,%
4459     $Input,$Inspector,$IterationLimit,$Language,$Letters,$Linked,%
4460     $LinkSupported,$MachineEpsilon,$MachineID,$MachineName,%
4461     $MachinePrecision,$MachineType,$MaxMachineNumber,$MessageList,%
4462     $MessagePrePrint,$MinMachineNumber,$ModuleNumber,$NewMessage,%
4463     $NewSymbol,$Notebooks,$OperatingSystem,$Packages,$PipeSupported,%
4464     $PreRead,$ReleaseNumber,$SessionID,$SoundDisplayFunction,%
4465     $StringConversion,$StringOrder,$SyntaxHandler,$TimeUnit,%
4466     $VersionNumber}%
4467 }%

4468 \lst@definlanguage[1.0]{Mathematica}%
4469 {morekeywords={Abs,Accuracy,AccurayGoal,AddTo,AiryAi,AlgebraicRules,%
4470     AmbientLight,And,Apart,Append,AppendTo,Apply,ArcCos,ArcCosh,%
4471     ArcCot,ArcCoth,ArcCsc,ArcCsch,ArcSec,ArcSech,ArcSin,ArcSinh,%

```

4472 ArcTan, ArcTanh, Arg, ArithmeticGeometricMean, Array, AspectRatio, %
4473 AtomQ, Attributes, Axes, AxesLabel, BaseForm, Begin, BeginPackage, %
4474 BernoulliB, BesselI, BesselJ, BesselK, BesselY, Beta, Binomial, Blank, %
4475 BlankNullSequence, BlankSequence, Block, Boxed, BoxRatios, Break, Byte, %
4476 ByteCount, Cancel, Cases, Catch, Ceiling, CForm, Character, Characters, %
4477 ChebyshevT, ChebyshevU, Check, Chop, Clear, ClearAll, ClearAttributes, %
4478 ClipFill, Close, Coefficient, CoefficientList, Collect, ColumnForm, %
4479 Complement, Complex, CompoundExpression, Condition, Conjugate, %
4480 Constants, Context, Continuation, Continue, ContourGraphics, %
4481 ContourPlot, Cos, Cosh, Cot, Coth, Count, Csc, Csch, Cubics, Cyclotomic, %
4482 D, Dashing, Decompose, Decrement, Default, Definition, Denominator, %
4483 DensityGraphics, DensityPlot, Depth, Derivative, Det, DiagonalMatrix, %
4484 DigitBlock, Dimensions, DirectedInfinity, Display, DisplayFunction, %
4485 Distribute, Divide, DivideBy, Divisors, DivisorSigma, Do, Dot, Drop, Dt, %
4486 Dump, EdgeForm, Eigensystem, Eigenvalues, Eigenvectors, Eliminate, %
4487 EllipticE, EllipticExp, EllipticF, EllipticK, EllipticLog, EllipticPi, %
4488 EllipticTheta, End, EndPackage, EngineeringForm, Environment, Equal, %
4489 Erf, EulerE, EulerPhi, EvenQ, Exit, Exp, Expand, ExpandAll, %
4490 ExpandDenominator, ExpandNumerator, ExpIntegralE, ExpIntegralEi, %
4491 Exponent, Expression, ExtendedGCD, FaceForm, Factor, FactorComplete, %
4492 Factorial, Factorial2, FactorInteger, FactorList, FactorSquareFree, %
4493 FactorSquareFreeList, FactorTerms, FactorTermsList, FindMinimum, %
4494 FindRoot, First, Fit, FixedPoint, Flatten, Floor, FontForm, For, Format, %
4495 FormatType, FortranForm, Fourier, FreeQ, FullDefinition, FullForm, %
4496 Function, Gamma, GCD, GegenbauerC, General, Get, Goto, Graphics, %
4497 Graphics3D, GrayLevel, Greater, GreaterEqual, Head, HermiteH, %
4498 HiddenSurface, Hold, HoldForm, HypergeometricOF1, Hypergeometric1F1, %
4499 Hypergeometric2F1, HypergeometricU, Identity, IdentityMatrix, If, Im, %
4500 Implies, In, Increment, Indent, Infix, Information, Inner, Input, %
4501 InputForm, InputString, Insert, Integer, IntegerQ, Integrate, %
4502 Intersection, Inverse, InverseFourier, InverseJacobiSN, %
4503 InverseSeries, JacobiAmplitude, JacobiP, JacobiSN, JacobiSymbol, Join, %
4504 Label, LaguerreL, Last, LatticeReduce, LCM, LeafCount, LegendreP, %
4505 LegendreQ, LegendreType, Length, LerchPhi, Less, LessEqual, Level, %
4506 Lighting, LightSources, Limit, Line, LinearSolve, LineBreak, List, %
4507 ListContourPlot, ListDensityPlot, ListPlot, ListPlot3D, Literal, Log, %
4508 LogicalExpand, LogIntegral, MainSolve, Map, MapAll, MapAt, MatchQ, %
4509 MatrixForm, MatrixQ, Max, MaxBend, MaxMemoryUsed, MemberQ, %
4510 MemoryConstrained, MemoryInUse, Mesh, Message, MessageName, Messages, %
4511 Min, Minors, Minus, Mod, Modulus, MoebiusMu, Multinomial, N, NameQ, Names, %
4512 NBernoulliB, Needs, Negative, Nest, NestList, NIntegrate, %
4513 NonCommutativeMultiply, NonConstants, NonNegative, Normal, Not, %
4514 NProduct, NSum, NullSpace, Number, NumberForm, NumberPoint, NumberQ, %
4515 NumberSeparator, Numerator, O, OddQ, Off, On, OpenAppend, OpenRead, %
4516 OpenTemporary, OpenWrite, Operate, Optional, Options, Or, Order, %
4517 OrderedQ, Out, Outer, OutputForm, PageHeight, PageWidth, %
4518 ParametricPlot, ParametricPlot3D, Part, Partition, PartitionsP, %
4519 PartitionsQ, Pattern, Permutations, Plot, Plot3D, PlotDivision, %
4520 PlotJoined, PlotLabel, PlotPoints, PlotRange, PlotStyle, Pochhammer, %
4521 Plus, Point, PointSize, PolyGamma, Polygon, PolyLog, PolynomialQ, %

```

4522 PolynomialQuotient,PolynomialRemainder,Position,Positive,Postfix,%
4523 Power,PowerMod,PrecedenceForm,Precision,PreDecrement,Prefix,%
4524 PreIncrement,Prepend,PrependTo,Prime,PrimeQ,Print,PrintForm,%
4525 Product,Protect,PseudoInverse,Put,PutAppend,Quartics,Quit,%
4526 Quotient,Random,Range,Rational,Rationalize,Raw,Re,Read,ReadList,%
4527 Real,Rectangle,Reduce,Remove,RenderAll,Repeated,RepeatedNull,%
4528 Replace,ReplaceAll,ReplaceRepeated,Rest,Resultant,Return,Reverse,%
4529 RGBColor,Roots,RotateLeft,RotateRight,Round,RowReduce,Rule,%
4530 RuleDelayed,Run,RunThrough,SameQ,Save,Scaled,Scan,ScientificForm,%
4531 Sec,Sech,SeedRandom,Select,Sequence,SequenceForm,Series,%
4532 SeriesData,Set,SetAttributes,SetDelayed,SetOptions,Shading,Share,%
4533 Short,Show,Sign,Signature,Simplify,Sin,SingularValues,Sinh,%
4534 Skeleton,Slot,SlotSequence,Solve,SolveAlways,Sort,%
4535 SphericalHarmonicY,Splice,Sqrt,StirlingS1,StirlingS2,String,%
4536 StringBreak,StringForm,StringJoin,StringLength,StringMatchQ,%
4537 StringSkeleton,Subscript,Subscripted,Subtract,SubtractForm,Sum,%
4538 Superscript,SurfaceGraphics,Switch,Symbol,Table,TableForm,TagSet,%
4539 TagSetDelayed,TagUnset,Take,Tan,Tanh,ToString,TensorRank,TeXForm,%
4540 Text,TextForm,Thickness,Thread,Through,Throw,Ticks,%
4541 TimeConstrained,Times,TimesBy,Timing,ToExpression,Together,%
4542 ToRules,ToString,TotalHeight,TotalWidth,Transpose,TreeForm,TrueQ,%
4543 Unequal,Union,Unique,Unprotect,Unset,Update,UpSet,UpSetDelayed,%
4544 ValueQ,Variables,VectorQ,ViewPoint,WeierstrassP,%
4545 WeierstrassPPrime,Which,While,WorkingPrecision,Write,WriteString,%
4546 Xor,ZeroTest,Zeta},%
4547 morendkeywords={All,Automatic,Catalan,ComplexInfinity,Constant,%
4548 Degree,E,EndOfFile,EulerGamma,False,Flat,GoldenRatio,HoldAll,%
4549 HoldFirst,HoldRest,I,Indeterminate,Infinity,Listable,Locked,%
4550 Modular,None,Null,OneIdentity,Orderless,Pi,Protected,%
4551 ReadProtected,True,$CommandLine,$Context,$ContextPath,$Display,%
4552 $DisplayFunction,$Echo,$Epilog,$IgnoreEOF,$Line,$Messages,%
4553 $Output,$Path,$Post,$Pre,$PrePrint,$RecursionLimit,$System,%
4554 $Urgent,$Version},%
4555 sensitive,%
4556 morecomment=[s]{(*)},%
4557 morestring=[d]"%
4558 }[keywords,comments,strings]%
4559 </lang1>

```

2.44 Mercury

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

```

4560 <*lang2>
4561 %%
4562 %% Mercury definition (c) 1997 Dominique de Waleffe
4563 %% Extended (c) 2001 Ralph Becket
4564 %%

```

```

4565 \lst@definlanguage{Mercury}%
4566   {otherkeywords={:,->,->->,->->,->->,->->,->->,->->,->->},%
4567     morekeywords={module,include_module,import_module,interface,%
4568       end_module,implementation,mode,is,failure,semidet,nondet,det,%
4569       multi,erroneous,inst,in,out,di,uo,ui,type,typeclass,instance,%
4570       where,with_type,pred,func,lambda,impure,semipure,if,then,else,%
4571       some,all,not,true,fail,pragma,memo,no_inline,inline,loop_check,%
4572       minimal_model,fact_table,type_spec,terminates,does_not_terminate,%
4573       check_termination,promise_only_solution,unsafe_promise_unique,%
4574       source_file,obsolete,import,export,c_header_code,c_code,%
4575       foreign_code,foreign_proc,may_call_mercury,will_not_call_mercury,%
4576       thread_safe,not_thread_safe},%
4577     sensitive=t,%
4578     morecomment=[l]\%,%
4579     morecomment=[s]{/*}{*/},%
4580     morestring=[bd]" ,%
4581     morestring=[bd]' %
4582   }[keywords,comments,strings]%
4583 </lang2>

```

2.45 MetaPost

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

```

4584 <*lang3>
4585 %%
4586 %% MetaPost definition (c) 2004 Brooks Moses
4587 %% This definition is based on the language specifications
4588 %% contained in the _User's Manual for Metapost_, with the core
4589 %% language enhancements that are described in the _Drawing
4590 %% Graphs with MetaPost_ documentation.
4591 %%
4592 \lst@definlanguage{MetaPost}%
4593   {% keywords[1] = MetaPost primitives (not found in following tables)
4594     morekeywords={end,begingroup,endgroup,beginfig,endfig,def,vardef,%
4595       primary,secondary,tertiary,primarydef,secondarydef,tertiarydef,%
4596       expr,suffix,text,endif,fi,else,elseif,for,forsuffixes,%
4597       forever,endfor,upto,downto,stop,until,tension,controls,on,off,%
4598       btex,etex,within,input},
4599     % keywords[2] = Operators (Tables 6-9 in MetaPost User's manual)
4600     morekeywords=[2]{abs,and,angle,arclength,arctime,ASCII,bbox,bluepart,%
4601       boolean,bot,ceiling,center,char,color,cosd,cutafter,cutbefore,%
4602       cycle,decimal,dir,direction,directionpoint,directiontime,div,%
4603       dotprod,floor,fontsize,greenpart,hex,infon,intersectionpoint,%
4604       intersectiontimes,inverse,known,length,lft,llcorner,lrcorner,%
4605       makepath,makepen,mexp,mlog,mod,normaldeviate,not,numeric,oct,%
4606       odd,or,pair,path,pen,penoffset,picture,point,postcontrol,%
4607       precontrol,redpart,reverse,rotated,round,rt,scaled,shifted,%

```

```

4608     sind,slanted,sqrt,str,string,subpath,substring,top,transform,%
4609     transformed,ulcorner,uniformdeviate,unitvector,unknown,%
4610     urcorner,whatever,xpart,xscaled,xxpart,ypart,yscaled,%
4611     yxpart,yypart,zscaled,of,reflectedabout,rotatedaround,ulft,urt,%
4612     llft,lrt,readfrom,write,stroked,filled,textual,clipped,bounded,%
4613     pathpart,penpart,dashpart,txtpart,fontpart},%
4614 % keywords[3] = Commands (Table 10)
4615 morekeywords=[3]{addto,clip,cutdraw,draw,drawarrow,drawdblarrow,%
4616     fill,filldraw,interim,let,loggingall,newinternal,pickup,%
4617     save,setbounds,shipout,show,showdependencies,showtoken,%
4618     showvariable,special,tracingall,tracingnone,undraw,unfill,%
4619     unfilldraw,to,also,contour,doublepath,withcolor,withpen,%
4620     dashed,randomseed},%
4621 % keywords[4] = Function-Like Macros (Table 11)
4622 morekeywords=[4]{boxit,boxjoin,bpath,buildcycle,circleit,dashpattern,%
4623     decr,dotlabel,dotlabels,drawboxed,drawboxes,drawoptions,%
4624     drawunboxed,fixpos,fixsize,incr,interpath,label,labels,max,min,pic,%
4625     thelabel,z,image},%
4626 % keywords[5] = Internal and Predefined Variables (Tables 3, 4)
4627 morekeywords=[5]{ahangle,ahlength,bboxmargin,charcode,circmargin,%
4628     day,defaultdx,defaultdy,defaultpen,defaultscale,labeloffset,%
4629     linecap,linejoin,miterlimit,month,pausing,prologues,showstopping,%
4630     time,tracingcapsules,tracingchoices,tracingcommands,%
4631     tracingequations,tracinglostchars,tracingmacros,tracingonline,%
4632     tracingoutput,tracingrestores,tracingspecs,tracingstats,%
4633     tracingtitles,truecorners,warningcheck,year},
4634 morekeywords=[5]{background,currentpen,currentpicture,cuttings,%
4635     defaultfont},%
4636 % keywords[6] = Predefined Constants (Table 5)
4637 morekeywords=[6]{beveled,black,blue,bp,butt,cc,cm,dd,ditto,down,%
4638     epsilon,evenly,false,fullcircle,green,halfcircle,identity,%
4639     in,infinity,left,mitered,mm,nullpicture,origin,pc,pencircle,%
4640     pt,quartercircle,red,right,rounded,squared,true,unitsquare,%
4641     up,white,withdots},
4642 sensitive=false,%
4643 alsoother={0123456789$},%
4644 morecomment=[1]\%,%
4645 morestring=[mf]{input\ },%
4646 morestring=[b]"%
4647 }[keywords,comments,strings,mf]%
4648  $$ 
```

2.46 Miranda

Thanks to Peter Bartke for providing the definition.

```

4649  $4650 %%
4651 %% Miranda definition (c) 1998 Peter Bartke$ 
```

```

4652 %%
4653 %% Miranda: pure lazy functional language with polymorphic type system,
4654 %%         garbage collection and functions as first class citizens
4655 %%
4656 \lst@definlanguage{Miranda}%
4657 {morekeywords={abstype,div,if,mod,otherwise,readvals,show,type,where,%
4658     with,bool,char,num,sys_message,False,True,Appendfile,Closefile,%
4659     Exit,Stderr,Stdout,System,Tofile,\%include,\%export,\%free,%
4660     \%insert,abs,and,arctan,cjustify,code,concat,const,converse,cos,%
4661     decode,digit,drop,dropwhile,entier,error,exp,filemode,filter,%
4662     foldl,foldl1,foldr,foldr1,force,fst,getenv,hd,hugenum,id,index,%
4663     init,integer,iterate,last,lay,laln,letter,limit,lines,ljustify,%
4664     log,log10,map,map2,max,max2,member,merge,min,min2,mkset,neg,%
4665     numval,or,pi,postfix,product,read,rep,repeat,reverse,rjustify,%
4666     scan,seq,showfloat,shownum,showscaled,sin,snd,sort,spaces,sqrt,%
4667     subtract,sum,system,take,takewhile,tinyum,tl,transpose,undef,%
4668     until,zip2,zip3,zip4,zip5,zip6,zip},%
4669     sensitive,%
4670     morecomment=[1]||,%
4671     morestring=[b]"%
4672 }[keywords,comments,strings]%
4673 </lang2>

```

2.47 Mizar

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

```

4674 <*lang3>
4675 %%
4676 %% Mizar definition (c) 2003 Adam Grabowski
4677 %%
4678 %% Mizar is freely available at URL www.mizar.org for the Linux x86,
4679 %% Solaris x86, and Windows operating systems.
4680 %%
4681 \lst@definlanguage{Mizar}%
4682 {otherkeywords={->,( \# , \# ), . = ), \&} , %
4683     morekeywords={vocabulary,constructors,$1,$1,$2,$3,$4,$5,$6,$7,$8,%
4684     @proof,according,aggregate,and,antonym,as,associativity,assume,%
4685     asymmetry,attr,be,begin,being,by,canceled,case,cases,cluster,%
4686     clusters,coherence,commutativity,compatibility,connectedness,%
4687     consider,consistency,constructors,contradiction,correctness,def,%
4688     deffunc,define,definition,definitions,defpred,end,environ,equality,%
4689     ex,exactly,existence,for,from,func,given,hence,hereby,holds,%
4690     idempotence,if,iff,implies,involutiveness,irreflexivity,is,it,%
4691     let,means,mode,non,not,notation,now,of,or,otherwise,over,per,%
4692     pred,prefix,projectivity,proof,provided,qua,reconsider,redefine,%
4693     reflexivity,requirements,reserve,scheme,schemes,section,selector,%
4694     set,st,struct,such,suppose,symmetry,synonym,take,that,the,then,%
4695     theorem,theorems,thesis,thus,to,transitivity,uniqueness,%

```

```

4696     vocabulary,where},%
4697     sensitive=t,%
4698     morecomment=[l]:;%
4699 }[keywords,comments]%
4700 </lang3>

```

2.48 ML

Thanks to Torben Hoffmann for providing the definition.

```

4701 <*lang2>
4702 %%
4703 %% ML definition (c) 1999 Torben Hoffmann
4704 %%
4705 \lst@definlanguage{ML}%
4706 {morekeywords={abstype,and,andalso,as,case,do,datatype,else,end,%
4707     eqtype,exception,fn,fun,functor,handle,if,in,include,infix,%
4708     infixr,let,local,nonfix,of,op,open,orelse,raise,rec,sharing,sig,%
4709     signature,struct,structure,then,type,val,with,withtype,while},%
4710     sensitive,%
4711     morecomment=[n]{(*){(*)},%
4712     morestring=[d]"%
4713 }[keywords,comments,strings]%
4714 </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.

```

4715 <*lang3>
4716 \lst@definlanguage{Modula-2}%
4717 {morekeywords={AND,ARRAY,BEGIN,BY,CASE,CONST,DIV,DO,ELSE,ELSIF,END,%
4718     EXIT,EXPORT,FOR,FROM,IF,IMPLEMENTATION,IMPORT,IN,MOD,MODULE,NOT,%
4719     OF,OR,POINTER,PROCEDURE,QUALIFIED,RECORD,REPEAT,RETURN,SET,THEN,%
4720     TYPE,UNTIL,VAR,WHILE,WITH,ABS,BITSET,BOOLEAN,CAP,CARDINAL,CHAR,%
4721     CHR,DEC,EXCL,FALSE,FLOAT,HALT,HIGH,INC,INCL,INTEGER,LONGCARD,%
4722     LONGINT,LONGREAL,MAX,MIN,NIL,ODD,ORD,PROC,REAL,SIZE,TRUE,TRUNC,%
4723     VAL,DEFINITION,LOOP},% added keywords due to Peter Bartke 99/07/22
4724     sensitive,%
4725     morecomment=[n]{(*){(*)},%
4726     morestring=[d]' ,%
4727     morestring=[d]"%
4728 }[keywords,comments,strings]%
4729 </lang3>

```

2.50 MuPAD

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

```
4730 ⟨*lang3⟩
4731 \lst@definelanguage{MuPAD}{%
4732   morekeywords={end,next,break,if,then,elif,else,end_if,case,end_case,%
4733     otherwise,for,from,to,step,downto,in,end_for,while,end_while,%
4734     repeat,until,end_repeat,or,and,not,xor,div,mod,union,minus,%
4735     intersect,subset,proc,begin,end_proc,domain,end_domain,category,%
4736     end_category,axiom,end_axiom,quit,delete,frame},%
4737   morekeywords=[2]{NIL,FAIL,TRUE,FALSE,UNKNOWN,I,RD_INF,RD_NINF,%
4738     RD_NAN,name,local,option,save,inherits,of,do},%
4739   otherkeywords={\%if,?,!,:=,<,>,<=>,<>,>=>,<=>,:,:,...,->,%
4740     @,@@,\$},%
4741   sensitive=true,%
4742   morecomment=[1]{//},%
4743   morecomment=[n]{/*}{*/},%
4744   morestring=[b]" ,%
4745   morestring=[d]{ '%
4746 }[keywords,comments,strings]
4747 ⟨/lang3⟩
```

2.51 NASTRAN

```
4748 ⟨*lang3⟩
4749 The definition is from Jeffrey Ratcliffe—except the MoreSelectCharTable part
4750 which simulates the keyword BEGIN BULK.
4751 \lst@definelanguage{NASTRAN}
4752 {morekeywords={ENDDATA},%
4753   morecomment=[1]$,%
4754   MoreSelectCharTable=%
4755     \lst@CargX BEGIN\ BULK\relax\lst@CDef{}%
4756     {\lst@ifmode\else \ifnum\lst@length=\z@
4757       \lst@EnterMode{\lst@GPmode}{\lst@modetrue
4758         \let\lst@currstyle\lst@gkeywords@sty}%
4759       \fi \fi}%
4760     {\ifnum\lst@mode=\lst@GPmode
4761       \lst@XPrintToken \lst@LeaveMode
4762       \fi}%
4763 }[keywords,comments]%
4764 ⟨/lang3⟩
```

2.52 Oberon-2

```
4765 ⟨*lang3⟩
4766 \lst@definelanguage{Oberon-2}%
4767 {morekeywords={ARRAY,BEGIN,BOOLEAN,BY,CASE,CHAR,CONST,DIV,DO,ELSE,%
```



```

4766     ELSIF,END,EXIT,FALSE,FOR,IF,IMPORT,IN,INTEGER,IS,LONGINT,%
4767     LONGREAL,LOOP,MOD,MODULE,NIL,OF,OR,POINTER,PROCEDURE,REAL,RECORD,%
4768     REPEAT,RETURN,SET,SHORTINT,THEN,TO,TRUE,TYPE,UNTIL,VAR,WHILE,%
4769     WITH,ABS,ASH,CAP,CHR,COPY,DEC,ENTIER,EXCL,HALT,INC,INCL,LEN,LONG,%
4770     MAX,MIN,NEW,ODD,ORD,SHORT,SIZE},%
4771     sensitive,%
4772     morecomment=[n]{(*){*}},%
4773     morestring=[d]',%
4774     morestring=[d]"%
4775 }[keywords,comments,strings]%
4776 </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.

```

4777 <*lang3>
4778 %%
4779 %% OCL definition (c) 2000 Achim D. Brucker
4780 %%
4781 %% You are allowed to use, modify and distribute this code either under
4782 %% the terms of the LPPL (version 1.0 or later) or the GPL (version 2.0
4783 %% or later).
4784 %%

```

First we define are 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).

