

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 1.3 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-lua.prf}{\from{lstdrvrs.dtx}{lua-prf}}
36   \file{listings-python.prf}{\from{lstdrvrs.dtx}{python-prf}}
37 }

```

```

38
39
40 \ifToplevel{
41 \Msg{*}
42 \Msg{* You probably need to move all created '.sty' and '.cfg'}
43 \Msg{* files into a directory searched by TeX.}
44 \Msg{*}
45 \Msg{* Run 'lstdrvrs.dtx' through LaTeX2e to get the documentation.}
46 \Msg{*}
47 }
48
49 \endbatchfile
50 </install>
51 <*config>

```

We mainly define default dialects.

```

52 \ProvidesFile{listings.cfg}[2013/08/26 1.5b listings configuration]
53 \def\lstlanguagefiles
54   {\lstlang0.sty,\lstlang1.sty,\lstlang2.sty,\lstlang3.sty}
55 \lstset{defaultdialect=[R/3 6.10]ABAP,
56         defaultdialect=[2005]Ada,
57         defaultdialect=[68]Algol,
58         defaultdialect=[gnu]Awk,
59         defaultdialect=[ANSI]C,
60         defaultdialect=[light]Caml,
61         defaultdialect=[1985]Cobol,
62         defaultdialect=[WinXP]command.com,
63         defaultdialect=[ISO]C++,
64         defaultdialect=[95]Fortran,
65         defaultdialect=[5.2]Mathematica,
66         defaultdialect=[OMG]OCL,
67         defaultdialect=[Standard]Pascal,
68         defaultdialect=[67]Simula,
69         defaultdialect=[plain]TeX,
70         defaultdialect=[97]VRML}
71 \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.

```

72 \lstalias[6.1]{ABAP}[R/3 6.10]{ABAP}
73 \lstalias[3.1]{ABAP}[R/3 3.1C]{ABAP}
74 \lstalias[4.6]{ABAP}[R/3 4.6C]{ABAP}
75 </config>
76 <+lang1>\ProvidesFile{lstlang1.sty}
77 <+lang2>\ProvidesFile{lstlang2.sty}
78 <+lang3>\ProvidesFile{lstlang3.sty}
79 <+lua-prf>\ProvidesFile{listings-lua.prf}

```

```

80 <+python-prf>\ProvidesFile{listings-python.prf}
81 <-config>      [2013/08/26 1.5b listings language file]

```

2 Language drivers

2.1 Abap

Knut Lickert added support for Abap.¹

```

82 <*lang2>

83 %%
84 %% Abap definition by Knut Lickert
85 %%

      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.

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

89 \lst@definlanguage[R/3 4.6C]{ABAP}[R/3 3.1]{ABAP}%
90   {morekeywords={method,ref,class,create,object,%
91                 methods,endmethod,private,protected,public,section,%
92                 catch,system-exceptions,endcatch,%
93                 },%
94   moreprocnamekeys={class},%
95   literate={->}{\rightarrow$}1{=>}{\Rightarrow$}1,%
96   }[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.

```

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

```

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

```

98 \lst@definlanguage[R/2 5.0]{ABAP}%
99   {sensitive=f,%
100   procnamekeys={report,program,form,function,module},%
101   morekeywords={*,add,after,alias,analyzer,and,append,appending,area,assign,at,%
102                 authority-check,before,binary,blank,break-point,calendar,call,%
103                 case,change,changing,check,clear,cnt,co,collect,commit,common,%
104                 component,compute,condense,corresponding,cos,cp,cs,currency-conversion,%
105                 cursor,data,database,dataset,decimals,define,delete,deleting,dequeue,%
106                 describe,detail,dialog,directory,div,divide,do,documentation,%
107                 during,dynpro,else,end-of-page,end-of-selection,endat,endcase,%
108                 enddo,endfor,endform,endif,endloop,endmodule,endselect,%
109                 endwhile,enqueue,exceptions,exit,exp,export,exporting,extract,%

```

¹In this section 'I' is Knut Lickert.

```

110      field,fields,field-groups,field-symbols,find,for,form,format,free,%
111      from,function,generating,get,giving,hide,id,if,import,%
112      importing,in,incl,include,initial,initialization,input,insert,%
113      interrupt,into,is,language,leave,leading,left-justified,like,line,lines,line-count,
114      line-selection,list-processing,load,local,log,logfile,loop,%
115      margin,mark,mask,memory,menue,message,mod,modify,module,move,%
116      move-text,multiply,na,new,new-line,new-page,no-gaps,np,ns,%
117      number,obligatory,occurs,of,on,or,others,output,parameter,%
118      parameters,parts,perform,pf-status,places,position,process,%
119      raise,raising,ranges,read,refresh,refresh-dynpro,reject,remote,%
120      replace,report,reserve,reset,restart,right-justified,run,screen,scroll,search,%
121      segments,select,select-options,selection-screen,set,shift,sin,%
122      single,sqrt