```

4785 \lst@definlanguage[decorative]{OCL}[OMG]{OCL}
4786 {otherkeywords=@pre},%
4787 moreendkeywords={name,attributes,associatoinEnds,operations,%
4788     supertypes,allSupertypes,allInstances,oclIsKindOf,oclIsTypeOf,%
4789     oclAsType,oclInState,oclIsNew,evaluationType,abs,floor,round,max,%
4790     min,div,mod,size,concat,toUpper,toLower,substring,includes,%
4791     excludes,count,includesAll,excludesAll,isEmpty,notEmpty,sum,%
4792     exists,forAll,isUnique,sortedBy,iterate,union,intersection,%
4793     including,excluding,symmetricDifference,select,reject,collect,%
4794     asSequence,asBag,asSequence,asSet,append,prepend,subSequence,at,%
4795     first,last,true,false,isQuery}%
4796 }%

```

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):

```
4797 \lst@definlanguage [OMG] {OCL}%  
4798     {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):

```
4799     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:

```
4800     morekeywords=[3]{Boolean,Integer,Real,String,Set,Sequence,Bag,%  
4801         OclType,OclAny,OclExpression,Enumeration,Collection,},%  
4802     sensitive=t,%  
4803     morecomment=[1]--,%  
4804     morestring=[d] '%  
4805     }[keywords,comments,strings]%
```

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

```
4806 </lang3>
```

2.54 Octave

```
4807 <*lang1>
```

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

```
4808 %%  
4809 %% Octave definition (c) 2001,2002 Ulrich G. Wortmann  
4810 %%  
4811 \lst@definlanguage{Octave}%  
4812     {morekeywords={gt,lt,amp,abs,acos,acosh,acot,acoth,acsc,acsch,%  
4813         all,angle,ans,any,asec,asech,asin,asinh,atan,atan2,atanh,auread,%  
4814         auwrite,axes,axis,balance,bar,bessel,besselk,bessely,beta,%  
4815         betainc,betaln,blanks,bone,break,brighten,capture,card2pol,%  
4816         card2sph,caxis,cd,cdf2rdf,cedit,ceil,chol,cla,clabel,clc,clear,%  
4817         clf,clock,close,colmmd,Colon,colorbar,colormap,ColorSpec,colperm,%  
4818         comet,comet3,compan,compass,computer,cond,condest,conj,contour,%  
4819         contour3,contourc,contrast,conv,conv2,cool,copper,corrcoef,cos,%  
4820         cosh,cot,coth,cov,cplxpair,cputime,cross,csc,csch,csvread,%  
4821         csvwrite,cumprod,cumsum,cylinder,date,dbclean,dbcont,dbdown,%  
4822         dbquit,dbstack,dbstatus,dbstep,dbstop,dbtype,dbup,ddeadv,ddeexec,%  
4823         ddeinit,ddepoke,ddereq,ddeterm,ddeunadv,deblank,dec2hex,deconv,%  
4824         del2,delete,demo,det,diag,diary,diff,diffuse,dir,disp,dlmread,%  
4825         dlmwrite,dmperm,dot,drawnow,echo,eig,ellipj,ellipke,else,elseif,%  
4826         end,engClose,engEvalString,engGetFull,engGetMatrix,engOpen,%  
4827         engOutputBuffer,engPutFull,engPutMatrix,engSetEvalCallback,%  
4828         engSetEvalTimeout,engWinInit,eps,erf,erfc,erfcx,erfinv,%
```

```

4829     errorbar,etime,etree,eval,exist,exp,expint,expm,expo,eye,fclose,%
4830     feather,feof,ferror,feval,fft,fft2,fftshift,fgetl,fgets,figure,%
4831     fill,fill3,filter,filter2,find,findstr,finite,fix,flag,fliplr,%
4832     flipud,floor,flops,fmin,fmins,fopen,for,format,fplot,fprintf,%
4833     fread,frewind,fscanf,fseek,ftell,full,function,funm,fwrite,fzero,%
4834     gallery,gamma,gammainc,gammaln,gca,gcd,gcf,gco,get,getenv,%
4835     getframe,ginput,global,gplot,gradient,gray,graymon,grid,griddata,%
4836     gtext,hadamard,hankel,help,hess,hex2dec,hex2num,hidden,hilb,hist,%
4837     hold,home,hostid,hot,hsv,hsv2rgb,if,iff,iff2,imag,image,%
4838     imagesc,Inf,info,input,int2str,interp1,interp2,interpft,inv,%
4839     invhilb,isempty,isglobal,ishold,isieee,isinf,isletter,isnan,%
4840     isreal,isspace,issparse,isstr,jet,keyboard,kron,lasterr,lcm,%
4841     legend,legendre,length,lin2mu,line,linspace,load,log,log10,log2,%
4842     loglog,logm,logspace,lookfor,lower,ls,lscov,lu,magic,matClose,%
4843     matDeleteMatrix,matGetDir,matGetFp,matGetFull,matGetMatrix,%
4844     matGetNextMatrix,matGetString,matlabrc,matlabroot,matOpen,%
4845     matPutFull,matPutMatrix,matPutString,max,mean,median,menu,mesh,%
4846     meshc,meshgrid,meshz,mexAtExit,mexCallMATLAB,mexdebug,%
4847     mexErrMsgTxt,mexEvalString,mexFunction,mexGetFull,mexGetMatrix,%
4848     mexGetMatrixPtr,mexPrintf,mexPutFull,mexPutMatrix,mexSetTrapFlag,%
4849     min,more,movie,moviein,mu2lin,mxMalloc,mxCopyCharacterToPtr,%
4850     mxCopyComplex16ToPtr,mxCopyInteger4ToPtr,mxCopyPtrToCharacter,%
4851     mxCopyPtrToComplex16,mxCopyPtrToInteger4,mxCopyPtrToReal8,%
4852     mxCopyReal8ToPtr,mxCreateFull,mxCreateSparse,mxCreateString,%
4853     mxFree,mxFreeMatrix,mxGetIr,mxGetJc,mxGetM,mxGetN,mxGetName,%
4854     mxGetNzmax,mxGetPi,mxGetPr,mxGetScalar,mxGetString,mxIsComplex,%
4855     mxIsFull,mxIsNumeric,mxIsSparse,mxIsString,mxIsTypeDouble,%
4856     mxSetIr,mxSetJc,mxSetM,mxSetN,mxSetName,mxSetNzmax,mxSetPi,%
4857     mxSetPr,NaN,nargchk,nargin,nargout,newplot,nextpow2,nls,nnz,%
4858     nonzeros,norm,normest,null,num2str,nzmax,ode23,ode45,orient,orth,%
4859     pack,pascal,patch,path,pause,pcolor,pi,pink,pinv,plot,plot3,%
4860     pol2cart,polar,poly,polyder,polyeig,polyfit,polyval,polyvalm,%
4861     pow2,print,printopt,prism,prod,pwd,qr,qrdelete,qrinsert,quad,%
4862     quad8,quit,quiver,qz,rand,randn,randperm,rank,rat,rats,rbbox,%
4863     rcond,real,realmax,realmin,refresh,rem,reset,reshape,residue,%
4864     return,rgb2hsv,rgbplot,rootobject,roots,rose,rosser,rot90,rotate,%
4865     round,rref,rrefmovie,rsf2csf,save,saxis,schur,sec,sech,semilogx,%
4866     semilogy,set,setstr,shading,sign,sin,sinh,size,slice,sort,sound,%
4867     spalloc,sparse,spaugment,spconvert,spdiags,specular,speye,spfun,%
4868     sph2cart,sphere,spinmap,spline,spones,spparms,sprandn,sprandsym,%
4869     sprank,sprintf,spy,sqrt,sqrtm,sscanf,stair,stairs,startup,std,stem,%
4870     str2mat,str2num,strcmp,strings,strrep,strtok,subplot,subscribe,%
4871     subspace,sum,surf,surface,surfc,surfl,surfnorm,svd,symbfact,%
4872     symmmd,symrcm,tan,tanh,tempdir,tempname,terminal,text,tic,title,%
4873     toc,toeplitz,trace,trapz,tril,triu,type,uicontrol,uigetfile,%
4874     uimenu,uiputfile,unix,unwrap,upper,vander,ver,version,view,%
4875     viewmtx,waitforbuttonpress,waterfall,wavread,wavwrite,what,%
4876     whatsnew,which,while,white,whitebg,who,whos,wilkinson,wk1read,%
4877     stderr,stdout,plot,set,endif,wk1write,xlabel,xor,ylabel,zeros,%
4878     xlabel,zoom,endwhile,endfunction,printf,case,switch,otherwise,%

```

```

4879     system,lsode,endfor,error,ones,oneplot,___gnuplot_set___,do,until},%
4880     sensitive=t,%
4881     morecomment=[l]\#,%
4882     morecomment=[l]\#\#,%
4883     morecomment=[l]\%,%
4884     morestring=[m]',%
4885     morestring=[m]"%
4886   }[keywords,comments,strings]%
4887 </lang1>

```

2.55 Oz

```
4888 <*lang2>
```

Thanks to Andres Becerra Sandoval for providing this language definition.

```

4889 %%
4890 %% Oz definition (c) Andres Becerra Sandoval
4891 %%
4892 \lst@definlanguage{Oz}%
4893 {morekeywords={andthen,at,attr,case,catch,choice,class,%
4894     cond,declare,define,dis,div,else,elsecase,%
4895     elseif,end,export,fail,false,feat,finally,%
4896     from,fun,functor,if,import,in,local,%
4897     lock,meth,mod,not,of,or,orelse,%
4898     prepare,proc,prop,raise,require,self,skip,%
4899     then,thread,true,try,unit},%
4900     sensitive=true,%
4901     morecomment=[l]{\},%
4902     morecomment=[s]{/*}{*/},%
4903     morestring=[b]",%
4904     morestring=[d]}'%
4905   }[keywords,comments,strings]%
4906 </lang2>

```

2.56 Pascal

```
4907 <*lang1>
```

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

```

4908 \lst@definlanguage[XSC]{Pascal}[Standard]{Pascal}
4909 {deletekeywords={alfa,byte,pack,unpack},% 1998 Andreas Stephan
4910     morekeywords={dynamic,external,forward,global,module,nil,operator,%
4911     priority,sum,type,use,dispose,mark,page,release,cimatrix,%
4912     cinterval,civector,cmatrix,complex,cvector,dotprecision,imatrix,%
4913     interval,ivector,rmatrix,rvector,string,im,inf,re,sup,chr,comp,%
4914     eof,eoln,expo,image,ival,lb,lbound,length,loc,mant,maxlength,odd,%
4915     ord,pos,pred,round,rval,sign,substring,succ,trunc,ub,ubound}%
4916   }%
4917 \lst@definlanguage[Borland6]{Pascal}[Standard]{Pascal}
4918 {morekeywords={asm,constructor,destructor,implementation,inline,%

```

```

4919     interface,nil,object,shl,shr,string,unit,uses,xor},%
4920 morendkeywords={Abs,Addr,ArcTan,Chr,Concat,Copy,Cos,CSeg,DiskFree,%
4921 DiskSize,DosExitCode,DosVersion,DSeg,EnvCount,EnvStr,Eof,Eoln,%
4922 Exp,FExpand,FilePos,FileSize,Frac,FSearch,GetBkColor,GetColor,%
4923 GetDefaultPalette,GetDriverName,GetEnv,GetGraphMode,GetMaxMode,%
4924 GetMaxX,GetMaxY,GetModeName,GetPaletteSize,GetPixel,GetX,GetY,%
4925 GraphErrorMsg,GraphResult,Hi,ImageSize,InstallUserDriver,%
4926 InstallUserFont,Int,IOResult,KeyPressed,Length,Lo,MaxAvail,%
4927 MemAvail,MsDos,Odd,Ofs,Ord,OvrGetBuf,OvrGetRetry,ParamCount,%
4928 ParamStr,Pi,Pos,Pred,Ptr,Random,ReadKey,Round,SeekEof,SeekEoln,%
4929 Seg,SetAspectRatio,Sin,SizeOf,Sound,SPtr,Sqr,Sqrt,SSeg,Succ,%
4930 Swap,TextHeight,TextWidth,Trunc,TypeOf,UpCase,WhereX,WhereY,%
4931 Append,Arc,Assign,AssignCrt,Bar,Bar3D,BlockRead,BlockWrite,ChDir,%
4932 Circle,ClearDevice,ClearViewPort,Close,CloseGraph,ClrEol,ClrScr,%
4933 Dec,Delay,Delete,Delline,DetectGraph,Dispose,DrawPoly,Ellipse,%
4934 Erase,Exec,Exit,FillChar,FillEllipse,FillPoly,FindFirst,FindNext,%
4935 FloodFill,Flush,FreeMem,FSplit,GetArcCoords,GetAspectRatio,%
4936 GetDate,GetDefaultPalette,GetDir,GetCBreak,GetFAttr,%
4937 GetFillSettings,GetFTime,GetImage,GetIntVec,GetLineSettings,%
4938 GetMem,GetPalette,GetTextSettings,GetTime,GetVerify,%
4939 GetViewSettings,GoToXY,Halt,HighVideo,Inc,InitGraph,Insert,%
4940 InsLine,Intr,Keep,Line,LineRel,LineTo,LowVideo,Mark,MkDir,Move,%
4941 MoveRel,MoveTo,MsDos,New,NormVideo,NoSound,OutText,OutTextXY,%
4942 OvrClearBuf,OvrInit,OvrInitEMS,OvrSetBuf,PackTime,PieSlice,%
4943 PutImage,PutPixel,Randomize,Rectangle,Release,Rename,%
4944 RestoreCrtMode,Rmdir,RunError,Sector,Seek,SetActivePage,%
4945 SetAllPalette,SetBkColor,SetCBreak,SetColor,SetDate,SetFAttr,%
4946 SetFillPattern,SetFillStyle,SetFTime,SetGraphBufSize,%
4947 SetGraphMode,SetIntVec,SetLineStyle,SetPalette,SetRGBPalette,%
4948 SetTextBuf,SetTextJustify,SetTextStyle,SetTime,SetUserCharSize,%
4949 SetVerify,SetViewPort,SetVisualPage,SetWriteMode,Sound,Str,%
4950 SwapVectors,TextBackground,TextColor,TextMode,Truncate,%
4951 UnpackTime,Val,Window}%
4952 }%
4953 \lst@definlanguage [Standard] {Pascal}%
4954 {morekeywords={alfa,and,array,begin,boolean,byte,case,char,const,div,%
4955 do,downto,else,end,false,file,for,function,get,goto,if,in,%
4956 integer,label,maxint,mod,new,not,of,or,pack,packed,page,program,%
4957 put,procedure,read,readln,real,record,repeat,reset,rewrite,set,%
4958 text,then,to,true,type,unpack,until,var,while,with,write,%
4959 writeln},%
4960 sensitive=f,%
4961 morecomment=[s]{(*){(*)},%
4962 morecomment=[s]{\}{\},%
4963 morestring=[d]}'%
4964 }[keywords,comments,strings]%
4965 </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'.

```
4966 <*lang1>
4967 \lst@definlanguage{Perl}%
4968   {morekeywords={abs,accept,alarm,atan2,bind,binmode,bless,caller,%
4969     chdir,chmod,chomp,chop,chown,chr,chroot,close,closedir,connect,%
4970     continue,cos,crypt,dbmclose,dbmopen,defined,delete,die,do,dump,%
4971     each,else,elsif,endgrent,endhostent,endnetent,endprotoent,%
4972     endpwent,endservent,eof,eval,exec,exists,exit,exp,fcntl,fileno,%
4973     flock,for,foreach,fork,format,formline,getc,getgrent,getgrgid,%
4974     getgrnam,gethostbyaddr,gethostbyname,gethostent,getlogin,%
4975     getnetbyaddr,getnetbyname,getnetent,getpeername,getpgrp,%
4976     getppid,getpriority,getprotobyname,getprotobynumber,getprotoent,%
4977     getpwent,getpwnam,getpwuid,getservbyname,getservbyport,%
4978     getservent,getsockname,getsockopt,glob,gmtime,goto,grep,hex,if,%
4979     import,index,int,iocctl,join,keys,kill,last,lc,lcfirst,length,%
4980     link,listen,local,localtime,log,lstat,m,map,mkdir,msgctl,msgget,%
4981     msgrcv,msgsnd,my,next,no,oct,open,opendir,ord,pack,package,pipe,%
4982     pop,pos,print,printf,prototype,push,q,qq,quotemeta,qw,qx,rand,%
4983     read,readdir,readlink,recv,redo,ref,rename,require,reset,return,%
4984     reverse,rewinddir,rindex,rmdir,s,scalar,seek,seekdir,select,%
4985     semctl,semget,semop,send,setgrent,sethostent,setnetent,setpgrp,%
4986     setpriority,setprotoent,setpwent,setservent,setsockopt,shift,%
4987     shmctl,shmget,shmread,shmwrite,shutdown,sin,sleep,socket,%
4988     socketpair,sort,splice,split,sprintf,sqrt,srand,stat,study,sub,%
4989     substr,symlink,syscall,sysopen,sysread,system,syswrite,tell,%
4990     telldir,tie,tied,time,times,tr,truncate,uc,ucfirst,umask,undef,%
4991     unless,unlink,unpack,unshift,untie,until,use,utime,values,vec,%
4992     wait,waitpid,wantarray,warn,while,write,y},%
4993   sensitive,%
4994   morecomment=[l]\#,%
4995   morestring=[b]" ,%
4996   morestring=[b]' ,%
4997   MoreSelectCharTable=%
4998     \lst@ReplaceInput{\$\#}{\lst@ProcessOther\$\lst@ProcessOther\#}%
4999 }[keywords,comments,strings]%
5000 </lang1>
```

2.58 PHP

Luca Balzerani sent me this language definition.

```
5001 <*lang2>
5002 %%
5003 %% PHP definition by Luca Balzerani
5004 %%
5005 \lst@definlanguage{PHP}%
```

```

5006 {morekeywords={%
5007 %--- core language
5008 <?,?>,::,break,case,continue,default,do,else,%
5009 elseif,for,foreach,if,include,require,phpinfo,%
5010 switch,while,false,FALSE,true,TRUE,%
5011 %--- apache functions
5012 apache_lookup_uri,apache_note,ascii2ebcdic,ebcdic2ascii,%
5013 virtual,apache_child_terminate,apache_setenv,%
5014 %--- array functions
5015 array,array_change_key_case,array_chunk,array_count_values,%
5016 array_filter,array_flip,array_fill,array_intersect,%
5017 array_keys,array_map,array_merge,array_merge_recursive,%
5018 array_pad,array_pop,array_push,array_rand,array_reverse,%
5019 array_shift,array_slice,array_splice,array_sum,array_unique,%
5020 array_values,array_walk,arsort,asort,compact,count,current,each,%
5021 extract,in_array,array_search,key,krsort,ksort,list,natsort,%
5022 next,pos,prev,range,reset,rsort,shuffle,sizeof,sort,uasort,%
5023 usort,%
5024 %--- aspell functions
5025 aspell_new,aspell_check,aspell_check_raw,aspell_suggest,%
5026 %--- bc functions
5027 bcadd,bccomp,bcdiv,bcmul,bcpow,bcscale,bcsqrt,bcsub,%
5028 %--- bzip2 functions
5029 bzclose,bzcompress,bzdecompress,bzerrno,bzerror,bzerrstr,%
5030 bzopen,bzread,bzwrite,%
5031 %--- calendar functions
5032 JDToGregorian,GregorianToJD,JDToJulian,JulianToJD,JDToJewish,%
5033 JDToFrench,FrenchToJD,JDMonthName,JDDayOfWeek,easter_date,%
5034 unixtojd,jdtounix,cal_days_in_month,cal_to_jd,cal_from_jd,%
5035 %--- ccvs functions
5036 ccvs_init,ccvs_done,ccvs_new,ccvs_add,ccvs_delete,ccvs_auth,%
5037 ccvs_reverse,ccvs_sale,ccvs_void,ccvs_status,ccvs_count,%
5038 ccvs_report,ccvs_command,ccvs_textvalue,%
5039 %--- classobj functions
5040 call_user_method,call_user_method_array,class_exists,get_class,%
5041 get_class_vars,get_declared_classes,get_object_vars,%
5042 is_a,is_subclass_of,method_exists,%
5043 %--- com functions
5044 COM,VARIANT,com_load,com_invoke,com_propget,com_get,com_propput,%
5045 com_set,com_addrf,com_release,com_isenum,com_load_typelib,%
5046 %--- cpdf functions
5047 cpdf_add_annotation,cpdf_add_outline,cpdf_arc,cpdf_begin_text,%
5048 cpdf_clip,cpdf_close,cpdf_closepath,cpdf_closepath_fill_stroke,%
5049 cpdf_continue_text,cpdf_curveto,cpdf_end_text,cpdf_fill,%
5050 cpdf_finalize,cpdf_finalize_page,%
5051 cpdf_import_jpeg,cpdf_lineto,cpdf_moveto,cpdf_newpath,cpdf_open,%
5052 cpdf_page_init,cpdf_place_inline_image,cpdf_rect,cpdf_restore,%
5053 cpdf_rmoveto,cpdf_rotate,cpdf_rotate_text,cpdf_save,%
5054 cpdf_scale,cpdf_set_char_spacing,cpdf_set_creator,%
5055 cpdf_set_font,cpdf_set_horiz_scaling,cpdf_set_keywords,%

```

```

5056     cpdf_set_page_animation, cpdf_set_subject, cpdf_set_text_matrix, %
5057     cpdf_set_text_rendering, cpdf_set_text_rise, cpdf_set_title, %
5058     cpdf_setdash, cpdf_setflat, cpdf_setgray, cpdf_setgray_fill, %
5059     cpdf_setlinecap, cpdf_setlinejoin, cpdf_setlinewidth, %
5060     cpdf_setrgbcolor, cpdf_setrgbcolor_fill, cpdf_setrgbcolor_stroke, %
5061     cpdf_show_xy, cpdf_stringwidth, cpdf_set_font_directories, %
5062     cpdf_set_viewer_preferences, cpdf_stroke, cpdf_text, %
5063     cpdf_set_action_url, %
5064 %--- crack functions
5065     crack_opendict, crack_closedict, crack_check, crack_getlastmessage, %
5066 %--- ctype functions
5067     ctype_alnum, ctype_alpha, ctype_cntrl, ctype_digit, ctype_lower, %
5068     ctype_print, ctype_punct, ctype_space, ctype_upper, ctype_xdigit, %
5069 %--- curl functions
5070     curl_init, curl_setopt, curl_exec, curl_close, curl_version, %
5071     curl_error, curl_getinfo, %
5072 %--- cybercash functions
5073     cybercash_encr, cybercash_decr, cybercash_base64_encode, %
5074 %--- cybermut functions
5075     cybermut_creerformulairecm, cybermut_testmac, %
5076 %--- cyrus functions
5077     cyrus_connect, cyrus_authenticate, cyrus_bind, cyrus_unbind, %
5078     cyrus_close, %
5079 %--- datetime functions
5080     checkdate, date, getdate, gettimeofday, gmdate, gmmktime, gmstrftime, %
5081     microtime, mktime, strftime, time, strtotime, %
5082 %--- dbase functions
5083     dbase_create, dbase_open, dbase_close, dbase_pack, dbase_add_record, %
5084     dbase_delete_record, dbase_get_record, %
5085     dbase_numfields, dbase_numrecords, %
5086 %--- dba functions
5087     dba_close, dba_delete, dba_exists, dba_fetch, dba_firstkey, %
5088     dba_nextkey, dba_popen, dba_open, dba_optimize, dba_replace, %
5089 %--- dbm functions
5090     dbmopen, dbmclose, dbmexists, dbmfetch, dbminsert, dbmreplace, %
5091     dbmfirstkey, dbmnextkey, dblist, %
5092 %--- dbx functions
5093     dbx_close, dbx_connect, dbx_error, dbx_query, dbx_sort, dbx_compare, %
5094 %--- dio functions
5095     dio_open, dio_read, dio_write, dio_truncate, dio_stat, dio_seek, %
5096     dio_close, %
5097 %--- dir functions
5098     chroot, chdir, dir, closedir, getcwd, opendir, readdir, rewinddir, %
5099 %--- dotnet functions
5100     dotnet_load, %
5101 %--- errorfunc functions
5102     error_log, error_reporting, restore_error_handler, %
5103     trigger_error, user_error, %
5104 %--- exec functions
5105     escapeshellarg, escapeshellcmd, exec, passthru, system, shell_exec, %

```



```

5106 %--- fbsql functions
5107     fbsql_affected_rows,fbsql_autocommit,fbsql_change_user,%
5108     fbsql_commit,fbsql_connect,fbsql_create_db,fbsql_create_blob,%
5109     fbsql_database_password,fbsql_data_seek,fbsql_db_query,%
5110     fbsql_drop_db,fbsql_errno,fbsql_error,fbsql_fetch_array,%
5111     fbsql_fetch_field,fbsql_fetch_lengths,fbsql_fetch_object,%
5112     fbsql_field_flags,fbsql_field_name,fbsql_field_len,%
5113     fbsql_field_table,fbsql_field_type,fbsql_free_result,%
5114     fbsql_list_dbs,fbsql_list_fields,fbsql_list_tables,%
5115     fbsql_num_fields,fbsql_num_rows,fbsql_pconnect,fbsql_query,%
5116     fbsql_read_clob,fbsql_result,fbsql_rollback,fbsql_set_lob_mode,%
5117     fbsql_start_db,fbsql_stop_db,fbsql_tablename,fbsql_warnings,%
5118     fbsql_get_autostart_info,fbsql_hostname,fbsql_password,%
5119     fbsql_username,%
5120 %--- fdf functions
5121     fdf_open,fdف_close,fdف_create,fdف_save,fdف_get_value,%
5122     fdf_next_field_name,fdف_set_ap,fdف_set_status,fdف_get_status,%
5123     fdf_get_file,fdف_set_flags,fdف_set_opt,%
5124     fdf_set_javascript_action,fdف_set_encoding,fdف_add_template,%
5125 %--- filepro functions
5126     filepro,filepro_fieldname,filepro_fieldtype,filepro_fieldwidth,%
5127     filepro_fieldcount,filepro_rowcount,%
5128 %--- filesystem functions
5129     basename,chmod,chgrp,chown,clearstatcache,copy,delete,dirname,%
5130     diskfreespace,disk_total_space,fclose,feof,fflush,fgetc,fgetcsv,%
5131     fgetss,file_get_contents,file,file_exists,fileatime,filectime,%
5132     fileinode,filemtime,fileowner,fileperms,filesize,filetype,flock,%
5133     fopen,fpassthru,fputs,fread,fscanf,fseek,fstat,ftell,ftruncate,%
5134     set_file_buffer,is_dir,is_executable,is_file,is_link,%
5135     is_writable,is_writeable,is_uploaded_file,link,linkinfo,mkdir,%
5136     parse_ini_file,pathinfo,pclose,popen,readfile,readlink,rename,%
5137     rmdir,stat,lstat,realpath,symlink,tempnam,tmpfile,touch,umask,%
5138 %--- fribidi functions
5139     fribidi_log2vis,%
5140 %--- ftp functions
5141     ftp_connect,ftp_login,ftp_pwd,ftp_cdup,ftp_chdir,ftp_mkdir,%
5142     ftp_nlist,ftp_rawlist,ftp_systype,ftp_pasv,ftp_get,ftp_fget,%
5143     ftp_fput,ftp_size,ftp_mdtm,ftp_rename,ftp_delete,ftp_site,%
5144     ftp_quit,ftp_exec,ftp_set_option,ftp_get_option,%
5145 %--- funchand functions
5146     call_user_func_array,call_user_func,create_function,%
5147     func_get_args,func_num_args,function_exists,%
5148     register_shutdown_function,register_tick_function,%
5149 %--- gettext functions
5150     bindtextdomain,bind_textdomain_codeset,dcgettext,dcngettext,%
5151     dgettext,gettext,ngettext,textdomain,%
5152 %--- gmp functions
5153     gmp_init,gmp_intval,gmp_strval,gmp_add,gmp_sub,gmp_mul,%
5154     gmp_div_r,gmp_div_qr,gmp_div,gmp_mod,gmp_divexact,gmp_cmp,%
5155     gmp_com,gmp_abs,gmp_sign,gmp_fact,gmp_sqrt,gmp_sqrtrem,%

```

```

5156     gmp_pow,gmp_powm,gmp_prob_prime,gmp_gcd,gmp_gcdext,gmp_invert,%
5157     gmp_jacobi,gmp_random,gmp_and,gmp_or,gmp_xor,gmp_setbit,%
5158     gmp_scan0,gmp_scan1,gmp_popcount,gmp_hamdist,%
5159 %--- http functions
5160     header,headers_sent,setcookie,%
5161 %--- hw functions
5162     hw_Array2Objrec,hw_Children,hw_ChildrenObj,hw_Close,hw_Connect,%
5163     hw_Deleteobject,hw_DocByAnchor,hw_DocByAnchorObj,%
5164     hw_Document_BodyTag,hw_Document_Content,hw_Document_SetContent,%
5165     hw_ErrorMsg,hw_EditText,hw_Error,hw_Free_Document,hw_GetParents,%
5166     hw_GetChildColl,hw_GetChildCollObj,hw_GetRemote,%
5167     hw_GetSrcByDestObj,hw_GetObject,hw_GetAndLock,hw_GetText,%
5168     hw_GetObjectByQueryObj,hw_GetObjectByQueryColl,%
5169     hw_GetChildDocColl,hw_GetChildDocCollObj,hw_GetAnchors,%
5170     hw_Mv,hw_Identify,hw_InCollections,hw_Info,hw_InsColl,hw_InsDoc,%
5171     hw_InsertObject,hw_mapid,hw_Modifyobject,hw_New_Document,%
5172     hw_Output_Document,hw_pConnect,hw_PipeDocument,hw_Root,%
5173     hw_Who,hw_getusername,hw_stat,hw_setlinkroot,hw_connection_info,%
5174     hw_insertanchors,hw_getrellink,hw_changeobject,%
5175 %--- ibase functions
5176     ibase_connect,ibase_pconnect,ibase_close,ibase_query,%
5177     ibase_fetch_row,ibase_fetch_object,ibase_field_info,%
5178     ibase_free_result,ibase_prepare,ibase_execute,ibase_trans,%
5179     ibase_rollback,ibase_timefmt,ibase_num_fields,ibase_blob_add,%
5180     ibase_blob_close,ibase_blob_create,ibase_blob_echo,%
5181     ibase_blob_import,ibase_blob_info,ibase_blob_open,%
5182 %--- icap functions
5183     icap_open,icap_close,icap_fetch_event,icap_list_events,%
5184     icap_delete_event,icap_snooze,icap_list_alarms,%
5185     icap_rename_calendar,icap_delete_calendar,icap_reopen,%
5186 %--- iconv functions
5187     iconv,iconv_get_encoding,iconv_set_encoding,ob_iconv_handler,%
5188 %--- ifx functions
5189     ifx_connect,ifx_pconnect,ifx_close,ifx_query,ifx_prepare,ifx_do,%
5190     ifx_errormsg,ifx_affected_rows,ifx_getsqlca,ifx_fetch_row,%
5191     ifx_fieldtypes,ifx_fieldproperties,ifx_num_fields,ifx_num_rows,%
5192     ifx_create_char,ifx_free_char,ifx_update_char,ifx_get_char,%
5193     ifx_copy_blob,ifx_free_blob,ifx_get_blob,ifx_update_blob,%
5194     ifx_textasvarchar,ifx_byteasvarchar,ifx_nullformat,%
5195     ifxus_free_slob,ifxus_close_slob,ifxus_open_slob,%
5196     ifxus_seek_slob,ifxus_read_slob,ifxus_write_slob,%
5197 %--- iisfunc functions
5198     iis_get_server_by_path,iis_get_server_by_comment,iis_add_server,%
5199     iis_set_dir_security,iis_get_dir_security,iis_set_server_rights,%
5200     iis_set_script_map,iis_get_script_map,iis_set_app_settings,%
5201     iis_stop_server,iis_stop_service,iis_start_service,%
5202 %--- image functions
5203     exif_imagetype,exif_read_data,exif_thumbnail,getimagesize,%
5204     imagealphablending,imagearc,imagefilledarc,imageellipse,%
5205     imagechar,imagecharup,imagecolorallocate,imagecolordeallocate,%

```

```

5206     imagecolorclosest,imagecolorclosestalpha,imagecolorclosestthwb,%
5207     imagecolorexactalpha,imagecolorresolve,imagecolorresolvealpha,%
5208     imagecolorset,imagecolorsforindex,imagecolorstotal,%
5209     imagecopy,imagecopymerge,imagecopymergegray,imagecopyresized,%
5210     imagecreate,imagecreatetruecolor,imagetruecolortopalette,%
5211     imagecreatefromgd2,imagecreatefromgd2part,imagecreatefromgif,%
5212     imagecreatefrompng,imagecreatefromwbmp,imagecreatefromstring,%
5213     imagecreatefromxpm,imagedashedline,imagedestroy,imagefill,%
5214     imagefilledrectangle,imagefilltoborder,imagefontheight,%
5215     imagegd,imagegd2,imagegif,imagepng,imagejpeg,imagewbmp,%
5216     imageline,imageloadfont,imagepalettecopy,imagepolygon,%
5217     imagepsencodefont,imagepsfreefont,imagepsloadfont,%
5218     imagepslantfont,imagepstext,imagerectangle,imagesetpixel,%
5219     imagesetstyle,imagesettile,imagesethickness,imagestring,%
5220     imagesx,imagesy,imageftbbox,imageftbbox,imageftbbox,%
5221     imagetypes,jpeg2wbmp,png2wbmp,iptcembed,read_exif_data,%
5222 %--- imap functions
5223     imap_8bit,imap_alerts,imap_append,imap_base64,imap_binary,%
5224     imap_bodystruct,imap_check,imap_clearflag_full,imap_close,%
5225     imap_delete,imap_deletemailbox,imap_errors,imap_expunge,%
5226     imap_fetchbody,imap_fetchheader,imap_fetchstructure,%
5227     imap_getmailboxes,imap_getsubscribed,imap_header,%
5228     imap_headers,imap_last_error,imap_listmailbox,%
5229     imap_mail,imap_mail_compose,imap_mail_copy,imap_mail_move,%
5230     imap_mime_header_decode,imap_msgno,imap_num_msg,imap_num_recent,%
5231     imap_ping,imap_popen,imap_qprint,imap_renamemailbox,imap_reopen,%
5232     imap_rfc822_parse_headers,imap_rfc822_write_address,%
5233     imap_search,imap_setacl,imap_set_quota,imap_setflag_full,%
5234     imap_status,imap_subscribe,imap_uid,imap_undelete,%
5235     imap_utf7_decode,imap_utf7_encode,imap_utf8,imap_thread,%
5236 %--- info functions
5237     assert,assert_options,extension_loaded,dlopen,getenv,get_cfg_var,%
5238     get_defined_constants,get_extension_funcs,getmygid,%
5239     get_loaded_extensions,get_magic_quotes_gpc,%
5240     getlastmod,getmyinode,getmypid,getmyuid,get_required_files,%
5241     ini_alter,ini_get,ini_get_all,ini_restore,ini_set,phpcredits,%
5242     phpversion,php_logo_guid,php_sapi_name,php_undef,putenv,%
5243     set_time_limit,version_compare,zend_logo_guid,zend_version,%
5244 %--- ircg functions
5245     ircg_pconnect,ircg_fetch_error_msg,ircg_set_current,ircg_join,%
5246     ircg_msg,ircg_notice,ircg_nick,ircg_topic,ircg_channel_mode,%
5247     ircg_whois,ircg_kick,ircg_ignore_add,ircg_ignore_del,%
5248     ircg_is_conn_alive,ircg_lookup_format_messages,%
5249     ircg_set_on_die,ircg_set_file,ircg_get_username,%
5250     ircg_nickname_unescape,%
5251 %--- java functions
5252     java_last_exception_clear,java_last_exception_get,%
5253 %--- ldap functions
5254     ldap_add,ldap_bind,ldap_close,ldap_compare,ldap_connect,%
5255     ldap_delete,ldap_dn2ufn,ldap_err2str,ldap_errno,ldap_error,%

```

```

5256 ldap_first_attribute,ldap_first_entry,ldap_free_result,%
5257 ldap_get_dn,ldap_get_entries,ldap_get_option,ldap_get_values,%
5258 ldap_list,ldap_modify,ldap_mod_add,ldap_mod_del,%
5259 ldap_next_attribute,ldap_next_entry,ldap_read,ldap_rename,%
5260 ldap_set_option,ldap_unbind,ldap_8859_to_t61,%
5261 ldap_next_reference,ldap_parse_reference,ldap_parse_result,%
5262 ldap_sort,ldap_start_tls,ldap_t61_to_8859,%
5263 %--- mail functions
5264 mail,ezmlm_hash,%
5265 %--- math functions
5266 abs,acos,acosh,asin,asinh,atan,atanh,atan2,base_convert,bindec,%
5267 cos,cosh,decbin,dechex,decoct,deg2rad,exp,expm1,floor,%
5268 hexdec,hypot,is_finite,is_infinite,is_nan,lcg_value,log,log10,%
5269 max,min,mt_rand,mt_srand,mt_getrandmax,number_format,octdec,pi,%
5270 rad2deg,rand,round,sin,sinh,sqrt,srand,tan,tanh,%
5271 %--- mbstring functions
5272 mb_language,mb_parse_str,mb_internal_encoding,mb_http_input,%
5273 mb_detect_order,mb_substitute_character,mb_output_handler,%
5274 mb_strlen,mb_strpos,mb_strrpos,mb_substr,mb_strcut,mb_strwidth,%
5275 mb_convert_encoding,mb_detect_encoding,mb_convert_kana,%
5276 mb_decode_mimeheader,mb_convert_variables,%
5277 mb_decode_numericentity,mb_send_mail,mb_get_info,%
5278 mb_ereg,mb_eregi,mb_ereg_replace,mb_eregi_replace,mb_split,%
5279 mb_ereg_search,mb_ereg_search_pos,mb_ereg_search_regs,%
5280 mb_ereg_search_getregs,mb_ereg_search_getpos,%
5281 %--- mcal functions
5282 mcal_open,mcal_popen,mcal_reopen,mcal_close,%
5283 mcal_rename_calendar,mcal_delete_calendar,mcal_fetch_event,%
5284 mcal_append_event,mcal_store_event,mcal_delete_event,%
5285 mcal_list_alarms,mcal_event_init,mcal_event_set_category,%
5286 mcal_event_set_description,mcal_event_set_start,%
5287 mcal_event_set_alarm,mcal_event_set_class,mcal_is_leap_year,%
5288 mcal_date_valid,mcal_time_valid,mcal_day_of_week,%
5289 mcal_date_compare,mcal_next_recurrence,%
5290 mcal_event_set_recur_daily,mcal_event_set_recur_weekly,%
5291 mcal_event_set_recur_monthly_wday,mcal_event_set_recur_yearly,%
5292 mcal_event_add_attribute,mcal_expunge,mcal_week_of_year,%
5293 %--- mcrypt functions
5294 mcrypt_get_cipher_name,mcrypt_get_block_size,%
5295 mcrypt_create_iv,mcrypt_cbc,mcrypt_cfb,mcrypt_ecb,mcrypt_ofb,%
5296 mcrypt_list_modes,mcrypt_get_iv_size,mcrypt_encrypt,%
5297 mcrypt_module_open,mcrypt_module_close,mcrypt_generic_deinit,%
5298 mcrypt_generic,mdecrypt_generic,mcrypt_generic_end,%
5299 mcrypt_enc_is_block_algorithm_mode,%
5300 mcrypt_enc_is_block_mode,mcrypt_enc_get_block_size,%
5301 mcrypt_enc_get_supported_key_sizes,mcrypt_enc_get_iv_size,%
5302 mcrypt_enc_get_modes_name,mcrypt_module_self_test,%
5303 mcrypt_module_is_block_algorithm,mcrypt_module_is_block_mode,%
5304 mcrypt_module_get_algo_key_size,%
5305 %--- mhash functions

```

```

5306     mhash_get_hash_name,mhash_get_block_size,mhash_count,mhash,%
5307 %--- misc functions
5308     connection_aborted,connection_status,connection_timeout,%
5309     define,defined,die,eval,exit,get_browser,highlight_file,%
5310     ignore_user_abort,iptcparse,leak,pack,show_source,sleep,uniqid,%
5311     usleep,%
5312 %--- mnogosearch functions
5313     udm_add_search_limit,udm_alloc_agent,udm_api_version,%
5314     udm_cat_list,udm_clear_search_limits,udm_errno,udm_error,%
5315     udm_free_agent,udm_free_ispell_data,udm_free_res,%
5316     udm_get_res_field,udm_get_res_param,udm_load_ispell_data,%
5317     udm_check_charset,udm_check_stored,udm_close_stored,udm_crc32,%
5318 %--- msession functions
5319     msession_connect,msession_disconnect,msession_count,%
5320     msession_destroy,msession_lock,msession_unlock,msession_set,%
5321     msession_uniq,msession_randstr,msession_find,msession_list,%
5322     msession_set_array,msession_listvar,msession_timeout,%
5323     msession_getdata,msession_setdata,msession_plugin,%
5324 %--- msqldb functions
5325     msqldb,msqldb_affected_rows,msqldb_close,msqldb_connect,msqldb_create_db,%
5326     msqldb_data_seek,msqldb_dbname,msqldb_drop_db,msqldb_dropdb,msqldb_error,%
5327     msqldb_fetch_field,msqldb_fetch_object,msqldb_fetch_row,%
5328     msqldb_field_seek,msqldb_fieldtable,msqldb_fieldtype,msqldb_fieldflags,%
5329     msqldb_free_result,msqldb_freeresult,msqldb_list_fields,%
5330     msqldb_list_dbs,msqldb_listdbs,msqldb_list_tables,msqldb_listtables,%
5331     msqldb_num_rows,msqldb_numfields,msqldb_numrows,msqldb_pconnect,%
5332     msqldb_regcase,msqldb_result,msqldb_select_db,msqldb_selectdb,%
5333 %--- mssql functions
5334     mssql_close,mssql_connect,mssql_data_seek,mssql_fetch_array,%
5335     mssql_fetch_object,mssql_fetch_row,mssql_field_length,%
5336     mssql_field_seek,mssql_field_type,mssql_free_result,%
5337     mssql_min_error_severity,mssql_min_message_severity,%
5338     mssql_num_fields,mssql_num_rows,mssql_pconnect,mssql_query,%
5339     mssql_select_db,mssql_bind,mssql_execute,mssql_fetch_assoc,%
5340     mssql_guid_string,mssql_init,mssql_rows_affected,%
5341 %--- muscat functions
5342     muscat_setup,muscat_setup_net,muscat_give,muscat_get,%
5343 %--- mysql functions
5344     mysql_affected_rows,mysql_change_user,mysql_character_set_name,%
5345     mysql_connect,mysql_create_db,mysql_data_seek,mysql_db_name,%
5346     mysql_drop_db,mysql_errno,mysql_error,mysql_escape_string,%
5347     mysql_fetch_assoc,mysql_fetch_field,mysql_fetch_lengths,%
5348     mysql_fetch_row,mysql_field_flags,mysql_field_name,%
5349     mysql_field_seek,mysql_field_table,mysql_field_type,%
5350     mysql_info,mysql_insert_id,mysql_list_dbs,mysql_list_fields,%
5351     mysql_list_tables,mysql_num_fields,mysql_num_rows,%
5352     mysql_ping,mysql_query,mysql_unbuffered_query,%
5353     mysql_result,mysql_select_db,mysql_tablename,mysql_thread_id,%
5354     mysql_get_host_info,mysql_get_proto_info,mysql_get_server_info,%
5355 %--- network functions

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5356     checkdnsrr, closelog, debugger_off, debugger_on, %
5357     fsockopen, gethostbyaddr, gethostbyname, gethostbyname1, getmxrr, %
5358     getprotobynumber, getservbyname, getservbyport, ip2long, long2ip, %
5359     pfsockopen, socket_get_status, socket_set_blocking, %
5360     syslog, %
5361 %--- nis functions
5362     yp_get_default_domain, yp_order, yp_master, yp_match, yp_first, %
5363     yp_errno, yp_err_string, yp_all, yp_cat, %
5364 %--- oci8 functions
5365     OCIDefineByName, OCIBindByName, OCILogon, OCIPLogon, OCINLogon, %
5366     OCIExecute, OCICommit, OCIRollback, OCINewDescriptor, OCIRowCount, %
5367     OCIResult, OCIFetch, OCIFetchInto, OCIFetchStatement, %
5368     OCIColumnName, OCIColumnSize, OCIColumnType, OCIServerVersion, %
5369     OCINewCursor, OCIFreeStatement, OCIFreeCursor, OCIFreeDesc, %
5370     OCIError, OCIInternalDebug, OCICancel, OCISetPrefetch, %
5371     OCISaveLobFile, OCISaveLob, OCILoadLob, OCIColumnScale, %
5372     OCIColumnTypeRaw, OCINewCollection, OCIFreeCollection, %
5373     OCICollAppend, OCICollAssignElem, OCICollGetElem, OCICollMax, %
5374     OCICollTrim, %
5375 %--- oracle functions
5376     Ora_Bind, Ora_Close, Ora_ColumnName, Ora_ColumnSize, Ora_ColumnType, %
5377     Ora_CommitOff, Ora_CommitOn, Ora_Do, Ora_Error, Ora_ErrorCode, %
5378     Ora_Fetch, Ora_Fetch_Into, Ora_GetColumn, Ora_Logoff, Ora_Logon, %
5379     Ora_Numcols, Ora_Numrows, Ora_Open, Ora_Parse, Ora_Rollback, %
5380 %--- outcontrol functions
5381     flush, ob_start, ob_get_contents, ob_get_length, ob_get_level, %
5382     ob_flush, ob_clean, ob_end_flush, ob_end_clean, ob_implicit_flush, %
5383 %--- ovrimos functions
5384     ovrimos_connect, ovrimos_close, ovrimos_longreadlen, %
5385     ovrimos_execute, ovrimos_cursor, ovrimos_exec, ovrimos_fetch_into, %
5386     ovrimos_result, ovrimos_result_all, ovrimos_num_rows, %
5387     ovrimos_field_name, ovrimos_field_type, ovrimos_field_len, %
5388     ovrimos_free_result, ovrimos_commit, ovrimos_rollback, %
5389 %--- pcntl functions
5390     pcntl_fork, pcntl_signal, pcntl_waitpid, pcntl_wexitstatus, %
5391     pcntl_wifsignaled, pcntl_wifstopped, pcntl_wstopsig, %
5392     pcntl_exec, %
5393 %--- pcre functions
5394     preg_match, preg_match_all, preg_replace, preg_replace_callback, %
5395     preg_quote, preg_grep, Pattern Modifiers, Pattern Syntax, %
5396 %--- pdf functions
5397     pdf_add_annotation, pdf_add_bookmark, pdf_add_launchlink, %
5398     pdf_add_note, pdf_add_outline, pdf_add_pdflink, pdf_add_thumbnail, %
5399     pdf_arc, pdf_arcn, pdf_attach_file, pdf_begin_page, %
5400     pdf_begin_template, pdf_circle, pdf_clip, pdf_close, pdf_closepath, %
5401     pdf_closepath_stroke, pdf_close_image, pdf_close_pdi, %
5402     pdf_concat, pdf_continue_text, pdf_curveto, pdf_delete, %
5403     pdf_endpath, pdf_end_pattern, pdf_end_template, pdf_fill, %
5404     pdf_findfont, pdf_get_buffer, pdf_get_font, pdf_get_fontname, %
5405     pdf_get_image_height, pdf_get_image_width, pdf_get_parameter, %

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5406 pdf_get_pdi_value, pdf_get_majorversion, pdf_get_minorversion, %
5407 pdf_initgraphics, pdf_lineto, pdf_makespotcolor, pdf_moveto, %
5408 pdf_open, pdf_open_CCITT, pdf_open_file, pdf_open_gif, %
5409 pdf_open_image_file, pdf_open_jpeg, pdf_open_memory_image, %
5410 pdf_open_pdi_page, pdf_open_png, pdf_open_tiff, pdf_place_image, %
5411 pdf_rect, pdf_restore, pdf_rotate, pdf_save, pdf_scale, pdf_setcolor, %
5412 pdf_setflat, pdf_setfont, pdf_setgray, pdf_setgray_fill, %
5413 pdf_setlinecap, pdf_setlinejoin, pdf_setlinewidth, pdf_setmatrix, %
5414 pdf_setpolydash, pdf_setrgbcolor, pdf_setrgbcolor_fill, %
5415 pdf_set_border_color, pdf_set_border_dash, pdf_set_border_style, %
5416 pdf_set_duration, pdf_set_font, pdf_set_horiz_scaling, %
5417 pdf_set_info_author, pdf_set_info_creator, pdf_set_info_keywords, %
5418 pdf_set_info_title, pdf_set_leading, pdf_set_parameter, %
5419 pdf_set_text_rendering, pdf_set_text_rise, pdf_set_text_matrix, %
5420 pdf_set_word_spacing, pdf_show, pdf_show_boxed, pdf_show_xy, %
5421 pdf_stringwidth, pdf_stroke, pdf_translate, %
5422 %--- pfp functions
5423 pfp_init, pfp_cleanup, pfp_process, pfp_process_raw, %
5424 %--- pgs functions
5425 pg_close, pg_affected_rows, pg_connect, pg_dbname, pg_end_copy, %
5426 pg_query, pg_fetch_array, pg_fetch_object, pg_fetch_row, %
5427 pg_field_name, pg_field_num, pg_field_prtlen, pg_field_size, %
5428 pg_free_result, pg_last_oid, pg_host, pg_last_notice, pg_lo_close, %
5429 pg_lo_export, pg_lo_import, pg_lo_open, pg_lo_read, pg_lo_seek, %
5430 pg_lo_read_all, pg_lo_unlink, pg_lo_write, pg_num_fields, %
5431 pg_options, pg_pconnect, pg_port, pg_put_line, pg_fetch_result, %
5432 pg_client_encoding, pg_trace, pg_tty, pg_untrace, pg_get_result, %
5433 pg_send_query, pg_cancel_query, pg_connection_busy, %
5434 pg_connection_status, pg_copy_from, pg_copy_to, pg_escape_bytea, %
5435 pg_result_error, %
5436 %--- posix functions
5437 posix_kill, posix_getpid, posix_getppid, posix_getuid, %
5438 posix_getgid, posix_getegid, posix_setuid, posix_seteuid, %
5439 posix_setegid, posix_getgroups, posix_getlogin, posix_getpgrp, %
5440 posix_setpgid, posix_getpgid, posix_getsid, posix_uname, %
5441 posix_ctermid, posix_ttyname, posix_isatty, posix_getcwd, %
5442 posix_getgrnam, posix_getgrgid, posix_getpwnam, posix_getpwuid, %
5443 %--- printer functions
5444 printer_open, printer_abort, printer_close, printer_write, %
5445 printer_set_option, printer_get_option, printer_create_dc, %
5446 printer_start_doc, printer_end_doc, printer_start_page, %
5447 printer_create_pen, printer_delete_pen, printer_select_pen, %
5448 printer_delete_brush, printer_select_brush, printer_create_font, %
5449 printer_select_font, printer_logical_fontheight, %
5450 printer_draw_rectangle, printer_draw_ellipse, printer_draw_text, %
5451 printer_draw_chord, printer_draw_pie, printer_draw_bmp, %
5452 %--- pspell functions
5453 pspell_add_to_personal, pspell_add_to_session, pspell_check, %
5454 pspell_config_create, pspell_config_ignore, pspell_config_mode, %
5455 pspell_config_repl, pspell_config_runtogether, %

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5456     pspell_new,pspell_new_config,pspell_new_personal,%
5457     pspell_store_replacement,pspell_suggest,%
5458 %--- qtdom functions
5459     qdom_tree,qdom_error,%
5460 %--- readline functions
5461     readline,readline_add_history,readline_clear_history,%
5462     readline_info,readline_list_history,readline_read_history,%
5463 %--- recode functions
5464     recode_string,recode,recode_file,%
5465 %--- regex functions
5466     ereg,ereg_replace,eregi,eregi_replace,split,spliti,sql_regcase,%
5467 %--- sem functions
5468     sem_get,sem_acquire,sem_release,sem_remove,shm_attach,%
5469     shm_remove,shm_put_var,shm_get_var,shm_remove_var,ftok,%
5470 %--- sesam functions
5471     sesam_connect,sesam_disconnect,sesam_settransaction,%
5472     sesam_rollback,sesam_execimm,sesam_query,sesam_num_fields,%
5473     sesam_diagnostic,sesam_fetch_result,sesam_affected_rows,%
5474     sesam_field_array,sesam_fetch_row,sesam_fetch_array,%
5475     sesam_free_result,%
5476 %--- session functions
5477     session_start,session_destroy,session_name,session_module_name,%
5478     session_id,session_register,session_unregister,session_unset,%
5479     session_get_cookie_params,session_set_cookie_params,%
5480     session_encode,session_set_save_handler,session_cache_limiter,%
5481     session_write_close,%
5482 %--- shmop functions
5483     shmop_open,shmop_read,shmop_write,shmop_size,shmop_delete,%
5484 %--- snmp functions
5485     snmpget,snmpset,snmpwalk,snmpwalkoid,snmp_get_quick_print,%
5486     snmprealwalk,%
5487 %--- strings functions
5488     addslashes,addslashes,bin2hex,chop,chr,chunk_split,%
5489     count_chars,crc32,crypt,echo,explode,get_html_translation_table,%
5490     hebrew,hebrewc,htmlentities,htmlspecialchars,implode,join,%
5491     localeconv,ltrim,md5,md5_file,metaphone,nl_langinfo,nl2br,ord,%
5492     print,printf,quoted_printable_decode,quotemeta,str_rot13,rtrim,%
5493     setlocale,similar_text,soundex,sprintf,strcasecmp,strcmp,%
5494     strcmp,strcmp,strcmp,strip_tags,stripslashes,stripslashes,%
5495     strlen,strnatcmp,strnatcasecmp,strcmp,strcmp,strcmp,%
5496     strrev, strrpos, strspn, strstr, strtok, strtolower, strtoupper,%
5497     strstr,substr,substr_count,substr_replace,trim,ucfirst,ucwords,%
5498     vsprintf,wordwrap,%
5499 %--- swf functions
5500     swf_openfile,swf_closefile,swf_labelframe,swf_showframe,%
5501     swf_getframe,swf_mulcolor,swf_addcolor,swf_placeobject,%
5502     swf_removeobject,swf_nextid,swf_startdoaction,%
5503     swf_actiongeturl,swf_actionnextframe,swf_actionprevframe,%
5504     swf_actionstop,swf_actiontogglequality,swf_actionwaitforframe,%
5505     swf_actiongotolabel,swf_enddoaction,swf_defineline,%

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5506     swf_definepoly,swf_startshape,swf_shapelinesolid,%
5507     swf_shapefillsolid,swf_shapefillbitmapclip,%
5508     swf_shapemoveto,swf_shapelineto,swf_shapecurveto,%
5509     swf_shapearc,swf_endshape,swf_definefont,swf_setfont,%
5510     swf_fontslant,swf_fontracking,swf_getfontinfo,swf_definetext,%
5511     swf_definebitmap,swf_getbitmapinfo,swf_startsymbol,%
5512     swf_startbutton,swf_addbuttonrecord,swf_oncondition,%
5513     swf_viewport,swf_ortho,swf_ortho2,swf_perspective,swf_polarview,%
5514     swf_pushmatrix,swf_popmatrix,swf_scale,swf_translate,swf_rotate,%
5515 %--- sybase functions
5516     sybase_affected_rows,sybase_close,sybase_connect,%
5517     sybase_fetch_array,sybase_fetch_field,sybase_fetch_object,%
5518     sybase_field_seek,sybase_free_result,sybase_get_last_message,%
5519     sybase_min_error_severity,sybase_min_message_severity,%
5520     sybase_num_fields,sybase_num_rows,sybase_pconnect,sybase_query,%
5521     sybase_select_db,%
5522 %--- uodbc functions
5523     odbc_autocommit,odbc_binmode,odbc_close,odbc_close_all,%
5524     odbc_connect,odbc_cursor,odbc_do,odbc_error,odbc_errormsg,%
5525     odbc_execute,odbc_fetch_into,odbc_fetch_row,odbc_fetch_array,%
5526     odbc_fetch_object,odbc_field_name,odbc_field_num,%
5527     odbc_field_len,odbc_field_precision,odbc_field_scale,%
5528     odbc_longreadlen,odbc_num_fields,odbc_pconnect,odbc_prepare,%
5529     odbc_result,odbc_result_all,odbc_rollback,odbc_setoption,%
5530     odbc_tableprivileges,odbc_columns,odbc_columnprivileges,%
5531     odbc_primarykeys,odbc_foreignkeys,odbc_procedures,%
5532     odbc_specialcolumns,odbc_statistics,%
5533 %--- url functions
5534     base64_decode,base64_encode,parse_url,rawurldecode,rawurlencode,%
5535     urlencode,%
5536 %--- var functions
5537     doubleval,empty,floatval,gettype,get_defined_vars,%
5538     import_request_variables,intval,is_array,is_bool,is_double,%
5539     is_int,is_integer,is_long,is_null,is_numeric,is_object,is_real,%
5540     is_scalar,is_string,isset,print_r,serialize,unset,%
5541     unset,var_dump,var_export,is_callable,%
5542 %--- vpopmail functions
5543     vpopmail_add_domain,vpopmail_del_domain,%
5544     vpopmail_add_domain_ex,vpopmail_del_domain_ex,%
5545     vpopmail_add_user,vpopmail_del_user,vpopmail_passwd,%
5546     vpopmail_auth_user,vpopmail_alias_add,vpopmail_alias_del,%
5547     vpopmail_alias_get,vpopmail_alias_get_all,vpopmail_error,%
5548 %--- w32api functions
5549     w32api_set_call_method,w32api_register_function,%
5550     w32api_deftype,w32api_init_dtype,%
5551 %--- wddx functions
5552     wddx_serialize_value,wddx_serialize_vars,wddx_packet_start,%
5553     wddx_add_vars,wddx_deserialize,%
5554 %--- xml functions
5555     xml_parser_create,xml_set_object,xml_set_element_handler,%

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5556     xml_set_processing_instruction_handler,xml_set_default_handler,%
5557     xml_set_notation_decl_handler,%
5558     xml_parse,xml_get_error_code,xml_error_string,%
5559     xml_get_current_column_number,xml_get_current_byte_index,%
5560     xml_parser_free,xml_parser_set_option,xml_parser_get_option,%
5561     utf8_encode,xml_parser_create_ns,%
5562     xml_set_start_namespace_decl_handler,%
5563 %--- xslt functions
5564     xslt_set_log,xslt_create,xslt_errno,xslt_error,xslt_free,%
5565     xslt_set_sax_handler,xslt_set_scheme_handler,%
5566     xslt_set_base,xslt_set_encoding,xslt_set_sax_handlers,%
5567 %--- yaz functions
5568     yaz_addinfo,yaz_close,yaz_connect,yaz_errno,yaz_error,yaz_hits,%
5569     yaz_database,yaz_range,yaz_record,yaz_search,yaz_present,%
5570     yaz_scan,yaz_scan_result,yaz_ccl_conf,yaz_ccl_parse,%
5571     yaz_wait,yaz_sort,%
5572 %--- zip functions
5573     zip_close,zip_entry_close,zip_entry_compressedsize,%
5574     zip_entry_filesize,zip_entry_name,zip_entry_open,zip_entry_read,%
5575     zip_read,%
5576 %--- zlib functions
5577     gzclose,gzEOF,gzfile,gzgetc,gzgets,gzgetss,gzopen,gzpassthru,%
5578     gzread,gzrewind,gzseek,gztell,gzwrite,readgzfile,gzcompress,%
5579     gzdeflate,gzinflate,gzencode,},%
5580     sensitive,%
5581     morecomment=[l]\#,%
5582     morecomment=[l]//,%
5583     morecomment=[s]{/*}{*/},%
5584     morestring=[b]" ,%
5585     morestring=[b]'%
5586 }[keywords,comments,strings]%
5587 </lang2>

```

2.59 Plasm

Alessio Pace provided the following definition.

```

5588 <*lang3>
5589 \lst@definlanguage{Plasm}%
5590 {sensitive=false,%
5591     morekeywords={aa,abs,ac,acolor,acos,actor,al,alias,align,and,%
5592     animation,animation,appearance,apply,ar,arc,as,asin,assoc,atan,%
5593     axialcamera,axialcameras,basehermite,bbox,bbox,bernstein,%
5594     bernsteinbasis,bezier,beziercurve,beziermanifold,bezierstripe,%
5595     beziersurface,bigger,biggest,bilinearsurface,binormal,%
5596     biquadraticsurface,black,blend,blue,bottom,box,brown,bspize,%
5597     bspline,bsplinebasis,c,cabinet,camera,card,cart,case,cats,catch,ceil,%
5598     centeredcameras,centralcavalier,char,charset,choose,circle,%
5599     circumference,class,cmap,color,comp,computecoords,cone,%

```

5600 conicalsurface, cons, control, convexcoords, convexhull, coonspatch, %
5601 copy, cos, cosh, crease, crosspolytope, cube, cubiccircular, %
5602 cubiccircularbasis, cubichermite, cubiccubspline, cubiccubsplinebasis, %
5603 cuboid, curl, curvature, curve2cspath, curve2mapvect, cyan, cylinder, %
5604 cylindricalsurface, d, deboor, def, depol, depth_sort, depth_test, %
5605 derbernstein, derbernsteinbase, derbezier, determinant, difference, %
5606 differencepr, dim, dimetric, dirproject, displaygraph, displaynubspline, %
5607 displaynurb spline, distl, distr, div, divergence, dodecahedron, dot, down, %
5608 dp, drawedges, drawforks, drawtree, ds, dsphere, dump, dumprep, ellipse, %
5609 embed, end, eq, ex, exp, explode, export, extract_bodies, extract_polygons, %
5610 extract_wires, extrude, extrusion, fact, false, feature, ff, fillcolor, %
5611 filter, finitecone, first, flash, flashani, floor, fontcolor, fontheight, %
5612 fontspacing, fontwidth, fractalsimplex, frame, frame, frameflash, fromto, %
5613 gausscurvature, ge, grad, gradient, gradmap, gray, green, gt, help, hermite, %
5614 hermitebasis, hermitessurface, hexahedron, icosahedron, id, idnt, if, in, %
5615 inarcs, innerprod, inset, insl, insr, intersection, intersectionpr, %
5616 intervals, intmax, intmin, intsto, inv, isa, isanimpol, isbool, ischar, %
5617 isclosedshape, iscloseto, isempty, iseven, isfun, isfunvect, isge, isgt, %
5618 isint, isintneg, isinto, isintpos, isle, islt, ismat, ismatof, isnat, %
5619 isnull, isnum, isnumneg, isnumpos, isodd, isometric, isorthoshape, ispair, %
5620 ispoint, ispointseq, ispol, ispolldim, ispolytope, ispurepol, isreal, %
5621 isrealneg, isrealpos, isrealvect, isseq, isseqof, issshape, issimplex, %
5622 issqrmat, isstring, isvect, iszero, jacobian, join, joints, k, last, le, %
5623 left, leftcavalier, len, less, lesseq, lex, lift, light, linecolor, %
5624 linesize, list, ln, load, loadlib, loop, lt, lxmy, magenta, map, mapshapes, %
5625 markersize, mat, matdotprod, material, mathom, max, mean, meanpoint, med, %
5626 merge, mesh, min, minkowski, mirror, mixedprod, mk, mkframe, mkpol, %
5627 mkvector, mkversork, mod, model, move, mul, multextrude, mxby, mxmy, mxty, %
5628 myfont, n, nat2string, neq, ngon, norm2, normalmap, not, nu_grid, nubspline, %
5629 nubsplineknots, nurb spline, nurb splineknots, octahedron, offset, %
5630 onepoint, open, optimize, or, orange, ord, ortho, orthoproject, orthox, %
5631 orthoy, orthoz, outarcs, outerloop, outerwarp, pairediff, parallel, %
5632 pascaltriangle, pdiff, pdifference, permutahedron, permutations, %
5633 perspective, perspective, pi, pivotop, plane, planemapping, pmap, %
5634 points2shape, polar, polyline, polymarker, polypoint, power, powerset, %
5635 presort, principalnormal, print, prism, profileprodsurface, %
5636 progressivesum, project, projection, purple, pyramid, q, quadarray, %
5637 quadmesh, quote, r, raise, range, rationalbezier, rationalblend, %
5638 rationalbspline, rationalize, red, rev, reverse, rgbacolor, right, %
5639 rightcavalier, ring, rn, rotatedtext, rotationalsurface, rotn, rtail, %
5640 ruledsurface, rxmy, s, save, scalarmatprod, scalarvectprod, schlegel2d, %
5641 schlegel3d, sdifference, sdifferencepr, segment, sel, setand, setdiff, %
5642 setfontcolor, setor, setxor, sex, shape_0, shape_1, shape2points, %
5643 shape2pol, shapeclosed, shapecomb, shapediff, shapedist, %
5644 shapeinbetweening, shapeinf, shapejoin, shapelen, shapenorm, %
5645 shapenormal, shapeprod, shaperot, shapesum, shapesup, shapezero, shift, %
5646 showprop, sign, signal, simplex, simplexpole, sin, sinh, size, skeleton, %
5647 skew, smaller, smallest, solidifier, solidify, sort, sphere, spline, %
5648 splinesampling, splitcells, splitpols, sqr, sqrt, star, string, %
5649 stringtokens, struct, sub, svg, sweep, t, tail, tan, tangent, tanh, %

```

5650     tensorprodsurface,tetrahedron,text,texture,textwithattributes,%
5651     thinsolid,threepoints,time,tmax,tmin,top,torus,torusmap,trace,%
5652     trans,tree,trianglefan,trianglestripe,trimetric,true,truncone,tt,%
5653     tube,twopoints,uk,ukpol,ukpolf,union,unionpr,unitvect,unprune,up,%
5654     vect2dtoangle,vect2mat,vectdiff,vectnorm,vectprod,vectsum,view,%
5655     viewmodel,viewmodel,vrml,warp,warp,where,white,with,xcavalier,xor,%
5656     xquadarray,xx,ycavalier,yellow},%
5657     moredirectives={loadlib},%
5658     otherkeywords={-,+,*,**,/,~,|,...,^,&,\&\&,\#,\#\#},%
5659     morecomment=[s]{\%}{\%},%
5660     morestring=[b]',%
5661     literate={~}{\sim$}{1} {~}{\wedge$}{1},%
5662 }[keywords,directives,comments,strings]%
5663 </lang3>

```

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

```

5664 <*lang3>
5665 \lst@definlanguage{PL/I}{%
5666     morekeywords={ABS, ATAN, AUTOMATIC, AUTO, ATAND, BEGIN, BINARY, BIN, BIT,%
5667     BUILTIN, BY, CALL, CHARACTER, CHAR, CHECK, COLUMN, COL, COMPLEX, CPLX,%
5668     COPY, COS, COSD, COSH, DATA, DATE, DECIMAL, DEC, DECLARE, DCL, DO,%
5669     EDIT, ELSE, END, ENDFILE, ENDPAGE, ENTRY, EXP, EXTERNAL, EXT, FINISH,%
5670     FIXED, FIXEDOVERFLOW, FOFL, FLOAT, FORMAT, GET, GO, GOTO, IF, IMAG,%
5671     INDEX, INITIAL, INIT, INTERNAL, INT, LABEL, LENGTH, LIKE, LINE, LIST,%
5672     LOG, LOG2, LOG10, MAIN, MAX, MIN, MOD, NOCHECK, NOFIXEDOVERFLOW,%
5673     NOFOFL, NOOVERFLOW, NOOFL, NOSIZE, NOUNDERFLOW, NOUFL, NOZERODIVIDE,%
5674     NOZDIV, ON, OPTIONS, OVERFLOW, OFL, PAGE, PICTURE, PROCEDURE, PROC,%
5675     PUT, READ, REPEAT, RETURN, RETURNS, ROUND, SIN, SIND, SINH, SIZE, SKIP,%
5676     SQRT, STATIC, STOP, STRING, SUBSTR, SUM, SYSIN, SYSPRINT, TAN, TAND,%
5677     TANH, THEN, TO, UNDERFLOW, UFL, VARYING, WHILE, WRITE, ZERODIVIDE,%
5678     ZDIV},%
5679     sensitive=f,%
5680     morecomment=[s]{/*}{*/},%
5681     morestring=[d]'%
5682 }[keywords,comments,strings]%
5683 </lang3>

```

2.61 PostScript

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

```

5684 <*lang3>

```

```

5685 %%
5686 %% PostScript language definition (c) 2005 Christophe Jorssen.
5687 %%
5688 \lst@definlanguage{PostScript}{%
5689   morekeywords={abs, add, aload, anchorsearch, and, arc, arcn, arct, arcto,%
5690     array, ashow, astore, atan, awidthshow, begin, bind, bitshift,%
5691     bytesavailable, cachestatus, ceiling, charpath, clear, cleartomark,%
5692     cleardictstack, clip, clippath, closefile, closepath, colorimage,%
5693     concat, concatmatrix, condition, copy, cypage, cos, count,%
5694     countdictstack, countexecstack, counttomark, cshow,%
5695     currentblackgeneration, currentcacheparams, currentcmykcolor,%
5696     currentcolor, currentcolorrendering, currentcolorscreen,%
5697     currentcolorspace, currentcolortransfer, currentcontext, currentdash,%
5698     currentdevparams, currentdict, currentfile, currentflat, currentfont,%
5699     currentglobal, currentgray, currentgstate, currenthalftone,%
5700     currenthalftonephase, currenthsbcolor, currentlinecap, currentlinejoin,%
5701     currentlinewidth, currentmatrix, currentmiterlimit,%
5702     currentobjectformat, currentpacking, currentpagedevice, currentpoint,%
5703     currentrgbcolor, currentscreen, currentshared, currentstrokeadjust,%
5704     currentsystemparams, currenttransfer, currentundercolorremoval,%
5705     currentuserparams, curveto, cvi, cvlit, cvn, cvr, cvrs, cvs, cvx, def,%
5706     defaultmatrix, definefont, defineresource, defineusername,%
5707     defineuserobject, deletefile, detach, deviceinfo, dict, dictstack, div,%
5708     dtransform, dup, echo, eexec, end, eoclip, eofill, eoviewclip, eq,%
5709     erasepage, errordict, exch, exec, execform, execstack, execuserobject,%
5710     executeonly, executive, exit, exp, false, file, filenameforall,%
5711     fileposition, fill, filter, findencoding, findfont, findresource,%
5712     flattenpath, floor, flush, flushfile, FontDirectory, for, forall, fork,%
5713     ge, get, getinterval, globaldict, GlobalFontDirectory, glyphshow,%
5714     grestore, grestoreall, gsave, gstate, gt, identmatrix, idiv,%
5715     idtransform, if, ifelse, image, imagemask, index, ineofill, infill,%
5716     initclip, initgraphics, initmatrix, initviewclip, instroke,%
5717     internaldict, inueofill, inufill, inustroke, invertmatrix,%
5718     ISOLatin1Encoding, itransform, join, kshow, known, languagelevel, le,%
5719     length, lineto, ln, load, lock, log, loop, lt, makefont, makepattern,%
5720     mark, matrix, maxlength, mod, monitor, moveto, mul, ne, neg, newpath,%
5721     noaccess, not, notify, null, nulldevice, or, packedarray, pathbbox,%
5722     pathforall, pop, print, printobject, product, prompt, pstack, put,%
5723     putinterval, quit, rand, rcurveto, read, readhexstring, readline,%
5724     readonly, readstring, realtime, rectclip, rectfill, rectstroke,%
5725     rectviewclip, renamefile, repeat, resetfile, resourceforall,%
5726     resourcestatus, restore, reversepath, revision, rlineto, rmoveto, roll,%
5727     rootfont, rotate, round, rrand, run, save, scale, scalefont, scheck,%
5728     search, selectfont, serialnumber, setbbox, setblackgeneration,%
5729     setcachedevice, setcachedevice2, setcachelimit, setcacheparams,%
5730     setcharwidth, setcmykcolor, setcolor, setcolorrendering,%
5731     setcolorscreen, setcolorspace, setcolortransfer, setdash, setdevparams,%
5732     setfileposition, setflat, setfont, setglobal, setgray, setgstate,%
5733     sethalftone, sethalftonephase, sethsbcolor, setlinecap, setlinejoin,%
5734     setlinewidth, setmatrix, setmiterlimit, setobjectformat, setoverprint,%

```

```

5735     setpacking, setpagedevice, setpattern, setrgbcolor, setscreen,%
5736     setshared, setstrokeadjust, setsystemparams, settransfer,%
5737     setucacheparams, setundercolorremoval, setuserparams, setvmthreshold,%
5738     shareddict, show, showpage, sin, sqrt, srand, stack, StandardEncoding,%
5739     start, startjob, status, statusdict, stop, stopped, store, string,%
5740     stringwidth, stroke, strokepath, sub, systemdict, transform, translate,%
5741     true, truncate, type, token, uappend, ucache, ucachestatus, ueofill,%
5742     ufill, undef, upath, userdict, UserObjects, usertime, ustroke,%
5743     ustrokepath, version, viewclip, viewclippath, vmreclaim, vmstatus,%
5744     wait, wcheck, where, widthshow, write, writehexstring, writeobject,%
5745     writestring, wtranslation, xcheck, xor, xshow, xyshow, yield, yshow},%
5746     sensitive,%
5747     morecomment=[1]\%}[keywords,comments]
5748 </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.

```

5749 <*lang1>
5750 %%
5751 %% POV definition (c) 1999 Berthold H"ollmann
5752 %%
5753 \lst@definlanguage{POV}%
5754 {morekeywords={abs,absorption,acos,acosh,adaptive,adc_bailout,agate,%
5755     agate_turb,all,alpha,ambient,ambient_light,angle,aperture,append,%
5756     arc_angle,area_light,array,asc,asin,asinh,assumed_gamma,atan,%
5757     atan2,atanh,average,background,bezier_spline,bicubic_patch,%
5758     black_hole,blob,blue,blur_samples,bounded_by,box,boxed,bozo,%
5759     break,brick,brick_size,brightness,brilliance,bumps,bump_map,%
5760     bump_size,camera,case,caustics,ceil,checker,chr,clipped_by,clock,%
5761     clock_delta,color,color_map,colour,colour_map,component,%
5762     composite,concat,cone,confidence,conic_sweep,control0,control1,%
5763     cos,cosh,count,crackle,crand,cube,cubic,cubic_spline,cubic_wave,%
5764     cylinder,cylindrical,debug,declare,default,defined,degrees,%
5765     density,density_file,density_map,dents,difference,diffuse,%
5766     dimensions,dimension_size,direction,disc,distance,%
5767     distance_maximum,div,eccentricity,else,emission,end,error,%
5768     error_bound,exp,extinction,fade_distance,fade_power,falloff,%
5769     falloff_angle,false,fclose,file_exists,filter,finish,fisheye,%
5770     flatness,flip,floor,focal_point,fog,fog_alt,fog_offset,fog_type,%
5771     fopen,frequency,gif,global_settings,gradient,granite,%
5772     gray_threshold,green,height_field,hexagon,hf_gray_16,hierarchy,%
5773     hollow,hypercomplex,if,ifdef,iff,ifndef,image_map,include,int,%
5774     interior,interpolate,intersection,intervals,inverse,ior,irid,%
5775     irid_wavelength,jitter,julia_fractal,lambda,lathe,leopard,%
5776     light_source,linear_spline,linear_sweep,local,location,log,%

```

```

5777     looks_like,look_at,low_error_factor,macro,mandel,map_type,marble,%
5778     material,material_map,matrix,max,max_intersections,max_iteration,%
5779     max_trace_level,media,media_attenuation,media_interaction,merge,%
5780     mesh,metallic,min,minimum_reuse,mod,mortar,nearest_count,no,%
5781     normal,normal_map,no_shadow,number_of_waves,object,octaves,off,%
5782     offset,omega,omnimax,on,once,onion,open,orthographic,panoramic,%
5783     perspective,pgm,phase,phong,phong_size,pi,pigment,pigment_map,%
5784     planar,plane,png,point_at,poly,polygon,poly_wave,pot,pow,ppm,%
5785     precision,prism,pwr,quadratic_spline,quadric,quartic,quaternion,%
5786     quick_color,quick_colour,quilted,radial,radians,radiosity,radius,%
5787     rainbow,ramp_wave,rand,range,ratio,read,reciprocal,%
5788     recursion_limit,red,reflection,reflection_exponent,refraction,%
5789     render,repeat,rgb,rgbf,rgbft,rgbt,right,ripples,rotate,roughness,%
5790     samples,scale,scallop_wave,scattering,seed,shadowless,sin,%
5791     sine_wave,sinh,sky,sky_sphere,slice,slope_map,smooth,%
5792     smooth_triangle,sor,specular,sphere,spherical,spiral1,spiral2,%
5793     spotlight,spotted,sqr,sqrt,statistics,str,strcmp,strength,strlen,%
5794     strlwr,strupr, Sturm,substr,superellipsoid,switch,sys,t,tan,tanh,%
5795     text,texture,texture_map,tga,thickness,threshold,tightness,tile2,%
5796     tiles,torus,track,transform,translate,transmit,triangle,%
5797     triangle_wave,true,ttf,turbulence,turb_depth,type,u,%
5798     ultra_wide_angle,undef,union,up,use_color,use_colour,use_index,%
5799     u_steps,v,val,variance,vaxis_rotate,vcross,vdot,version,vlength,%
5800     vnormalize,vrotate,v_steps,warning,warp,water_level,waves,while,%
5801     width,wood,wrinkles,write,x,y,yes,z},%
5802     moredirectives={break,case,debug,declare,default,else,end,fclose,%
5803     fopen,local,macro,read,render,statistics,switch,undef,version,%
5804     warning,write},%
5805     moredelim=[directive]\#,%
5806     sensitive,%
5807     morecomment=[l]//,%
5808     morecomment=[s]{/*}{*/},%
5809     morestring=[d]" ,%
5810 }[keywords,directives,comments,strings]%
5811 </lang1>

```

2.63 Prolog

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

```

5812 <*lang2>
5813 %%
5814 %% Prolog definition (c) 1997 Dominique de Waleffe
5815 %%
5816 \lst@definlanguage{Prolog}%
5817 {morekeywords={op,mod,abort,ancestors,arg,ascii,ask,assert,asserta,%
5818     assertz,atom,atomic,char,clause,close,concat,consult,ed,ef,em,%
5819     eof,fail,file,findall,write,functor,getc,integer,is,length,%

```

```

5820     listing,load,name,nl,nonvar,not,numbervars,op,or,pp,prin,print,%
5821     private,prompt,putc,ratom,read,read_from_this_file,rename,repeat,%
5822     retract,retractall,save,see,seeing,seen,sh,skip,statistics,%
5823     subgoal_of,system,tab,tell,telling,time,told,trace,true,unload,%
5824     untrace,var,write},%
5825     sensitive=f,%
5826     morecomment=[l]\%,%
5827     morecomment=[s]{/*}{*/},%
5828     morestring=[bd]" ,%
5829     morestring=[bd]' %
5830 }[keywords,comments,strings]%
5831 </lang2>

```

2.64 Promela

Thanks to William ThimblebyPromela for this language definition.

```

5832 <*lang3>
5833 %%
5834 %% Promela definition (c) 2004 William Thimbleby
5835 %%
5836 \lst@definlanguage{Promela}
5837 {morekeywords={active,assert,atomic,bit,bool,break,byte,chan,d_step,%
5838     Dproctype,do,else,empty,enabled,fi,full,goto,hidden,if,init,int,%
5839     len,mtype,nempty,never,nfull,od,of,pcvalue,printf,priority,%
5840     proctype,provided,run,short,skip,timeout,typedef,unless,unsigned,%
5841     xr,xs,true,false,inline,eval},%
5842     moredirectives={define,ifdef,ifndef,if,if,else,endif,undef,include},%
5843     moredelim=[s]{/*}{*/}\#,%
5844     morecomment=[s]{/*}{*/},%
5845     morestring=[b]" %
5846 }[keywords,comments,strings,directives]%
5847 </lang3>

```

2.65 PSTricks

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

```

5848 <*lang3>
5849 %%
5850 %% PSTricks definition (c) 2006 Herbert Voss
5851 %%
5852 \lst@definlanguage{PSTricks}%
5853 {morekeywords={%
5854     begin,end,definecolor,multido,%
5855     KillGlue,DontKillGlue,pslbrace,bsrbrace,psscalebox,psset,pstVerb,pstverb,%
5856     pst@def,psframebox,psclip,endclip,endpspicture,psframe,%
5857     pspicture,%

```



```

5858    multirput,multips,Rput,rput,uput,cput,lput,%
5859    newrgbcolor,newgray,newcmykcolor,%
5860 %%
5861 %% pstricks-add
5862    psStep,psgraph,psbrace,psPrintValue,%
5863 %%
5864 %% pst-plot
5865    psvlabel,pslabel,psplot,psline,pscustom,pscurve,psccurve,%
5866    readdata,savedata,fileplot,dataplot,listplot,%
5867    psecurve,psgraph,parametricplot,%
5868    psellipse,psaxes,ncline,nccurve,psbezier,parabola,%
5869    qdisk,qline,clipbox,endspsclip,%
5870    psgrid,pscircle,pscirclebox,psdiabox,pstribox,%
5871    newpsfontdot,psdot,psdots,%
5872    pspolygon,psdiamond,psoval,pstriangle,%
5873    psarc,psarcn,psellipticarc,psellipticarcn,pswedge,psellipticwedge,%
5874    pcline,pcdiag,pcdiagg,pccurve,pccurve,pccurve,%
5875    scalebox,scaleboxto,psmathboxtrue,everypsbox,psverbboxtrue,overlaybox,%
5876    psoverlay,putoverlaybox,%
5877    newpsstyle,newpsobject,%
5878    moveto,newpath,closepath,stroke,fill,gsave,grestore,msave,mrestore,%
5879    translate,scale,swapaxes,rotate,openshadow,closedshadow,movetpath,%
5880    lineto,rlineto,curveto,rcurveto,code,dim,coor,rcoor,file,arrows,%
5881    setcolor,rotateleft,rotateright,rotatedown,%
5882 %%
5883 %% pst-node
5884    nput,naput,nbput,nput,%
5885    ncarc,ncbox,ncangle,ncangles,ncloop,ncdiag,ncdiagg,ncarcbox,ncbar,%
5886    cnodeput,nccircle,%
5887    pnode,rnode,Rnode,Cnode,cnode,fnode,%
5888    circlenode,ovalnode,trinode,dianode,%
5889    psmatrix,endspmatrix,psspan,%
5890 %%
5891 %% pst-tree
5892    pstree,Tcircle,TCircle,Ttri,Tn,TC,Tc,Tfan,TR,Tr,Tdia,Toval,Tdot,Tp,Tf,%
5893    skiplevel,skiplevels,endskiplevels,tSPACE,tlput,%
5894 %%
5895 %% pst-text
5896    pscharpath,pstextpath,%
5897 %%
5898 %% pst-barcode
5899    psbarcode,%
5900 %%
5901 %% pst-coil
5902    psboxfill,pscoil,psCoil,pszigzag,nccoil,%
5903    psshadow,pstilt,psTilt,ThreeDput,%
5904 %%
5905 %% pst-gr3d
5906    PstGridThreeDNodeProcessor,%
5907 %%

```

```

5908 %% pst-vue3d
5909     PstGridThreeD,%
5910     AxesThreeD,LineThreeD,DieThreeD,FrameThreeD,SphereCircleThreeD,%
5911     SphereMeridienThreeD,QuadrillageThreeD,TetraedreThreeD,%
5912     PyramideThreeD,ConeThreeD,CylindreThreeD,DodecahedronThreeD,%
5913     ConeThreeD,SphereThreeD,SphereInverseThreeD,DemiSphereThreeD,%
5914     SphereCreuseThreeD,SphereCircledThreeD,PortionSphereThreeD,%
5915     pNodeThreeD,CubeThreeD,%
5916 %%
5917 %% pst-3dplot
5918     pstThreeDCoor, pstThreeDDot, pstThreeDTriangle, pstThreeDCircle,%
5919     pstPlanePut, pstThreeDBox, pstThreeDEllipse, pstThreeDLine,%
5920     pstThreeDPut, pstThreeDNode, pstThreeDSquare, psplotThreeD,%
5921     parametricplotThreeD, fileplotThreeD, dataplotThreeD,%
5922     pstScalePoints,%
5923 %%
5924 %% pst-circ
5925     resistor,battery,Ucc,Icc,capacitor,coil,diode,Zener,LED,lamp,switch,%
5926     wire,tension,circledipole,multidipole,OA,transistor,Tswitch,%
5927     potentiometer,transformer,optoCoupler,logic,%
5928 %%
5929 %% pst-eucl
5930     pstTriangle,pstMediatorAB,pstInterLL,pstMiddleAB,pstProjection,%
5931     pstCircleOA,pstLineAB,%
5932 %%
5933 %% pst-func
5934     psBessel,psPolynomial,psFourier,psGaussI,psGauss,psSi,psSi,psCi,psCi,%
5935 %%
5936 %% pst-infixplot
5937     psPlot,%
5938 %%
5939 %% pst-ob3d
5940     PstDie,PstCube,%
5941 %%
5942 %% pst-poly
5943     PstPolygon,pspolygonbox,%
5944 %%
5945 %% pst-bar
5946     psbarchart,readpsbardata,psbarscale,newpsbarstyle,%
5947 %%
5948 %% pst-lens
5949     PstLens,%
5950 %%
5951 %% pst-geo
5952     WorldMap,WorldMapII,WorldMapThreeD,WorldMapThreeDII,pnodeMap,MapPut,%
5953 %%
5954 %% pst-autoseg
5955     asr,firstnode,merge,assoc,labelmerge,%
5956 %%
5957 %% gastex

```

```

5958     node, imark, fmark, rmark, drawqbpedge, drawedge, drawloop,%
5959 %%
5960 %% pst-labo
5961     Distillation, Ballon,%
5962 %%
5963 %% pst-optic
5964     lens, Transform,%
5965 %%
5966 %% pst-light3d
5967     PstLightThreeDText,%
5968 %%
5969 %% calendrier
5970     Calendrier,%
5971 %%
5972 %% pst-osci
5973     Oscillo%
5974 },%
5975     sensitive,%
5976     alsoother={0123456789$_},%
5977     morecomment=[1]\% %
5978 }[keywords, comments]%
5979 </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.

```

5980 <*lang1>
5981 %%
5982 %% Python definition (c) 1998 Michael Weber
5983 %% Additional definitions (2013) Alexis Dimitriadis
5984 %%
5985 \lst@definlanguage{Python}{%
5986     morekeywords={access, and, break, class, continue, def, del, elif, else,%
5987         except, exec, finally, for, from, global, if, import, in, is, lambda,%
5988         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

```

5989 % Built-ins
5990     morekeywords=[2]{abs, all, any, basestring, bin, bool, bytearray,%
5991         callable, chr, classmethod, cmp, compile, complex, delattr, dict, dir,%
5992         divmod, enumerate, eval, execfile, file, filter, float, format,%

```

```

5993     frozenset, getattr, globals, hasattr, hash, help, hex, id, input, int,%
5994     isinstance, issubclass, iter, len, list, locals, long, map, max,%
5995     memoryview, min, next, object, oct, open, ord, pow, property, range,%
5996     raw_input, reduce, reload, repr, reversed, round, set, setattr, slice,%
5997     sorted, staticmethod, str, sum, super, tuple, type, unichr, unicode,%
5998     vars, xrange, zip, apply, buffer, coerce, intern},%
5999     sensitive=true,%
6000     morecomment=[l]\#,%
6001     morestring=[b]',%
6002     morestring=[b]" ,%

```

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

```

6003     morecomment=[s]{'''}{'''},% used for documentation text
6004                                     % (multiline strings)
6005     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:

```

6006     morestring=[s]{r'}{'},% 'raw' strings
6007     morestring=[s]{r"}{"},%
6008     morestring=[s]{r'''}{'''},%
6009     morestring=[s]{r"""}{"""},%
6010     morestring=[s]{u'}{'},% unicode strings
6011     morestring=[s]{u"}{"},%
6012     morestring=[s]{u'''}{'''},%
6013     morestring=[s]{u"""}{"""}%
6014 }%

```

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.

```
6015 </lang1>
```

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

```

6016 <*python-prf>
6017 \usepackage{xcolor}
6018 \usepackage{textcomp}
6019
6020 %% Actual colors from idlelib/config-highlight.def
6021 %%     --> corrected to 'web-safe'
6022 %% strings = #00aa00 / 0,170,0      (a darker green)
6023 %% builtins = #900090 / 144,0,144  (purple-ish)
6024 %% keywords = #FF7700 / 255,119,0  (quite close to plain 'orange')
6025 %\definecolor{IDLEorange}{RGB}{255,119,0} % pretty close to real orange
6026 %\definecolor{IDLEpurple}{RGB}{144,0,144}

```

```

6027 %\definecolor{IDLEgreen}{RGB}{0,170,0}
6028 %\definecolor{IDLERed}{RGB}{221,0,0}
6029 %% Corrected to 'web-safe'
6030 %\definecolor{orange2}{RGB}{255,102,0}
6031 \definecolor{purple2}{RGB}{153,0,153} % there's actually no standard purple
6032 \definecolor{green2}{RGB}{0,153,0} % a darker green
6033 %\definecolor{red2}{RGB}{221,0,0}
6034
6035 % Except for green and purple, the other colors are pretty good in standard
6036 % hue
6037 \lstdefinestyle{python-idle-code}{%
6038     language=Python, % the language
6039     basicstyle=\normalsize\ttfamily, % size of the fonts for the code
6040     % Color settings to match IDLE style
6041     keywordstyle=\color{orange}, % core keywords
6042     keywordstyle={[2]\color{purple2}}, % built-ins
6043     stringstyle=\color{green2},%
6044     commentstyle=\color{red},%
6045     upquote=true, % requires textcomp
6046 }
6047 % Unimplemented IDLE syntax: function/class names being defined should be
6048 % blue

```

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

```

6049 </python-prf>

```

2.67 Rexx

Patrick TJ McPhee provided this definition.

```

6050 <*lang2>
6051 %%
6052 %% classic rexx listings definition
6053 %% by Patrick TJ McPhee <ptjm@interlog.com>
6054 %%
6055 \lst@definlanguage{Rexx}
6056 {morekeywords={address,arg,call,do,drop,else,end,exit,if,iterate,%
6057             interpret,leave,nop,numeric,options,otherwise,parse,%
6058             procedure,pull,push,queue,return,say,signal,then,to,%
6059             trace,when},%
6060     sensitive=false,%
6061     morecomment=[n]{/*}{*/},%
6062     morestring=[d]{'},%
6063     morestring=[d]{"},%
6064 }[keywords,comments,strings]%
6065 </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

```
6066 <*lang2>
6067 %%
6068 %% REXX keywords from System Product Interpreter Reference, VM/XA SP Release 1
6069 %% and Release 2
6070 \lst@definlanguage[VM/XA]{Rexx}[] {Rexx}{%
6071   morekeywords={all,by,digits,commands,end,engineering,error,errors,expose,%
6072     external,for,form,fuzz,halt,labels,intermediates,negative,normal,novalue,%
6073     on,off,results,scan,scientific,select,source,stream,syntax,until,upper,%
6074     value,var,version,while,with},%
6075   ndkeywords={abbrev,abs,address,bitand,bitor,bitxor,center,centre,%
6076     compare,copies,c2d,c2x,datatype,date,delstr,delword,diag,diagrc,%
6077     d2c,d2x,errortext,externals,find,format,index,insert,justify,%
6078     lastpos,left,length,linesize,max,min,overlay,pos,queued,random,%
6079     reverse,righth,sign,sourceline,space,storage,strip,substr,subword,%
6080     symbol,time,translate,trunc,userid,value,verify,word,wordindex,%
6081     wordlength,words,xrange,x2c,x2d},%
6082   sensitive=false,%
6083   morestring=[d]" ,%
6084   morestring=[d]' ,%
6085   morecomment=[s]{/*}{*/},%
6086   alsoletter={:},%
6087 } [keywords,comments,strings]%
6088 </lang2>
```

2.67.2 ooRexx

```
6089 <*lang2>
6090 %%
6091 %% ooREXX keywords (http://www.oorexx.org/)
6092 \lst@definlanguage[] {OORexx}[VM/XA]{Rexx}{%
6093   morekeywords={::class, ::method, ::attribute},%
6094 }
6095 </lang2>
```

2.68 Reduce

was provided by Geraint Paul Bevan.

```
6096 <*lang3>
6097 %%
6098 %% Reduce definition (c) 2002 Geraint Paul Bevan
6099 %%
6100 \lst@definlanguage{Reduce}%
6101   {morekeywords={%
6102     %% reserved identifiers
6103     abs,acos,acosh,acot,acoth,acsc,acsch,%
6104     adjprec,algebraic,algint,allbranch,allfac,and,%
6105     antisymmetric,append,arglength,array,asec,asech,%
```

```

6106 asin, asinh, atan, atan2, atanh, begin, bspace, bye, %
6107 card_no, ceiling, clear, clearrules, coeff, coeffn, %
6108 cofactor, combineexpt, combinelogs, comment, comp, %
6109 complex, conj, cons, cont, cos, cosh, cot, coth, cramer, %
6110 cref, csc, csch, decompose, define, defn, deg, demo, den, %
6111 depend, det, df, difference, dilog, display, div, do, e, %
6112 echo, ed, editdef, ei, end, eps, eq, equal, erf, errcont, %
6113 evalhseqp, eval_mode, even, evenp, exp, expandlogs, %
6114 expr, expt, ezgcd, factor, factorial, factorize, fexpr, %
6115 first, fix, fixp, floor, for, forall, foreach, fort, %
6116 fort_width, freeof, fullroots, g, gcd, geq, go, goto, %
6117 greaterp, high_pow, hypot, i, if, ifactor, impart, in, %
6118 index, infinity, infix, input, int, integer, interpol, %
6119 intstr, k, korder, lambda, lcm, lcof, length, leq, lessp, %
6120 let, lhs, linear, linelength, lisp, list, listargp, %
6121 listargs, ln, load, load_package, log, log10, logb, %
6122 low_pow, lterm, macro, mainvar, mass, mat, match, %
6123 mateigen, matrix, max, mcd, member, memq, min, minus, mkid, %
6124 modular, msg, mshell, multiplicities, nat, neq, nero, %
6125 nextprime, nil, nodepend, noncom, nonzero, nosplit, %
6126 nospur, nullspace, num, numberp, odd, off, on, operator, %
6127 or, order, ordp, out, output, part, pause, period, pf, pi, %
6128 plus, precedence, precise, precision, pret, pri, primep, %
6129 print_precision, procedure, product, quit, quotient, %
6130 random, random_new_seed, rank, rat, ratarg, rational, %
6131 rationalize, ratpri, real, rederr, reduct, remainder, %
6132 remfac, remind, repart, repeat, rest, resultant, retry, %
6133 return, reverse, revpri, rhs, rlisp88, %
6134 root_multiplicity, round, roundall, roundbf, rounded, %
6135 saveas, savestructr, scalar, sec, sech, second, set, %
6136 setmod, setq, share, showrules, showtime, shut, sign, sin, %
6137 sinh, smacro, solve, solvesingular, spur, sqrt, structr, %
6138 sub, sum, symbolic, symmetric, t, tan, tanh, third, time, %
6139 times, tp, tra, trace, trfac, trigform, trint, until, %
6140 varname, vecdim, vector, weight, when, where, while, %
6141 write, ws, wtlevel, %
6142 %% identifiers with spaces
6143 %% for all, for each, go to, such that, %
6144 }, %
6145 sensitive=false, %
6146 morecomment=[1] \%, %
6147 morecomment=[s] {COMMENT} {;}, %
6148 morecomment=[s] {COMMENT} {$}, %
6149 morestring="" %
6150 } [keywords, comments, strings] %
6151 </lang3>

```

2.69 RSL

Thanks go to Brian Christensen.

```

6152 <*lang3>
6153 %%
6154 %% RSL definition (c) 2004 Brian Christensen
6155 %%
6156 \lst@definlanguage{RSL}%
6157 {morekeywords={Bool,Char,devt_relation,Int,Nat,Real,Text,Unit,abs,any,%
6158 as,axiom,card,case,channel,chaos,class,do,dom,elems,else,elsif,end,%
6159 extend,false,for,hd,hide,if,in,inds,initialise,int,len,let,local,%
6160 object,of,out,post,pre,read,real,rng,scheme,skip,stop,swap,%
6161 test_case,theory,then,tl,true,type,until,use,value,variable,while,%
6162 with,write},%
6163 literate=%
6164 {<}{<$}{1}%
6165 {>}{>$}{1}%
6166 {[]}{[$]{1}%
6167 {}}{}$}{1}%
6168 {~}{\mbox{\widehat{\;}}}{1}%
6169 {'}{\raisebox{1ex}[1ex][0ex]{\protect\scriptsize$\prime$}}{1}%
6170 {||}{\mbox{\parallel$}}{2}%
6171 {|-}{\vdash}{1}%
6172 {|=|}{\mbox{\lceil\!\!rceil\!\!\!\!\!\!\!\!\!\!\!\!\!\!\!\!\lfloor\!\!rfloor$}}{1}%
6173 {**}{\uparrow}{1}%
6174 {/\}{\wedge}{1}%
6175 {inter}{\cap}{1}%
6176 {-\}{\lambda}{1}%
6177 {->}{\rightarrow}{1}%
6178 {-m->}{\mbox{\rightarrow \hspace{-2.5\lst@width} _{m}\;}}{1}%
6179 {-~m->}{\mbox{\stackrel{\sim}{\rightarrow}}}{1}%
6180 \hspace{-2.5\lst@width} _{m}\;}}{1}%
6181 {-~>}{\mbox{\stackrel{\sim}{\rightarrow}}}{1}%
6182 {-set}{\bf{-set}}{4}%
6183 {-list}{\ast}{1}%
6184 {-inflist}{\omega}{1}%
6185 {-infset}{\bf{-infset}}{7}%
6186 {\#}{\circ}{1}%
6187 {:-}{\raisebox{.4ex}{\tiny $\bullet$}}{1}%
6188 {=}{=$}{1}%
6189 {==}{==$}{2}%
6190 {=>}{\Rightarrow}{1}%
6191 {\ is\protect\^M}{\;\equiv}{2}%
6192 {\ is\ }{\equiv}{3}%
6193 {\ isin\protect\^M}{\;\in}{2}%
6194 {~}{\sim}{1}%
6195 {~=}{\neq}{1}%
6196 {~isin}{\notin}{1}%
6197 {+>}{\mapsto}{1}%

```


6198 {++}{1}%
6199 {|\!|}{\mbox{\\$ \lceil \! \rceil}}{1}%
6200 {\|/}{\\$ \vee}{1}%
6201 {exists}{\\$ \exists}{1}%
6202 {union}{\\$ \cup}{1}%
6203 {>=}{\\$ \geq}{1}%
6204 {><}{\\$ \times}{1}%
6205 {>>}{\\$ \supset}{1}%
6206 {>>=}{\\$ \supseteq}{1}%
6207 {<=}{\\$ \leq}{1}%
6208 {<<}{\\$ \subset}{1}%
6209 {<.}{\\$ \langle}{1}%
6210 {<<=}{\\$ \subseteq}{1}%
6211 {<->}{\\$ \leftrightarrow}{1}%
6212 {[=]}{\\$ \sqsubseteq}{1}%
6213 {\{=]}{\\$ \preceq}{1}%
6214 {\ all \protect \^M}{\\$ \forall}{2}%
6215 {\ all \ }{\\$ \forall}{3}%
6216 {!!}{\\$ \dagger}{1}%
6217 {always}{\\$ \Box}{1}%
6218 {.>}{\\$ \rangle}{1}%
6219 {'alpha}{\\$ \alpha}{1}%
6220 {'beta}{\\$ \beta}{1}%
6221 {'gamma}{\\$ \gamma}{1}%
6222 {'delta}{\\$ \delta}{1}%
6223 {'epsilon}{\\$ \epsilon}{1}%
6224 {'zeta}{\\$ \zeta}{1}%
6225 {'eta}{\\$ \eta}{1}%
6226 {'theta}{\\$ \theta}{1}%
6227 {'iota}{\\$ \iota}{1}%
6228 {'kappa}{\\$ \kappa}{1}%
6229 {'mu}{\\$ \mu}{1}%
6230 {'nu}{\\$ \nu}{1}%
6231 {'xi}{\\$ \xi}{1}%
6232 {'pi}{\\$ \pi}{1}%
6233 {'rho}{\\$ \rho}{1}%
6234 {'sigma}{\\$ \sigma}{1}%
6235 {'tau}{\\$ \tau}{1}%
6236 {'upsilon}{\\$ \upsilon}{1}%
6237 {'phi}{\\$ \phi}{1}%
6238 {'chi}{\\$ \chi}{1}%
6239 {'psi}{\\$ \psi}{1}%
6240 {'omega}{\\$ \omega}{1}%
6241 {'Gamma}{\\$ \Gamma}{1}%
6242 {'Delta}{\\$ \Delta}{1}%
6243 {'Theta}{\\$ \Theta}{1}%
6244 {'Lambda}{\\$ \Lambda}{1}%
6245 {'Xi}{\\$ \Xi}{1}%
6246 {'Pi}{\\$ \Pi}{1}%
6247 {'Sigma}{\\$ \Sigma}{1}%

```

6248 {'Upsilon'}{${\Upsilon$}}{1}%
6249 {'Phi'}{${\Phi$}}{1}%
6250 {'Psi'}{${\Psi$}}{1}%
6251 {'Omega'}{${\Omega$}}{1},%
6252     sensitive=true,%
6253     morecomment=[1]{--},%
6254     morecomment=[s]{/*}{*/}%
6255 }[keywords,comments]%
6256 </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.

```

6257 <*lang2>
6258 \lst@definlanguage{Ruby}%
6259 {morekeywords={__FILE__,__LINE__,BEGIN,END,alias,and,begin,break,%
6260     case,class,def,defined?,do,else,elsif,end,ensure,false,for,%
6261     if,in,module,next,nil,not,or,redo,rescue,retry,return,self,%
6262     super,then,true,undef,unless,until,when,while,yield},%
6263     sensitive=true,%
6264     morecomment=[1]\#,%
6265     morecomment=[1]\#\#,%
6266     morecomment=[s]{=BEGIN}{=END},%
6267     morestring=[b]',%
6268     morestring=[b]" ,%
6269     morestring=[s]{\%q/}{/},%
6270     morestring=[s]{\%q!}{!},%
6271     morestring=[s]{\%q\{ }\},%
6272     morestring=[s]{\%q( )},%
6273     morestring=[s]{\%q[ ]},%
6274     morestring=[s]{\%q-}{-},%
6275     morestring=[s]{\%Q/}{/},%
6276     morestring=[s]{\%Q!}{!},%
6277     morestring=[s]{\%Q\{ }\},%
6278     morestring=[s]{\%Q( )},%
6279     morestring=[s]{\%Q[ ]},%
6280     morestring=[s]{\%Q-}{-}%
6281 }[keywords,comments,strings]%
6282 %     \begin{macrocode}
6283 </lang2>

```

2.71 Scilab

Thanks go to Jean-Philippe Grivet.

```
6284 (*lang1)
6285 %%
6286 %% Scilab definition (c) 2002,2003 Jean-Philippe Grivet
6287 %%
6288 \lst@definlanguage{Scilab}%
6289 {morekeywords={abcd,abinv,abort,abs,acoshm,acosh,acosm,acos,addcolor,%
6290     addf,addinter,addmenu,add_edge,add_node,adj2sp,adj_lists,aff2ab,%
6291     amell,analf,analyze,ans,apropos,arc_graph,arc_number,argn,arhk,%
6292     arl2,arma2p,armac,armax1,armax,arma,arsimul,artest,articul,ascii,%
6293     asinhm,asinh,asinm,asin,atanhm,atanh,atanm,atan,augment,auread,%
6294     auwrite,balanc,balreal,bandwr,basename,bdiag,besseli,besselj,%
6295     bessell,bessely,best_match,bezout,bifish,bilin,binomial,black,%
6296     bloc2exp,bloc2ss,bode,bool2s,boolean,boucle,break,bstap,buttmg,%
6297     bvode,cainv,calerf,calfrq,call,canon,casc,case,ccontrg,cdfbet,%
6298     cdfbin,cdfchi,cdfchn,cdfcnc,cdff,cdfgam,cdfnbn,cdfnor,cdfpoi,%
6299     cdftr,ceil,center,cepstrum,chaintest,chain_struct,champ1,champ,%
6300     chart,.chdir,cheb1mag,cheb2mag,check_graph,check_io,chepol,chfact,%
6301     chol,chsolve,circuit,classmarkov,clean,clearfun,clearglobal,%
6302     clear,close,cls2dls,cmb_lin,cmdred,cmoment,code2str,coeff,coffg,%
6303     coff,colcompr,colcomp,colinout,colormap,colregul,companion,comp,%
6304     cond,conj,connex,contour2di,contour2d,contourf,contour,%
6305     contract_edge,contrss,contr,cont_frm,cont_mat,convex_hull,convol,%
6306     convstr,con_nodes,copfac,copy,correl,corr,coshm,cosh,cosm,cos,%
6307     cotg,cothm,coth,covar,csim,cspect,ctr_gram,cumprod,cumsum,%
6308     curbloc,cycle_basis,czt,c_link,dasrt,dassl,datafit,date,dbphi,%
6309     dcf,ddp,debug,dec2hex,deff,definedfields,degree,delbpt,%
6310     delete_arcs,delete_nodes,delete,delip,delmenu,demos,denom,%
6311     derivative,derivat,des2ss,des2tf,determ,detr,det,dft,dhinf,%
6312     dhnorm,diag,diary,diff,diophant,dirname,dispbpt,dispfiles,disp,%
6313     dlgamma,double,dragrect,drawaxis,drawlater,drawnow,draw,driver,%
6314     dscr,dsearch,dsimul,dtsi,dt_ility,duplicate,edge_number,%
6315     edit_curv,edit_graph_menus,edit_graph,edit,eigenmarkov,ell1mag,%
6316     elseif,else,emptystr,endfunction,end,eqfir,eqiir,equil1,equil,%
6317     ereduc,erfcx,erfc,erf,errbar,errcatch,errclear,error,eval3dp,%
6318     eval3d,eval,evans,evstr,excel2sci,execstr,exec,exists,exit,expm,%
6319     exp,external,eye,fac3d,factors,faurre,fchamp,fcontour2d,fcontour,%
6320     fec,feedback,feval,ffilt,fftshift,fft,fgrayplot,figure,fileinfo,%
6321     file,filter,findm,findobj,findx0BD,find_freq,find_path,find,%
6322     findABCD,findAC,findBD,findBDK,findR,fit_dat,fix,floor,flts,foo,%
6323     formatman,format,fort,for,fourplan,fplot2d,fplot3d1,fplot3d,%
6324     fprintf,fprintfMat,frep2tf,freq,freson,frexp,frfit,frmag,fscanf,%
6325     fscanfMat,fsfirlin,fsolve,fspecg,fstabst,fstair,ftest,ftuneq,%
6326     fullrfk,fullrf,full,fun2string,funcprot,functions,function,%
6327     funptr,fusee,gainplot,gamitg,gammaln,gamma,gcare,gcd,gcf,%
6328     genfac3d,genlib,genmarkov,gen_net,geom3d,geomean,getblocklabel,%
6329     getcolor,getcurblock,getcwd,getdate,getd,getenv,getfield,getfont,%
```

```

6330  getf,getio,getlinestyle,getmark,getpid,getcscosvars,getsymbol,%
6331  getvalue,getversion,get_function_path,get,gfare,gfrancis,girth,%
6332  givens,glever,glist,global,glue,gpeche,graduate,grand,%
6333  graphics_entities,graph_2_mat,graph_center,graph_complement,%
6334  graph_diameter,graph_power,graph_simp,graph_sum,graph_union,%
6335  graph-list,graycolormap,grayplot,graypolarplot,grep,group,%
6336  gr_menu,gschur,gsort,gspec,gstacksize,gtild,g_margin,h2norm,halt,%
6337  hamilton,hankelsv,hank,harmean,havewindow,help,hermit,hess,%
6338  hex2dec,hilb,hinf,hist3d,histplot,horner,host,hotcolormap,%
6339  householder,hrmt,htrianr,hypermat,h_cl,h_inf_st,h_inf,h_norm,%
6340  iconvert,icon_edit,ieee,if,iirgroup,iirlp,iir,ilib_build,%
6341  ilib_compile,ilib_for_link,ilib_gen_gateway,ilib_gen_loader,%
6342  ilib_gen_Make,imag,impl,imrep2ss,imult,im_inv,inistate,input,%
6343  int16,int2d,int32,int3d,int8,intc,intdec,integrate,interpfn,%
6344  interp,intersci,intersect,intg,intl,intppty,intsplin,inttrap,%
6345  inttype,int,invr,invsyslin,inv_coeff,inv,iqr,isdef,isdire,isequal,%
6346  iserror,isglobal,isinfn,isnan,isoview,isreal,is_connex,jmat,%
6347  justify,kalm,karmarkar,kernel,keyboard,knapsack,kpure,krac2,%
6348  kroneck,kron,lasterror,lattn,lattp,lcf,lcmdiag,lcm,ldivf,ldiv,%
6349  leastsq,legends,length,leqr,levin,lev,lex_sort,lft,lgfft,library,%
6350  lib,lin2mu,lincos,lindquist,lines,line_graph,linfn,linf,link,%
6351  linmeq,linpro,linsolve,linspace,lin,listfiles,list,lmisolver,%
6352  lmitool,loadmatfile,loadplots,loadwave,load_graph,load,locate,%
6353  log10,log1p,log2,logm,logspace,log,lotest,lqe,lqg2stan,lqg_ltr,%
6354  lqg,lqr,lsq,lsslist,lstcat,lstsize,ltitr,ludel,lufact,luget,%
6355  lusolve,lu,lyap,macglov,macr2lst,macrovar,macro,mad,make_graph,%
6356  make_index,manedit,man,mapsound,markp2ss,matfile2sci,matrix,%
6357  mat_2_graph,maxi,max_cap_path,max_clique,max_flow,max,mclearerr,%
6358  mclose,meanf,mean,median,meof,mese,mesh2d,mfft,mfile2sci,mgeti,%
6359  mgetl,mgetstr,mget,milk_drop,mine,mini,minreal,minss,%
6360  min_lcost_cflow,min_lcost_flow1,min_lcost_flow2,min_qcost_flow,%
6361  min_weight_tree,min,mlist,mode,module,moment,mopen,move,%
6362  mps2linpro,mputl,mputstr,mput,mrfit,msd,mseek,mtell,mtlb_load,%
6363  mtlb_mode,mtlb_save,mtlb_sparse,mu2lin,mulf,mvvacov,m_circle,%
6364  names,nand2mean,nanmax,nanmeanf,nanmean,nanmedian,nanmin,%
6365  nanstdev,nansum,narsimul,ndims,nearfloat,nehari,neighbors,%
6366  netclose,netwindows,netwindow,newest,newfun,nextpow2,nf3d,nfreq,%
6367  nlev,nnz,nodes_2_path,nodes_degrees,node_number,noisegen,norm,%
6368  null,numdiff,numer,nyquist,obscont1,obscont,observer,obsvss,%
6369  obsv_mat,obs_gram,odedc,odedi,odeoptions,ode_discrete,ode_root,%
6370  ode,oldload,oldsave,ones,optim,orth,param3d1,param3d,%
6371  paramfplot2d,parrot,part,pathconvert,path_2_nodes,pause,pbig,%
6372  pdiv,pen2ea,pencan,penlaur,perctl,perfect_match,pertrans,pfss,%
6373  phasemag,phc,pinv,pipe_network,playsnd,plot2d1,plot2d2,plot2d3,%
6374  plot2d4,plot2d,plot3d1,plot3d2,plot3d3,plot3d,plotframe,%
6375  plotprofile,plot_graph,plot,plzr,pmodulo,pol2des,pol2str,pol2tex,%
6376  polarplot,polar,polfact,poly,portr3d,portrait,power,ppol,prbs_a,%
6377  predecessors,predef,printf,printing,print,prod,profile,projsl,%
6378  projspec,proj,psmall,pspect,pvm_addhosts,pvm_barrier,pvm_bcast,%
6379  pvm_bufinfo,pvm_config,pvm_delhosts,pvm_error,pvm_exit,%

```

6380 pvm_f772sci,pvm_getinst,pvm_gettid,pvm_get_timer,pvm_gsize,%
6381 pvm_halt,pvm_joiningroup,pvm_kill,pvm_lvgroup,pvm_mytid,pvm_parent,%
6382 pvm_probe,pvm_recv,pvm_reduce,pvm_sci2f77,pvm_send,pvm_set_timer,%
6383 pvm_spawn_independent,pvm_spawn,pvm_start,pvm_tasks,%
6384 pvm_tidtohost,pvm_pwd,p_margin,qassign,qr,quapro,quart,quaskro,%
6385 quit,randpencil,rand,range,rankqr,rank,rat,rcond,rdivf,read4b,%
6386 readb,readc_,readmps,read,real,recur,reglin,regress,remezb,remez,%
6387 repfreq,replot,residu,resume,return,riccati,riccsl,ricc,ric_desc,%
6388 rlist,roots,rotate,round,routh_t,rowcompr,rowcomp,rowinout,%
6389 rowregul,rowshuff,rpem,rref,rtitr,rubberbox,salesman,savewave,%
6390 save_graph,save,scaling,scanf,schur,sci2exp,sci2for,sci2map,%
6391 sciargs,scicosim,scicos,scifunc_block,sd2sci,secto3d,select,%
6392 semidef,sensi,setbpt,seventhandler,setfield,setmenu,%
6393 setscicosvars,set,sfact,sgrid,shortest_path,showprofile,%
6394 show_arcs,show_graph,show_nodes,sident,signm,sign,simp_mode,simp,%
6395 sincd,sinc,sinc,sinhm,sinh,sinm,sin,size,sm2des,sm2ss,smooth,%
6396 solve,sorder,sort,sound,sp2adj,spaninter,spanplus,spantwo,sparse,%
6397 spchol,spcompact,specfact,spec,speye,spget,splin,split_edge,%
6398 spones,sprand,sprintf,spzeros,sqroot,sqrtm,sqrt,squarewave,%
6399 square,srfaur,srkf,ss2des,ss2ss,ss2tf,sscanf,sskf,ssprint,ssrand,%
6400 stabil,stacksize,standard_define,standard_draw,standard_input,%
6401 standard_origin,standard_output,startup,stdevf,stdev,steadycos,%
6402 str2code,strange,strcat,strindex,strings,string,striplanks,%
6403 strong_connex,strong_con_nodes,strsubst,st_deviation,st_ility,%
6404 subf,subgraph,subplot,successors,sum,supernode,sva,svd,svplot,%
6405 sylv,sylv,sysconv,sysdiag,sysfact,syslin,syssize,systems,system,%
6406 systmat,tambul,tangent,tanhm,tanh,tanm,tan,tdinit,testmatrix,%
6407 texprint,tf2des,tf2ss,then,thrownan,timer,time_id,titlepage,%
6408 tk_getdir,tk_getfile,tlist,toeplitz,tokenpos,tokens,trace,%
6409 translatepaths,trans_closure,trans,trfmod,trianfml,tril,trimmean,%
6410 trisolve,triu,trzeros,typename,typeof,type,uicontrol,uimenu,%
6411 uint16,uint32,uint8,ui_observer,ulink,unglue,union,unique,unix_g,%
6412 unix_s,unix_w,unix_x,unix,unobs,unsetmenu,user,varargin,%
6413 varargout,variancef,variance,varn,warning,wavread,wavwrite,%
6414 wcenter,wfir,what,whereami,whereis,where,while,whos,who_user,who,%
6415 wiener,wigner>window,winsid,with_gtk,with_pvm,with_texmacs,%
6416 with_tk,writb,write4b,write,xarcs,xarc,xarrows,xaxis,xbasf,%
6417 xbasimp,xbasr,xchange,xclear,xclea,xclick,xclip,xdel,xend,xfarcs,%
6418 xfarc,xfpolys,xfpoly,xfrect,xgetech,xgetfile,xgetmouse,xget,%
6419 xgraduate,xgrid,xinfo,xinit,xlfont,xload,xname,xnumb,xpause,%
6420 xpolys,xpoly,xrects,xrect,xrpoly,xs2fig,xs2gif,xs2ppm,xs2ps,%
6421 xsave,xsegs,select,xsetech,xsetm,xset,xstringb,xstringl,xstring,%
6422 xtape,xtitle,x_choices,x_choose,x_dialog,x_matrix,x_mdialog,%
6423 x_message_modeless,x_message,yulewalk,zeropen,zeros,zgrid,zpbutt,%
6424 zpch1,zpch2,zpell,mfprintf,mfscanf,mprintf,mscanf,msprintf,%
6425 msscanf,mucomp,%
6426 ABSBLK_f,AFFICH_f,ANDLOG_f,ANIMXY_f,BIGSOM_f,CLINDUMMY_f,CLKIN_f,%
6427 CLKINV_f,CLKOUT_f,CLKOUTV_f,CLKSOM_f,CLKSOMV_f,CLKSPLIT_f,%
6428 CLOCK_f,CLR_f,CLSS_f,CONST_f,COSBLK_f,CURV_f,DELAY_f,DELAYV_f,%
6429 DEMUX_f,DLR_f,DLRADAPT_f,DLSS_f,EVENTSCOPE_f,EVTDLY_f,EVTGEN_f,%

```

6430     EXPBLK_f,G_make,GAIN_f,GAINBLK_f,GENERAL_f,GENERIC_f,GENSIN_f,%
6431     GENSQR_f,HALT_f,IFTHEL_f,IN_f,INTEGRAL_f,INTRP2BLK_f,INTRPLBLK_f,%
6432     INVBLK_f,LOGBLK_f,LOOKUP_f,Matplot1,Matplot,MAX_f,MCLOCK_f,%
6433     MFCLCK_f,MIN_f,MUX_f,NDcost,NEGTOPOS_f,OUT_f,POSTONEG_f,POWBLK_f,%
6434     PROD_f,QUANT_f,RAND_f,READC_f,REGISTER_f,RELAY_f,RFILE_f,%
6435     ScilabEval,Sfgrayplot,Sgrayplot,SAMPLEHOLD_f,SAT_f,SAWTOOTH_f,%
6436     SCOPE_f,SCOPXY_f,SELECT_f,SINBLK_f,SOM_f,SPLIT_f,STOP_f,SUPER_f,%
6437     TANBLK_f,TCLSS_f,TEXT_f,TIME_f,TK_EvalFile,TK_EvalStr,TK_GetVar,%
6438     TK_SetVar,TRASH_f,WFILE_f,WRITEC_f,ZCROSS_f,%
6439     \\\asn,\\helps,\\%k,\\%sn},%
6440     alsoletter=\\,% chmod
6441     sensitive,%
6442     morecomment=[l]//,%
6443     morestring=[b] "%,%
6444     morestring=[m] '%
6445 }[keywords,comments,strings]%
6446 </lang1>

```

2.72 SHELXL

Thanks to Aidan Philip Heerden for mailing this definition.

```

6447 <*lang2>
6448 %%
6449 %% SHELXL definition (c) 1999 Aidan Philip Heerden
6450 %%
6451 \lst@definlanguage{SHELXL}%
6452 {morekeywords={TITL,CELL,ZERR,LATT,SYMM,SFAC,DISP,UNIT,LAUE,%
6453     REM,MORE,TIME,END,HKLF,OMIT,SHEL,BASF,TWIN,EXTI,SWAT,%
6454     MERG,SPEC,RESI,MOVE,ANIS,AFIX,HFIX,FRAG,FEND,EXYZ,EADP,%
6455     EQIV,OMIT,CONN,PART,BIND,FREE,DFIX,BUMP,SAME,SADI,CHIV,%
6456     FLAT,DELU,SIMU,DEFS,ISOR,SUMP,L.S.,CGLS,SLIM,BLOC,DAMP,%
6457     WGHT,FVAR,BOND,CONF,MPLA,RTAB,LIST,ACTA,SIZE,TEMP,WPDB,%
6458     FMAP,GRID,PLAN,MOLE},%
6459     sensitive=false,%
6460     alsoother=_,% Makes the syntax highlighting ignore the underscores
6461     morecomment=[l]{! },%
6462 }%
6463 </lang2>

```

2.73 Simula

Took data from

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

```

6464 <*lang3>
6465 \lst@definlanguage[IBM]{Simula}[DEC]{Simula}{-}%

```

```

6466 \lst@definlanguage[DEC]{Simula}[67]{Simula}%
6467   {morekeywords={and,eq,eqv,ge,gt,hidden,imp,le,long,lt,ne,not,%
6468     options,or,protected,short}}%
6469   }%

6470 \lst@definlanguage[CII]{Simula}[67]{Simula}%
6471   {morekeywords={and,equiv,exit,impl,not,or,stop}}%

6472 \lst@definlanguage[67]{Simula}%
6473   {morekeywords={activate,after,array,at,before,begin,boolean,%
6474     character,class,comment,delay,detach,do,else,end,external,false,%
6475     for,go,goto,if,in,inner,inspect,integer,is,label,name,new,none,%
6476     notext,otherwise,prior,procedure,qua,reactivate,real,ref,resume,%
6477     simset,simulation,step,switch,text,then,this,to,true,until,value,%
6478     virtual,when,while},%
6479   sensitive=f,%
6480   keywordcommentsemicolon={end}{else,end,otherwise,when}{comment},%
6481   morestring=[d] "%,%
6482   morestring=[d] '%
6483   }[keywords,keywordcomments,strings]%

6484 </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.

```

6485 <*lang3>
6486 %%
6487 %% SPARQL definition (c) 2006 Christoph Kiefer
6488 %%
6489 \lst@definlanguage{SPARQL}%
6490   {morekeywords={BASE,PREFIX,SELECT,DISTINCT,CONSTRUCT,DESCRIBE,ASK,%
6491     FROM,NAMED,WHERE,ORDER,BY,ASC,DESC,LIMIT,OFFSET,OPTIONAL,%
6492     GRAPH,UNION,FILTER,a,STR,LANG,LANGMATCHES,DATATYPE,BOUND,%
6493     isIRI,isURI,isBLANK,isLITERAL,REGEX,true,false},%
6494   sensitive=false,%
6495   morecomment=[l]\#,%
6496   morestring=[d] '%,%
6497   morestring=[d] "%
6498   }[keywords,comments,strings]%

6499 </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/cgi-bin/bugreport.cgi?bug=626521>, the issue got corrected.

```
6500 <*lang1>
6501 %%
6502 %% SQL definition (c) 1998 Christian Haul
6503 %%             (c) 2002 Neil Conway
6504 %%             (c) 2002 Robert Frank
6505 %%             (c) 2003 Dirk Jesko
6506 %%
6507 \lst@definlanguage{SQL}%
6508 {morekeywords={ABSOLUTE,ACTION,ADD,ALLOCATE,ALTER,ARE,AS,ASSERTION,%
6509 AT,BEGIN,BETWEEN,BIT_LENGTH,BOTH,BY,CASCADE,CASCADDED,CASE,CAST,%
6510 CATALOG,CHAR_LENGTH,CHARACTER_LENGTH,CLUSTER,COALESCE,%
6511 COLLATE,COLLATION,COLUMN,CONNECT,CONNECTION,CONSTRAINT,%
6512 CONSTRAINTS,CONVERT,CORRESPONDING,CREATE,CROSS,CURRENT_DATE,%
6513 CURRENT_TIME,CURRENT_TIMESTAMP,CURRENT_USER,DAY,DEALLOCATE,%
6514 DEC,DEFERRABLE,DEFERED,DESCRIBE,DESCRIPTOR,DIAGNOSTICS,%
6515 DISCONNECT,DOMAIN,DROP,ELSE,END,EXEC,EXCEPT,EXCEPTION,EXECUTE,%
6516 EXTERNAL,EXTRACT,FALSE,FIRST,FOREIGN,FROM,FULL,GET,GLOBAL,%
6517 GRAPHIC,HAVING,HOUR,IDENTITY,IMMEDIATE,INDEX,INITIALLY,INNER,%
6518 INPUT,INSENSITIVE,INSERT,INTO,INTERSECT,INTERVAL,%
6519 ISOLATION,JOIN,KEY,LAST,LEADING,LEFT,LEVEL,LIMIT,LOCAL,LOWER,%
6520 MATCH,MINUTE,MONTH,NAMES,NATIONAL,NATURAL,NCHAR,NEXT,NO,NOT,NULL,%
6521 NULLIF,OCTET_LENGTH,ON,ONLY,ORDER,ORDERED,OUTER,OUTPUT,OVERLAPS,%
6522 PAD,PARTIAL,POSITION,PREPARE,PRESERVE,PRIMARY,PRIOR,READ,%
6523 RELATIVE,RESTRICT,REVOKE,RIGHT,ROWS,SCROLL,SECOND,SELECT,SESSION,%
6524 SESSION_USER,SIZE,SPACE,SQLSTATE,SUBSTRING,SYSTEM_USER,%
6525 TABLE,TEMPORARY,THEN,TIMEZONE_HOUR,%
6526 TIMEZONE_MINUTE,TRAILING,TRANSACTION,TRANSLATE,TRANSLATION,TRIM,%
6527 TRUE,UNIQUE,UNKNOWN,UPPER,USAGE,USING,VALUE,VALUES,%
6528 VARGRAPHIC,VARYING,WHEN,WHERE,WRITE,YEAR,ZONE,%
6529 AND,ASC,avg,CHECK,COMMIT,count,DECODE,DESC,DISTINCT,GROUP,IN,% FF
6530 LIKE,NUMBER,ROLLBACK,SUBSTR,sum,VARCHAR2,% FF
6531 MIN,MAX,UNION,UPDATE,% RF
6532 ALL,ANY,CUBE,CUBE,DEFAULT,DELETE,EXISTS,GRANT,OR,RECURSIVE,% DJ
6533 ROLE,ROLLUP,SET,SOME,TRIGGER,VIEW},% DJ
6534 moreendkeywords={BIT,BLOB,CHAR,CHARACTER,CLOB,DATE,DECIMAL,FLOAT,% DJ
6535 INT,INTEGER,NUMERIC,SMALLINT,TIME,TIMESTAMP,VARCHAR},% moved here
6536 sensitive=false,% DJ
6537 morecomment=[l]--,%
6538 morecomment=[s]{/*}{*/},%
6539 morestring=[d]',%
6540 morestring=[d]"%
6541 }[keywords,comments,strings]%
6542 </lang1>
```


2.76 Swift

The definition for Swift was provided by Stefan Jager.

```
6543 ⟨*lang3⟩
6544 \lst@definlanguage{Swift}{%
6545   morekeywords={associatedtype,class,deinit,enum,extension,fileprivate,%
6546     func,import,init,inout,internal,let,open,operator,private,protocol,%
6547     public,static,struct,subscript,typealias,var,break,case,continue,%
6548     default,defer,do,else,fallthrough,for,guard,if,in,repeat,return,%
6549     switch,where,while,as,Any,catch,false,is,nil,rethrows,super,self,%
6550     Self,throw,throws,true,try,_,associativity,convenience,dynamic,%
6551     didSet,final,get,infix,indirect,lazy,left,mutating,none,%
6552     nonmutating,optional,override,postfix,precedence,prefix,Protocol,%
6553     required,right,set,Type,unowned,weak,willSet},%
6554   sensitive,%
6555   morecomment=[s]{/*}{*/},%
6556   morecomment=[s]{/**}{*/},%
6557   morecomment=[l]//,%
6558   morecomment=[l]///,%
6559   morestring=[b]" ,%
6560   morestring=[b]"",%
6561   moredelim=*[directive]\#,%
6562   moredirectives={available,colorLiteral,column,else,elseif,endif,file,%
6563     fileLiteral,function,if,imageLiteral,line,selector,sourceLocation}%
6564 }[keywords,comments,strings,directives]%
6565 ⟨/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.

```
6566 ⟨*lang2⟩
6567 %%
6568 %% Tcl/Tk definition (c) Gerd Neugebauer
6569 %%
6570 \lst@definlanguage{tk}{tcl}[]{}{tcl}%
6571 {morekeywords={activate,add,separator,radiobutton,checkboxbutton,%
6572   command,cascade,all,bell,bind,bindtags,button,canvas,canvasx,%
6573   canvasy,cascade,cget,checkboxbutton,config,configu,configur,%
```

```

6574     configure, clipboard, create, arc, bitmap, image, line, oval, polygon, %
6575     rectangle, text, textwindow, cursorselection, delete, destroy, end, entry, %
6576     entrycget, event, focus, font, actual, families, measure, metrics, names, %
6577     frame, get, grab, current, release, status, grid, columnconfigure, %
6578     rowconfigure, image, image, create, bitmap, photo, delete, height, types, %
6579     widt, names, index, insert, invoke, itemconfigure, label, listbox, lower, %
6580     menu, menubutton, message, move, option, add, clear, get, readfile, pack, %
6581     photo, place, radiobutton, raise, scale, scroll, scrollbar, search, see, %
6582     selection, send, stdin, stdout, stderr, tag, bind, text, tk, tkerror, %
6583     tkwait, window, variable, visibility, toplevel, unknown, update, winfo, %
6584     class, exists, ismapped, parent, reqwidth, reqheight, rootx, rooty, %
6585     width, height, wm, aspect, client, command, deiconify, focusmodel, frame, %
6586     geometry, group, iconbitmap, iconify, iconmask, iconname, iconposition, %
6587     iconwindow, maxsize, minsize, overriddenredirect, positionfrom, %
6588     protocol, sizefrom, state, title, transient, withdraw, xview, yview, %
6589     yposition, %
6590     -accelerator, -activebackground, -activeborderwidth, %
6591     -activeforeground, -after, -anchor, -arrow, -arrowshape, -aspect, %
6592     -async, -background, -before, -bg, -bigincrement, -bitmap, -bordermode, %
6593     -borderwidth, -button, -capstyle, -channel, -class, -closeenough, %
6594     -colormap, -column, -columnspan, -command, -confine, -container, %
6595     -count, -cursor, -data, -default, -detail, -digits, -direction, %
6596     -displayof, -disableforeground, -elementborderwidth, -expand, %
6597     -exportselection, -extend, -family, -fg, -file, -fill, -focus, -font, %
6598     -fontmap, -foreground, -format, -from, -gamma, -global, -height, %
6599     -highlightbackground, -highlightcolor, -highlightthickness, -icon, %
6600     -image, -in, -insertbackground, -insertborderwidth, -insertofftime, %
6601     -insertontime, -insertwidth, -ipadx, -ipady, -joinstyle, -jump, %
6602     -justify, -keycode, -keysym, -label, -lastfor, -length, -maskdata, %
6603     -maskfile, -menu, -message, -mode, -offvalue, -onvalue, -orient, %
6604     -outlien, -outlinestipple, -overstrike, -override, -padx, -pady, %
6605     -pageanchor, -pageheight, -pagewidth, -pagey, -pagey, -palette, %
6606     -parent, -place, -postcommand, -relheight, -relief, -relwidth, -relx, %
6607     -rely, -repeatdelay, -repeatinterval, -resolution, -root, -rootx, %
6608     -rooty, -rotate, -row, -rowspan, -screen, -selectcolor, -selectimage, %
6609     -sendevent, -serial, -setgrid, -showvalue, -shrink, -side, -size, %
6610     -slant, -sliderlength, -sliderrelief, -smooth, -splinesteps, -state, %
6611     -sticky, -stipple, -style, -subsample, -subwindow, -tags, -takefocus, %
6612     -tearoff, -tearoffcommand, -text, -textvariable, -tickinterval, -time, %
6613     -title, -to, -troughcolor, -type, -underline, -use, -value, -variable, %
6614     -visual, -width, -wrap, -wraplength, -x, -xscrollcommand, -y, %
6615     -bgstipple, -fgstipple, -lmargin1, -lmargin2, -rmargin, -spacing1, %
6616     -spacing2, -spacing3, -tabs, -yscrollcommand, -zoom, %
6617     activate, add, addtag, bbox, cget, clone, configure, coords, %
6618     cursorselection, debug, delete, delta, deselect, dlineinfo, dtag, dump, %
6619     entrycget, entryconfigure, find, flash, fraction, get, gettags, handle, %
6620     icursor, identify, index, insert, invoke, itemcget, itemconfigure, mark, %
6621     moveto, own, post, postcascade, postscript, put, redither, ranges, %
6622     scale, select, show, tag, type, unpost, xscrollcommand, xview, %
6623     yscrollcommand, yview, yposition}%

```

```

6624 }%
6625 \lst@definlanguage[] {tcl}%
6626 {alsoletter={.:,*=&-},%
6627   morekeywords={after,append,array, names,exists, anymore,donesearch,%
6628     get,nextelement,set,size,startsearch,auto_mkindex,binary,break,%
6629     case,catch,cd,clock,close,concat,console,continue,default,else,%
6630     elseif,eof,error,eval,exec,-keepnewline,exit,expr,fblocked,%
6631     fconfigure,fcopy,file,atime,dirname,executable,exists,extension,%
6632     isdirectory,isfile,join,lstat,mtime,owned,readable,readlink,%
6633     rootname,size,stat,tail,type,writable,-permissions,-group,-owner,%
6634     -archive,-hidden,-readonly,-system,-creator,-type,-force,%
6635     fileevent,flush,for,foreach,format,gets,glob,global,history,if,%
6636     incr,info,argsbody,cmdcount,commands,complete,default,exists,%
6637     globals,level,library,locals,patchlevel,procs,script,tclversion,%
6638     vars,interp,join,lappend,lindex,linsert,list,llength,lrange,%
6639     lreplace,lsearch,-exact,-regex,-glob,lsort,-ascii,-integer,%
6640     -real,-dictionary,-increasing,-decreasing,-index,-command,load,%
6641     namespace,open,package,forget,ifneeded,provide,require,unknown,%
6642     vcompare,versions,vsatisfies,pid,proc,puts,-newline,pwd,read,%
6643     regex,-indices,regsub,-all,-nocasereaname,return,scan,seek,set,%
6644     socket,source,split,string,compare,first,index,last,length,match,%
6645     range,tolower,toupper,trim,trimleft,trimright,subst,switch,tell,%
6646     time,trace,variable,vdelete,vinfo,unknown,unset,uplevel,upvar,%
6647     vwait,while,acos,asin,atan,atan2,ceil,cos,cosh,exp,floor,fmod,%
6648     hypot,log,log10,pow,sin,sinh,sqrt,tan,tanh,abs,double,int,round%
6649   },%
6650   morestring=[d] "%,%
6651   morecomment=[f] \#,%
6652   morecomment=[l] {\; \#},%
6653   morecomment=[l] {\[\#},%
6654   morecomment=[l] {\{\#}%
6655 } [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.

```
6656 </lang2>
```

2.78 Statistical languages

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

```
6657 <*lang3>
```

```

6658 \lst@definlanguage{S} [] {R}{-}
6659 \lst@definlanguage[PLUS] {S} [] {R}{-}
6660 \lst@definlanguage{R}%
6661 {keywords={abbreviate,abline,abs,acos,acosh,action,add1,add,%
6662   aggregate,alias, Alias,alist,all,anova,any,aov,aperm,append,apply,%
6663   approx,approxfun,apropos,Arg,args,array,arrows,as,asin,asinh,%

```

6664 atan,atan2,atanh,attach,attr,attributes,autoload,autoloader,ave,%
6665 axis,backsolve,barplot,basename,besselI,besselJ,besselK,besselY,%
6666 beta,binomial,body,box,boxplot,break,browser,bug,builtins,bxp,by,%
6667 c,C,call,Call,case,cats,category,cbind,ceiling,character,char,%
6668 charmatch,check,chol,chol2inv,choose,chull,class,close,cm,codes,%
6669 coef,coefficients,co,col,colnames,colors,colours,commandArgs,%
6670 comment,complete,complex,conflicts,Conj,contents,contour,%
6671 contrasts,contr,control,helmert,contrib,convolve,cooks,coords,%
6672 distance,coplot,cor,cos,cosh,count,fields,cov,covratio,wt,CRAN,%
6673 create,crossprod,cummax,cummin,cumprod,cumsum,curve,cut,cycle,D,%
6674 data,dataentry,date,dbeta,dbinom,dcauchy,dchisq,de,debug,%
6675 debugger,Defunct,default,delay,delete,deltat,demo,de,density,%
6676 deparse,dependencies,Deprecated,deriv,description,detach,%
6677 dev2bitmap,dev,cur,deviance,off,prev,,dexp,df,dfbetas,dffits,%
6678 dgamma,dgeom,dget,dhyper,diag,diff,digamma,dim,dimnames,dir,%
6679 dirname,dlnorm,dlogis,dnbinom,dnchisq,dnorm,do,dotplot,double,%
6680 download,dpois,dput,drop,drop1,dsignrank,dt,dummy,dump,dunif,%
6681 duplicated,dweibull,dwilcox,dyn,edit,eff,effects,eigen,else,%
6682 emacs,end,environment,env,erase,eval,equal,evalq,example,exists,%
6683 exit,exp,expand,expression,External,extract,extractAIC,factor,%
6684 fail,family,fft,file,filled,find,fitted,fivenum,fix,floor,for,%
6685 For,formals,format,formatC,formula,Fortran,forwardsolve,frame,%
6686 frequency,ftable,ftable2table,function,gamma,Gamma,gammaCody,%
6687 gaussian,gc,gcinfo,gctorture,get,getenv,geterrmessage,getOption,%
6688 getwd,gl,glm,globalenv,gnome,GNOME,graphics,gray,grep,grey,grid,%
6689 gsub,hasTsp,hat,heat,help,hist,home,hsv,httpClient,I,identify,if,%
6690 ifelse,Im,image,\%in%,index,influence,measures,inherits,install,%
6691 installed,integer,interaction,interactive,Internal,intersect,%
6692 inverse,invisible,IQR,is,jitter,kappa,kronecker,labels,lapply,%
6693 layout,lbeta,lchoose,lcm,legend,length,levels,lgamma,library,%
6694 licence,license,lines,list,lm,load,local,locator,log,log10,log1p,%
6695 log2,logical,loglin,lower,lowess,ls,lsfit,lsf,ls,machine,Machine,%
6696 mad,mahalanobis,make,link,margin,match,Math,matlines,mat,matplot,%
6697 matpoints,matrix,max,mean,median,memory,menu,merge,methods,min,%
6698 missing,Mod,mode,model,response,mosaicplot,mtext,mvfft,na,nan,%
6699 names,omit,nargs,nchar,ncol,NCOL,new,next,NextMethod,nextn,%
6700 nlevels,nlm,noquote,NotYetImplemented,NotYetUsed,nrow,NROW,null,%
6701 numeric,\%o%,objects,offset,old,on,Ops,optim,optimise,optimize,%
6702 options,or,order,ordered,outer,package,packages,page,pairlist,%
6703 pairs,palette,panel,par,parent,parse,paste,path,pbeta,pbinom,%
6704 pcauchy,pchisq,pentagamma,persp,pexp,pf,pgamma,pgeom,phyper,pico,%
6705 pictex,piechart,Platform,plnorm,plogis,plot,pmatch,pmax,pmin,%
6706 pnbinom,pnchisq,pnorm,points,poisson,poly,polygon,polyroot,pos,%
6707 postscript,power,ppoints,ppois,predict,preplot,pretty,Primitive,%
6708 print,prmatrix,proc,prod,profile,proj,prompt,prop,provide,%
6709 psignrank,ps,pt,ptukey,punif,pweibull,pwilcox,q,qbeta,qbinom,%
6710 qcauchy,qchisq,qexp,qf,qgamma,qgeom,qhyper,qlnorm,qlogis,qnbinom,%
6711 qnchisq,qnorm,qpois,qqline,qnorm,qqplot,qr,Q,qty,qy,qsignrank,%
6712 qt,qtukey,quantile,quasi,quit,qunif,quote,qweibull,qwilcox,%
6713 rainbow,range,rank,rbeta,rbind,rbinom,rcauchy,rchisq,Re,read,csv,%

```

6714     csv2, fwf, readline, socket, real, Recall, rect, reformulate, regexpr, %
6715     relevel, remove, rep, repeat, replace, replications, report, require, %
6716     resid, residuals, restart, return, rev, rexp, rf, rgamma, rgb, rgeom, R, %
6717     rhyper, rle, rlnorm, rlogis, rm, rnbinom, RNGkind, rnorm, round, row, %
6718     rownames, rowsum, rpois, rsignrank, rstandard, rstudent, rt, rug, runif, %
6719     rweibull, rwilcox, sample, sapply, save, scale, scan, scan, screen, sd, se, %
6720     search, searchpaths, segments, seq, sequence, setdiff, setequal, set, %
6721     setwd, show, sign, signif, sin, single, sinh, sink, solve, sort, source, %
6722     spline, splinefun, split, sqrt, stars, start, stat, stem, step, stop, %
6723     storage, strsrheight, stripplot, strsplit, structure, strwidth, sub, %
6724     subset, substitute, substr, substring, sum, summary, sunflowerplot, svd, %
6725     sweep, switch, symbol, symbols, symnum, sys, status, system, t, table, %
6726     tabulate, tan, tanh, tapply, tempfile, terms, terrain, tetragamma, text, %
6727     time, title, topo, trace, traceback, transform, tri, trigamma, trunc, try, %
6728     ts, tsp, typeof, unclass, undoc, union, unique, uniroot, unix, %
6729     unlink, unlist, unname, untrace, update, upper, url, UseMethod, var, %
6730     variable, vector, Version, vi, warning, warnings, weighted, weights, %
6731     which, while, window, write, \%x\%, x11, X11, xedit, xemacs, xinch, xor, %
6732     xpdrows, xy, xyinch, yinch, zapsmall, zip}, %
6733     otherkeywords={!, !=, ~, $, *, \&, \%/\%, \%*\%, \%\\%, <-, <<-, _, /}, %
6734     alsoother={._$}, %
6735     sensitive, %
6736     morecomment=[l]\#, %
6737     morestring=[d]", %
6738     morestring=[d]'% 2001 Robert Denham
6739 }%

```

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

```

6740 \lst@definelanguage{SAS}{%
6741     procnamekeys={proc}, %
6742     morekeywords={DATA, AND, OR, NOT, EQ, GT, LT, GE, LE, NE, INFILE, INPUT, %
6743     DO, BY, TO, SIN, COS, OUTPUT, END, PLOT, RUN, LIBNAME, VAR, TITLE, %
6744     FIRSTOBS, OBS, DELIMITER, DLM, EOF, ABS, DIM, HBOUND, LBOUND, MAX, MIN, %
6745     MOD, SIGN, SQRT, CEIL, FLOOR, FUZZ, INT, ROUND, TRUNC, DIGAMMA, ERF, %
6746     ERFC, EXP, GAMMA, LGAMMA, LOG, LOG2, LOG10, ARCOS, ARSIN, ATAN, COSH, %
6747     SINH, TANH, TAN, POISSON, PROBBETA, PROBBNML, PROBCHI, PROBF, PROBGAM, %
6748     PROBHYP, PROBNGB, PROBNORM, PROBT, BETAINV, CINV, FINV, GAMINV, %
6749     PROBIT, TINV, CSS, CV, KURTOSIS, MEAN, NMISS, RANGE, SKEWNESS, STD, %
6750     STDERR, SUM, USS, NORMAL, RANBIN, RANCAU, RANEXP, RANGAM, RANNOR, %
6751     RANPOI, RANTBL, RANTRI, RANUNI, UNIFORM, IF, THEN, ELSE, WHILE, UNTIL, %
6752     DROP, KEEP, LABEL, DEFAULT, ARRAY, MERGE, CARDS, CARDS4, PUT, SET, %
6753     UPDATE, ABORT, DELETE, DISPLAY, LIST, LOSTCARD, MISSING, STOP, WHERE, %
6754     ARRAY, DROP, KEEP, WINDOW, LENGTH, RENAME, RETAIN, MEANS, UNIVARIATE, %
6755     SUMMARY, TABULATE, CORR, FREQ, FOOTNOTE, NOTE, SHOW}, %
6756     otherkeywords={!, !=, ~, $, *, \&, _/, <, >, =, <=, >}, %
6757     morestring=[d]'%
6758 }[keywords, comments, strings, procnames]%
6759 </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.

```
6760 <*lang3>
6761 \lst@definlanguage [AllaTeX]{TeX}[LaTeX]{TeX}%
6762   {moretexcs={AtBeginDocument,AtBeginDvi,AtEndDocument,AtEndOfClass,%
6763     AtEndOfPackage,ClassError,ClassInfo,ClassWarning,%
6764     ClassWarningNoLine,CurrentOption,DeclareErrorFont,%
6765     DeclareFixedFont,DeclareFontEncoding,DeclareFontEncodingDefaults,%
6766     DeclareFontFamily,DeclareFontShape,DeclareFontSubstitution,%
6767     DeclareMathAccent,DeclareMathAlphabet,DeclareMathAlphabet,%
6768     DeclareMathDelimiter,DeclareMathRadical,DeclareMathSizes,%
6769     DeclareMathSymbol,DeclareMathVersion,DeclareOldFontCommand,%
6770     DeclareOption,DeclarePreloadSizes,DeclareRobustCommand,%
6771     DeclareSizeFunction,DeclareSymbolFont,DeclareSymbolFontAlphabet,%
6772     DeclareTextAccent,DeclareTextAccentDefault,DeclareTextCommand,%
6773     DeclareTextCommandDefault,DeclareTextComposite,%
6774     DeclareTextCompositeCommand,DeclareTextFontCommand,%
6775     DeclareTextSymbol,DeclareTextSymbolDefault,ExecuteOptions,%
6776     GenericError,GenericInfo,GenericWarning,IfExists,%
6777     InputIfExists,LoadClass,LoadClassWithOptions,MessageBreak,%
6778     OptionNotUsed,PackageError,PackageInfo,PackageWarning,%
6779     PackageWarningNoLine,PassOptionsToClass,PassOptionsToPackage,%
6780     ProcessOptionsProvidesClass,ProvidesFile,ProvidesFile,%
6781     ProvidesPackage,ProvideTextCommand,RequirePackage,%
6782     RequirePackageWithOptions,SetMathAlphabet,SetSymbolFont,%
6783     TextSymbolUnavailable,UseTextAccent,UseTextSymbol},%
6784   morekeywords={array,center,displaymath,document,enumerate,eqnarray,%
6785     equation,flushleft,flushright,itemize,list,lrbox,math,minipage,%
6786     picture,sloppypar,tabbing,tabular,trivlist,verbatim}%
6787   }%
6788 \lst@definlanguage [LaTeX]{TeX}[common]{TeX}%
6789   {moretexcs={a,AA,aa,addcontentsline,addpenalty,addtocontents,%
6790     addtocounter,addtolength,addtoversion,advspace,alpha,Alph,and,%
6791     arabic,array,arraycolsep,arrayrulewidth,arraystretch,author,%
6792     baselinestretch,begin,bezier,bfseries,bibcite,bibdata,bibitem,%
6793     bibliography,bibliographystyle,bibstyle,bigskip,boldmath,%
6794     botfigrule,bottomfraction,Box,caption,center,CheckCommand,circle,%
6795     citation,cite,cleardoublepage,clearpage,cline,columnsep,%
6796     columnseprule,columnwidth,contentsline,dashbox,date,dblfigrule,%
6797     dblfloatpagefraction,dblfloatsep,dbltextfloatsep,dbltopfraction,%
6798     defaultsciptratio,defaultscriptsciptratio,depth,Diamond,%
6799     displaymath,document,documentclass,documentstyle,doublerulesep,%
6800     em,emph,endarray,endcenter,endedisplaymath,endedocument,%
6801     endenumerate,endeqnarray,endequation,endflushleft,endflushright,%
6802     enditemize,endlist,endlrbox,endmath,endminipage,endpointure,%
6803     endsloppypar,endtabbing,endtabular,endtrivlist,endverbatim,%
6804     enlargethispage,ensuremath,enumerate,eqnarray,equation,%
```

6805 evensidemargin,extracolsep,fbox,fboxrule,fboxsep,filecontents,%
6806 fill,floatpagefraction,floatsep,flushbottom,flushleft,flushright,%
6807 fnsymbol,fontencoding,fontfamily,fontseries,fontshape,fontsize,%
6808 fontsubfuzz,footnotemark,footnotesep,footnotetext,footskip,frac,%
6809 frame,framebox,fussy,glossary,headheight,headsep,height,hline,%
6810 hspace,I,include,includeonly,index,inputlineno,intextsep,%
6811 itemindent,itemize,itemsep,iterate,itshape,Join,kill,label,%
6812 labelsep,labelwidth,LaTeX,LaTeXe,leadsto,lefteqn,leftmargin,%
6813 leftmargini,leftmarginii,leftmarginiii,leftmarginiv,leftmarginv,%
6814 leftmarginvi,leftmark,lhd,lim,linebreak,linespread,linethickness,%
6815 linewidth,list,listfiles,listfiles,listparindent,lrbox,%
6816 makeatletter,makeatother,makebox,makeglossary,makeindex,%
6817 makelabel,MakeLowercase,MakeUppercase,marginpar,marginparpush,%
6818 marginparsep,marginparwidth,markboth,markright,math,mathbf,%
6819 mathellipsis,mathgroup,mathit,mathrm,mathsf,mathsterling,mathtt,%
6820 mathunderscore,mathversion,mbox,mdseries,mho,minipage,%
6821 multicolumn,multiput,NeedsTeXFormat,newcommand,newcounter,%
6822 newenvironment,newfont,newhelp,newlabel,newlength,newline,%
6823 newmathalphabet,newpage,newsavebox,newtheorem,nobreakspace,%
6824 nobreakspace,nocite,nocorr,nocorrlist,nofiles,nolinebreak,%
6825 nonumber,nopagebreak,normalcolor,normalfont,normalmarginpar,%
6826 numberline,obeycr,oddsidemargin,oldstylenums,onecolumn,oval,%
6827 pagebreak,pagenundering,pageref,pagestyle,paperheight,paperwidth,%
6828 paragraphmark,parbox,parsep,partopsep,picture,poptabs,pounds,%
6829 protect,pushtabs,put,qbezier,qbeziermax,r,raggedleft,raisebox,%
6830 ref,refstepcounter,renewcommand,renewenvironment,restorecr,%
6831 reversemarginpar,rhd,righmargin,rightmark,rmfamily,roman,Roman,%
6832 rootbox,rule,samepage,sbox,scshape,secdef,section,sectionmark,%
6833 selectfont,setcounter,settodepth,settotoheight,settowidth,ssfamly,%
6834 shortstack,showoutput,showoverfull,sloppy,sloppypar,slshape,%
6835 smallskip,sqsubset,sqsupset,SS,stackrel,stepcounter,stop,stretch,%
6836 subparagraphmark,subsectionmark,subsubsectionmark,sum,%
6837 suppressfloats,symbol,tabbing,tabbingsep,tabcolsep,tabular,%
6838 tabularnewline,textasciicircum,textasciitilde,textbackslash,%
6839 textbar,textbf,textbraceleft,textbraceright,textbullet,%
6840 textcircled,textcompwordmark,txtdagger,txtdaggerdbl,txtdollar,%
6841 textellipsis,txtemdash,txtextdash,txtextclamdown,txtfootsep,%
6842 textfraction,txtextgreater,txtextheight,txtextit,txtextless,txtextmd,%
6843 textnormal,txtextparagraph,txtextperiodcentered,txtextquestiondown,%
6844 textquotedblleft,txtextquotedblright,txtextquoteleft,txtextquoteright,%
6845 textregistered,txtextrm,txtextsc,txtextsection,txtextsf,txtextsl,%
6846 textsterling,txtextsuperscript,txtexttrademark,txtexttt,txtextunderscore,%
6847 textup,txtextvisiblespace,txtextwidth,thanks,thefootnote,thempfn,%
6848 thempfn,thempfootnote,thepage,thepage,thicklines,thinlines,%
6849 thispagestyle,title,today,topfigrule,topfraction,topmargin,%
6850 topsep,totalheight,tracingfonts,trivlist,ttfamily,twocolumn,%
6851 typein,typeout,unboldmath,unitlength,unlhd,unrhd,upshape,usebox,%
6852 usecounter,usefont,usepackage,value,vector,verb,verbatim,vline,%
6853 vspace,width,%
6854 normalsize,small,footnotesize,scriptsize,tiny,large,Large,LARGE,%

```

6855     huge,Huge}%
6856 }%
6857 \lst@definelanguage [plain]{TeX}[common]{TeX}%
6858 {moretexcs={advancepageno,beginsection,bf,bffam,bye,cal,cleartabs,%
6859     columns,dosupereject,endinsert,equalign,equalignno,fiverm,fivebf,%
6860     fivei,fivesy,folio,footline,hang,headline,it,itemitem,itfam,%
6861     lequalignno,magnification,makefootline,makeheadline,midinsert,mit,%
6862     mscount,nopagenumbers,normalbottom,of,oldstyle,pagebody,%
6863     pagecontents,pageinsert,pageno,plainoutput,preloaded,proclaim,rm,%
6864     settabs,sevenbf,seveni,sevency,sevenrm,sl,slfam,supereject,%
6865     tabalign,tabs,tabsdone,tabsyet,tenbf,tenex,teni,tenit,tenrm,%
6866     tensl,tensy,tentt,textindent,topglue,topins,topinsert,tt,ttfam,%
6867     ttraggedright,vfootnote}%
6868 }%

```

The following language is only a helper.

```

6869 \lst@definelanguage [common]{TeX}[primitive]{TeX}
6870 {moretexcs={active,acute,ae,AE,aleph,allocationnumber,allowbreak,%
6871     alpha,amalg,angle,approx,arccos,arcsin,arctan,arg,arrowvert,%
6872     Arrowvert,ast,asyp,b,backslash,bar,beta,bgroup,big,Big,bigbreak,%
6873     bigcap,bigcirc,bigcup,bigg,Bigg,biggl,Biggl,biggm,Biggm,bigr,%
6874     Biggr,bigl,Bigl,bigm,Bigm,bigodot,bigoplus,bigotimes,bigr,Bigr,%
6875     bigskip,bigskipamount,bigsqcup,bigtriangledown,bigtriangleup,%
6876     biguplus,bigvee,bigwedge,bmod,bordermatrix,bot,bowtie,brace,%
6877     braced,bracelu,bracerd,braceru,bracevert,brack,break,breve,%
6878     buildrel,bullet,c,cap,cases,cdot,cdotp,cdots,centering,%
6879     centerline,check,chi,choose,circ,clubsuit,colon,cong,coprod,%
6880     copyright,cos,cosh,cot,coth,csc,cup,d,dag,dagger,dashv,ddag,%
6881     ddagger,ddot,ddots,deg,delta,Delta,det,diamond,diamondsuit,dim,%
6882     displaylines,div,do,dospecials,dot,doteq,dotfill,dots,downarrow,%
6883     Downarrow,downbracefill,egroup,eject,ell,empty,emptyset,endgraf,%
6884     endline,enskip,enspace,epsilon,equiv,eta,exists,exp,filbreak,%
6885     flat,fmtname,fmtversion,footins,footnote,footnoterule,forall,%
6886     frenchspacing,frown,gamma,Gamma,gcd,ge,geq,gets,gg,goodbreak,%
6887     grave,H,hat,hbar,heartsuit,hglue,hideskip,hidewidth,hom,%
6888     hookleftarrow,hookrightarrow,hphantom,hrulefill,i,ialign,iff,Im,%
6889     imath,in,inf,infty,int,interdisplaylinepenalty,%
6890     interfootnotelinepenalty,intop,iota,item,j,jmath,joinrel,jot,%
6891     kappa,ker,l,L,lambda,Lambda,land,lang,lbrace,lbrack,lceil,%
6892     ldotp,ldots,le,leavevmode,leftarrow,Leftarrow,leftarrowfill,%
6893     leftharpoondown,leftharpoonup,leftline,leftrightharrow,%
6894     Leftrightarrow,leq,lfloor,lg,lgroup,lhook,lim,liminf,limsup,line,%
6895     ll,llap,lmoustache,ln,lnot,log,longleftarrow,Longleftarrow,%
6896     longleftrightharrow,Longleftrightharrow,longmapsto,longrightarrow,%
6897     Longrightarrow,loop,lor,lq,magstep,magstep,magstephalf,mapsto,%
6898     mapstochar,mathhexbox,mathpalette,mathstrut,matrix,max,maxdimen,%
6899     medbreak,medskip,medskipamount,mid,min,models,mp,mu,multispan,%
6900     nabla,narrower,natural,ne,narrow,neg,negthinspace,neq,newbox,%
6901     newcount,newdimen,newfam,newif,newinsert,newlanguage,newmuskip,%
6902     newread,newskip,newtoks,newwrite,next,ni,nobreak,nointerlineskip,%

```



```

6903 nonfrenchspacing,normalbaselines,normalbaselineskip,%
6904 normallineskip,normallineskiplimit,not,notin,nu,null,nwarrow,o,0,%
6905 oalign,obeylines,obeyspaces,odot,oe,OE,offinterlineskip,oint,%
6906 ointop,omega,Omega,ominus,oalign,openup,oplus,oslash,otimes,%
6907 overbrace,overleftarrow,overrightarrow,owns,P,parallel,partial,%
6908 perp,phantom,phi,Phi,pi,Pi,pm,pmatrix,pmod,Pr,prec,preceq,prime,%
6909 prod,propto,psi,Psi,qquad,quad,raggedbottom,raggedright,rangle,%
6910 rbrace,rbrack,rceil,Re,relbar,Relbar,removelastskip,repeat,%
6911 rfloor,rgroup,rho,rhook,rightarrow,Rightarrow,rightarrowfill,%
6912 rightharpoondown,rightharpoonup,rightleftharpoons,rightline,rlap,%
6913 rmoustache,root,rq,S,sb,searrow,sec,setminus,sharp,showhyphens,%
6914 sigma,Sigma,sim,simeq,sin,sinh,skew,slash,smallbreak,smallint,%
6915 smallskip,smallskipamount,smash,smile,sp,space,spadesuit,sqcap,%
6916 sqcup,sqrt,sqsubseteq,sqsupseteq,ss,star,strut,strutbox,subset,%
6917 subseteq,succ,succeq,sum,sup,supset,supseteq,surd,swarrow,t,tan,%
6918 tanh,tau,TeX,theta,Theta,thinspace,tilde,times,to,top,tracingall,%
6919 triangle,triangleleft,triangleright,u,underbar,underbrace,%
6920 uparrow,Uparrow,upbracefill,updownarrow,Updownarrow,uplus,%
6921 upsilon,Upsilon,v,varepsilon,varphi,varpi,varrho,varsigma,%
6922 vartheta,vdash,vdots,vec,vee,vert,Vert,vglue,vphantom,wedge,%
6923 widehat,widetilde,wlog,wp,wr,xi,Xi,zeta}%
6924 }%

```

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

```

6925 \lst@definlanguage[primitive]{TeX}%
6926 {moretexcs={above,abovedisplayshortskip,abovedisplayskip,aftergroup,%
6927   abovewithdelims,accent,adjdemerits,advance,afterassignment,atop,%
6928   atopwithdelims,badness,baselineskip,batchmode,begingroup,%
6929   belowdisplayshortskip,belowdisplayskip,binoppenalty,botmark,box,%
6930   boxmaxdepth,brokenpenalty,catcode,char,chardef,cleaders,closein,%
6931   closeout,clubpenalty,copy,count,countdef,cr,crcr,csname,day,%
6932   deadcycles,def,defaultshyphenchar,defaultskewchar,delcode,%
6933   delimiter,delimiterfactor,delimitershortfall,dimen,dimendef,%
6934   discretionary,displayindent,displaylimits,displaystyle,%
6935   displaywidowpenalty,displaywidth,divide,doublehyphendemerits,dp,%
6936   edef,else,emergencystretch,end,endcsname,endgroup,endinginput,%
6937   endlineschar,eqno,errhelp,errmessage,errorcontextlines,%
6938   errorstopmode,escapechar,everycr,everydisplay,everyhbox,everyjob,%
6939   everymath,everypar,everyvbox,exhyphenpenalty,expandafter,fam,fi,%
6940   finalhyphendemerits,firstmark,floatingpenalty,font,fontdimen,%
6941   fontname,futurelet,gdef,global,globaldefs,halign,hangafter,%
6942   hangindent,hbadness,hbox,hfil,hfill,hfilneg,hfuzz,hoffset,%
6943   holdinginserts,hrule,hsize,hskip,hss,ht,hyphenation,hyphenchar,%
6944   hyphenpenalty,if,ifcase,ifcat,ifdim,ifeof,iffalse,ifhbox,ifhmode,%
6945   ifinner,ifmmode,ifnum,ifodd,iftrue,ifvbox,ifvmode,ifvoid,ifx,%
6946   ignorespaces,immediate,indent,input,insert,insertpenalties,%
6947   interlinepenalty,jobname,kern,language,lastbox,lastkern,%
6948   lastpenalty,lastskip,lccode,leaders,left,lefthyphenmin,leftskip,%
6949   leqno,let,limits,linepenalty,lineskip,lineskiplimit,long,%

```

```

6950     looseness, lower, lowercase, mag, mark, mathaccent, mathbin, mathchar, %
6951     mathchardef, mathchoice, mathclose, mathcode, mathinner, mathop, %
6952     mathopen, mathord, mathpunct, mathrel, mathsurround, maxdeadcycles, %
6953     maxdepth, meaning, medmuskip, message, mkern, month, moveleft, %
6954     moveright, mskip, multiply, muskip, muskipdef, newlinechar, noalign, %
6955     noboundary, noexpand, noindent, nolimits, nonscript, nonstopmode, %
6956     nulldelimiterspace, nullfont, number, omit, openin, openout, or, outer, %
6957     output, outputpenalty, over, overfullrule, overline, overwithdelims, %
6958     pagedepth, pagefillstretch, pagefillstretch, pagefilstretch, %
6959     pagegoal, pageshrink, pagestretch, pagetotal, par, parfillskip, %
6960     parindent, parshape, parskip, patterns, pausing, penalty, %
6961     postdisplaypenalty, predisplaypenalty, predisplaysize, pretolerance, %
6962     prevdepth, prevgraf, radical, raise, read, relax, relpenalty, right, %
6963     righthyphenmin, rightskip, romannumeral, scriptfont, %
6964     scriptscriptfont, scriptscriptstyle, scriptspace, scriptstyle, %
6965     scrollmode, setbox, setlanguage, sfcode, shipout, show, showbox, %
6966     showboxbreadth, showboxdepth, showlists, showthe, skewchar, skip, %
6967     skipdef, spacefactor, spaceskip, span, special, splitbotmark, %
6968     splitfirstmark, splitmaxdepth, splittopskip, string, tabskip, %
6969     textfont, textstyle, the, thickmuskip, thinmuskip, time, toks, toksdef, %
6970     tolerance, topmark, topskip, tracingcommands, tracinglostchars, %
6971     tracingmacros, tracingonline, tracingoutput, tracingpages, %
6972     tracingparagraphs, tracingrestores, tracingstats, uccode, uchyp, %
6973     underline, unhbox, unhcopy, unkern, unpenalty, unskip, unvbox, unvcopy, %
6974     uppercase, vadjust, valign, vbadness, vbox, vcenter, vfil, vfill, %
6975     vfilneg, vfuzz, voffset, vrule, vsize, vskip, vsplit, vss, vtop, wd, %
6976     widowpenalty, write, xdef, xleaders, xspaceskip, year}, %
6977     sensitive, %
6978     alsoother={0123456789$_}, % $ to make Emacs fontlocking happy
6979     morecomment=[1] \%%
6980 } [keywords, tex, comments] %
6981 </lang3>

```

2.80 VBScript

Sonja Weidmann VBScript sent me this language definition.

```

6982 <*lang2>
6983 %%
6984 %% VBScript definition (c) 2000 Sonja Weidmann
6985 %%
6986 \lst@definlanguage{VBScript}%
6987 {morekeywords={Call, Case, Const, Dim, Do, Each, Else, End, Erase, Error, Exit, %
6988     Explicit, For, Function, If, Loop, Next, On, Option, Private, Public, %
6989     Randomize, ReDim, Rem, Select, Set, Sub, Then, Wend, While, Abs, Array, Asc, %
6990     Atn, CBool, CByte, CCur, CDate, CDb1, Chr, CInt, CLng, Cos, CreateObject, %
6991     CSng, CStr, Date, DateAdd, DateDiff, DatePart, DateSerial, DateValue, %
6992     Day, Exp, Filter, Fix, FormatCurrency, FormatDateTime, FormatNumber, %
6993     FormatPercent, GetObject, Hex, Hour, InputBox, InStr, InStrRev, Int, %

```

```

6994     IsArray, IsDate, IsEmpty, IsNull, IsNumeric, IsObject, Join, LBound, %
6995     LCase, Left, Len, LoadPicture, Log, LTrim, Mid, Minute, Month, MonthName, %
6996     MsgBox, Now, Oct, Replace, RGB, Right, Rnd, Round, RTrim, ScriptEngine, %
6997     ScriptEngineBuildVersion, ScriptEngineMajorVersion, %
6998     ScriptEngineMinorVersion, Second, Sgn, Sin, Space, Split, Sqr, StrComp, %
6999     StrReverse, String, Tan, Time, TimeSerial, TimeValue, Trim, TypeName, %
7000     UBound, UCase, VarType, Weekday, WeekdayName, Year, And, Eqv, Imp, Is, %
7001     Mod, Not, Or, Xor, Add, BuildPath, Clear, Close, Copy, CopyFile, %
7002     CopyFolder, CreateFolder, CreateTextFile, Delete, DeleteFile, %
7003     DeleteFolder, Dictionary, Drive, DriveExists, Drives, Err, Exists, File, %
7004     FileExists, FileSystemObject, Files, Folder, FolderExists, Folders, %
7005     GetAbsolutePathName, GetBaseName, GetDrive, GetDriveName, %
7006     GetExtensionName, GetFile, GetFileName, GetFolder, %
7007     GetParentFolderName, GetSpecialFolder, GetTempName, Items, Keys, Move, %
7008     MoveFile, MoveFolder, OpenAsTextStream, OpenTextFile, Raise, Read, %
7009     ReadAll, ReadLine, Remove, RemoveAll, Skip, SkipLine, TextStream, Write, %
7010     WriteBlankLines, WriteLine, Alias, Archive, CDROM, Compressed, %
7011     Directory, Fixed, ForAppending, ForReading, ForWriting, Hidden, Normal, %
7012     RAMDisk, ReadOnly, Remote, Removable, System, SystemFolder, %
7013     TemporaryFolder, TristateFalse, TristateTrue, TristateUseDefault, %
7014     Unknown, Volume, WindowsFolder, vbAbortRetryIgnore, %
7015     vbApplicationModal, vbArray, vbBinaryCompare, vbBlack, vbBlue, %
7016     vbBoolean, vbByte, vbCr, vbCrLf, vbCritical, vbCurrency, vbCyan, %
7017     vbDataObject, vbDate, vbDecimal, vbDefaultButton1, vbDefaultButton2, %
7018     vbDefaultButton3, vbDefaultButton4, vbDouble, vbEmpty, vbError, %
7019     vbExclamation, vbFirstFourDays, vbFirstFullWeek, vbFirstJan1, %
7020     vbFormFeed, vbFriday, vbGeneralDate, vbGreen, vbInformation, %
7021     vbInteger, vbLf, vbLong, vbLongDate, vbLongTime, vbMagenta, vbMonday, %
7022     vbNewLine, vbNull, vbNullChar, vbNullString, vbOKC, vancel, vbOKOnly, %
7023     vbObject, vbObjectError, vbQuestion, vbRed, vbRetryCancel, vbSaturday, %
7024     vbShortDate, vbShortTime, vbSingle, vbString, vbSunday, vbSystemModal, %
7025     vbTab, vbTextCompare, vbThursday, vbTuesday, vbUseSystem, %
7026     vbUseSystemDayOfWeek, vbVariant, vbVerticalTab, vbWednesday, vbWhite, %
7027     vbYellow, vbYesNo, vbYesNoCancel}, %
7028     sensitive=f, %
7029     morecomment=[l]', %
7030     morestring=[d]"%
7031 }[keywords, comments, strings]%
7032 </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.

```

7033 <*lang3>
7034 %%
7035 %% Verilog definition (c) 2003 Cameron H. G. Wright <c.h.g.wright@ieee.org>

```

```

7036 %% Based on the IEEE 1364-2001 Verilog HDL standard
7037 %% Ref: S. Palnitkar, "Verilog HDL: A Guide to Digital Design and Synthesis,"
7038 %%      Prentice Hall, 2003. ISBN: 0-13-044911-3
7039 %%
7040 \lst@definlanguage{Verilog}%
7041 {morekeywords={% reserved keywords
7042     always, and, assign, automatic, begin, buf, bufif0, bufif1, case, casez, %
7043     casez, cell, cmos, config, deassign, default, defparam, design, disable, %
7044     edge, else, end, endcase, endconfig, endfunction, endgenerate, %
7045     endmodule, endprimitive, endspecify, endtable, endtask, event, for, %
7046     force, forever, fork, function, generate, genvar, highz0, highz1, if, %
7047     ifnone, incdir, include, initial, inout, input, instance, integer, join, %
7048     large, liblist, library, localparam, macromodule, medium, module, nand, %
7049     negedge, nmos, nor, noshowcancelled, not, notif0, notif1, or, output, %
7050     parameter, pmos, posedge, primitive, pull0, pull1, pulldown, pullup, %
7051     pulsestyle_onevent, pulsestyle_ondetect, rcmos, real, realtime, reg, %
7052     release, repeat, rmos, rpmos, rtran, rtranif0, rtranif1, scalared, %
7053     showcancelled, signed, small, specify, specparam, strong0, strong1, %
7054     supply0, supply1, table, task, time, tran, tranif0, tranif1, tri, tri0, %
7055     tri1, triand, trior, trireg, unsigned, use, vectored, wait, wand, weak0, %
7056     weak1, while, wire, wor, xnor, xor}, %
7057 morekeywords=[2]{% system tasks and functions
7058     $bitstoreal, $countdrivers, $display, $fclose, $fdisplay, $fmonitor, %
7059     $fopen, $fstrobe, $fwrite, $finish, $getpattern, $history, $incsave, %
7060     $input, $itor, $key, $list, $log, $monitor, $monitoroff, $monitoron, %
7061     $nokey}, %
7062 morekeywords=[3]{% compiler directives
7063     'accelerate, 'autoexpand_vectornets, 'celldefine, 'default_nettype, %
7064     'define, 'else, 'elsif, 'endcelldefine, 'endif, 'endprotect, %
7065     'endprotected, 'expand_vectornets, 'ifdef, 'ifndef, 'include, %
7066     'no_accelerate, 'noexpand_vectornets, 'noremove_gatenames, %
7067     'nounconnected_drive, 'protect, 'protected, 'remove_gatenames, %
7068     'remove_netnames, 'resetall, 'timescale, 'unconnected_drive}, %
7069 alsoletter='\', %
7070 sensitive, %
7071 morecomment=[s]{/*}{*/}, %
7072 morecomment=[l]//, % nonstandard
7073 morestring=[b]"%
7074 }[keywords, comments, strings]%
7075 </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.

```

7076 <*lang1>
7077 %%

```

```

7078 %% VHDL definition (c) 1997 Kai Wollenweber
7079 %%
7080 \lst@definlanguage{VHDL}%
7081 {morekeywords={ALL, ARCHITECTURE, ABS, AND, ASSERT, ARRAY, AFTER, ALIAS, %
7082     ACCESS, ATTRIBUTE, BEGIN, BODY, BUS, BLOCK, BUFFER, CONSTANT, CASE, %
7083     COMPONENT, CONFIGURATION, DOWNTO, ELSE, ELSIF, END, ENTITY, EXIT, %
7084     FUNCTION, FOR, FILE, GENERIC, GENERATE, GUARDED, GROUP, IF, IN, INOUT, IS, %
7085     INERTIAL, IMPURE, LIBRARY, LOOP, LABEL, LITERAL, LINKAGE, MAP, MOD, NOT, %
7086     NOR, NAND, NULL, NEXT, NEW, OUT, OF, OR, OTHERS, ON, OPEN, PROCESS, PORT, %
7087     PACKAGE, PURE, PROCEDURE, POSTPONED, RANGE, REM, ROL, ROR, REPORT, RECORD, %
7088     RETURN, REGISTER, REJECT, SIGNAL, SUBTYPE, SLL, SRL, SLA, SRA, SEVERITY, %
7089     SELECT, THEN, TYPE, TRANSPORT, TO, USE, UNITS, UNTIL, VARIABLE, WHEN, WAIT, %
7090     WHILE, XOR, XNOR, %
7091     DISCONNECT, ELIF, WITH}, % Arnaud Tisserand
7092     sensitive=f, % 1998 Gaurav Aggarwal
7093     morecomment=[1]--, %
7094     morestring=[d]{"}%
7095 }[keywords, comments, strings]%

```

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

```

7096 %%
7097 %% VHDL-AMS definition (c) Steffen Klupsch
7098 %%
7099 \lst@definlanguage[AMS]{VHDL}[] {VHDL}%
7100 {morekeywords={ACROSS, ARRAY, BREAK, DISCONNECT, NATURE, NOISE, PORT, %
7101     PROCEDURAL, QUANTITY, SHARED, SPECTRUM, SUBNATURE, TERMINAL, THROUGH, %
7102     TOLERANCE, UNAFFECTED, UNITS}}
7103 </lang1>

```

2.83 VRML

This language is due to Oliver BaumVRML.

```

7104 <*lang2>
7105 %%
7106 %% VRML definition (c) 2001 Oliver Baum
7107 %%
7108 \lst@definlanguage[97]{VRML}{%
7109     morekeywords={DEF, EXTERNPROTO, FALSE, IS, NULL, PROTO, ROUTE, TO, TRUE, %
7110     USE, eventIn, eventOut, exposedField, field, Introduction, Anchor, %
7111     Appearance, AudioClip, Background, Billboard, Box, Collision, Color, %
7112     ColorInterpolator, Cone, Coordinate, CoordinateInterpolator, Cylinder, %
7113     CylinderSensor, DirectionalLight, ElevationGrid, Extrusion, Fog, %
7114     FontStyle, Group, ImageTexture, IndexedFaceSet, IndexedLineSet, Inline, %
7115     LOD, Material, MovieTexture, NavigationInfo, Normal, %
7116     NormalInterpolator, OrientationInterpolator, PixelTexture, PlaneSensor, %
7117     PointLight, PointSet, PositionInterpolator, ProximitySensor, %
7118     ScalarInterpolator, Script, Shape, Sound, Sphere, SphereSensor, %
7119     Spotlight, Switch, Text, TextureCoordinate, TextureTransform, %
7120     TimeSensor, TouchSensor, Transform, Viewpoint, VisibilitySensor, %

```

```

7121     WorldInfo},%
7122     morecomment=[1]\#,% bug: starts comment in the first column
7123     morestring=[b]"%
7124 }[keywords,comments,strings]
7125 </lang2>

```

2.84 XML et al

Bernhard Walle provided the following two definitions.

```

7126 <*lang1>
7127 \lst@definelanguage{XSLT}[] {XML}%
7128 {morekeywords={%
7129     % main elements
7130     xsl:stylesheet, xsl:transform,%
7131     % childs of the main element
7132     xsl:apply-imports, xsl:attribute-set, xsl:decimal-format, xsl:import,%
7133     xsl:include, xsl:key, xsl:namespace-alias, xsl:output, xsl:param,%
7134     xsl:preserve-space, xsl:strip-space, xsl:template, xsl:variable,%
7135     % 21 directives
7136     xsl:apply-imports, xsl:apply-templates, xsl:attribute,%
7137     xsl:call-template, xsl:choose, xsl:comment, xsl:copy, xsl:copy-of,%
7138     xsl:element, xsl:fallback, xsl:for-each, xsl:if, xsl:message,%
7139     xsl:number, xsl:otherwise, xsl:processing-instruction, xsl:text,%
7140     xsl:value-of, xsl:variable, xsl:when, xsl:with-param},%
7141     alsodigit={-},%
7142 }%
7143 \lst@definelanguage{Ant}[] {XML}{-%
7144     morekeywords={%
7145     project, target, patternset, include, exclude, excludesfile,%
7146     includesfile, filterset, filter, filtersfile, libfileset, custom,%
7147     classpath, fileset, none, depend, mapper, filename, not, date,%
7148     contains, selector, depth, or, and, present, majority, size, dirset,%
7149     filelist, pathelement, path, param, filterreader, extension,%
7150     filterchain, linecontainsregex, regexp, classconstants, headfilter,%
7151     tabstospaces, striplinebreaks, tailfilter, stripjavacomments,%
7152     expandproperties, linecontains, replacetokens, token,%
7153     striplinecomments, comment, prefixlines, classfileset, rootfileset,%
7154     root, description, xmlcatalog, entity, dtd, substitution, extensionSet,%
7155     propertyfile, entry, vsscheckin, sql, transaction, cvspass, csc,%
7156     dirname, wlrn, wlclasspath, p4label, replaceregexp, get, jjtree,%
7157     sleep, jarlib, dependset, targetfileset, srcfileset, srcfilelist,%
7158     targetfilelist, zip, zipgroupfileset, zipfileset, patch, jspc, webapp,%
7159     style, test, arg, jvmarg, sysproperty, testlet, env, tstamp, format,%
7160     unwar, vsshistory, icontract, cvschangelog, user, p4submit, ccmcheckin,%
7161     p4change, bzip2, vssadd, javadoc, bottom, source, doctitle, header,%
7162     excludepackage, bootclasspath, doclet, taglet, packageset, sourcepath,%
7163     link, footer, package, group, title, tag, translate, signjar, vajload,%
7164     vajproject, jarlib, extensionset, Wsd1ToDotnet, buildnumber,%

```

```

7165     jpcovmerge, tomcat, ejbjar, weblogictopl原因, jboss, borland, weblogic,%
7166     iplanet, jonas, support, websphere, wasclasspath, war, manifest,%
7167     attribute, section, metainf, lib, classes, webinf, rename, sequential,%
7168     serverdeploy, generic, property, move, copydir, cccheckin, wljspc,%
7169     fixcrlf, sosget, pathconvert, map, record, p4sync, exec, p4edit,%
7170     maudit, rulespath, searchpath, antlr, netrexxc, jpcovreport, reference,%
7171     filters, coveragepath, execon, targetfile, srcfile, ccmcheckout, ant,%
7172     xmlvalidate, xslt, iplanet, ccmcheckintask, gzip, native2ascii,%
7173     starteam, ear, archives, input, rmic, extdirs, compilerarg, checksum,%
7174     mail, bcc, message, cc, to, from, loadfile, vsscheckout, stylebook,%
7175     soscheckin, mimemail, stlabel, gunzip, concat, cab, touch, parallel,%
7176     splash, antcall, cccheckout, typedef, p4have, xmlproperty, copy,%
7177     tomcat, antstructure, ccmcreatetask, rpm, delete, replace,%
7178     replacefilter, replacetoken, replacevalue, mmetrics, waitfor, isfalse,%
7179     equals, available, filepath, os, filesmatch, istrue, socket,%
7180     http, uptodate, srcfiles, untar, loadproperties, echoproperties,%
7181     vajexport, stcheckout, bunzip2, copyfile, vsscreate, ejbc, unjar,%
7182     tomcat, wsdltodotnet, mkdir, condition, cvs, commandline, marker,%
7183     argument, tempfile, junitreport, report, taskdef, echo, ccupdate, java,%
7184     renameext, vsslabel, basename, javadoc2, vsscp, tar, tarfileset,%
7185     tomcat, vajimport, setproxy, wlstop, p4counter, ilasm, soscheckout,%
7186     apply, ccuncheckout, jarlib, location, url, cvstagdiff, jlink,%
7187     mergefiles, addfiles, javacc, pvcs, pvcsproject, jarlib, options,%
7188     depends, chmod, jar, sound, fail, success, mparse, blgenclient, genkey,%
7189     dname, javah, class, ccmreconfigure, unzip, javac, src, p4add,%
7190     soslabel, jpcovmerge, triggers, method, vssget, deltree, ddcreator},%
7191     deletekeywords={default},%
7192 }
7193 </lang1>

```

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

```

7194 <*lang1>
7195 \lst@definlanguage{XML}%
7196 {keywords={,CDATA,DOCTYPE,ATTLIST,termdef,ELEMENT,EMPTY,ANY,ID,%
7197     IDREF,IDREFS,ENTITY,ENTITIES,NMTOKEN,NMTOKENS,NOTATION,%
7198     INCLUDE,IGNORE,SYSTEM,PUBLIC,NDATA,PUBLIC,%
7199     PCDATA,REQUIRED,IMPLIED,FIXED,%%% preceded by #
7200     xml,xml:space,xml:lang,version,standalone,default,preserve},%
7201     alsoother=$,%
7202     alsoletter=:,%
7203     tag>**[s]<>,%
7204     morestring=[d]" ,% ??? doubled
7205     morestring=[d]' ,% ??? doubled
7206     MoreSelectCharTable=%
7207     \lst@CArgX--\relax\lst@DefDelimB{-}%
7208     {\ifnum\lst@mode=\lst@tagmode\else
7209         \expandafter\@gobblethree
7210         \fi}%
7211     \lst@BeginComment\lst@commentmode{{\lst@commentstyle}}%

```

```

7212 \lst@CArgX--\relax\lst@DefDelimE{}{}{}%
7213 \lst@EndComment\lst@commentmode
7214 \lst@CArgX[CDATA[\relax\lst@CDef{}]%
7215 {\ifnum\lst@mode=\lst@tagmode
7216 \expandafter\lst@BeginCDATA
7217 \else \expandafter\lst@CArgEmpty
7218 \fi}%
7219 \@empty
7220 \lst@CArgX]\relax\lst@CDef{}%
7221 {\ifnum\lst@mode=\lst@GPmode
7222 \expandafter\lst@EndComment
7223 \else \expandafter\lst@CArgEmpty
7224 \fi}%
7225 \@empty
7226 }[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.

```
7227 </lang1>
```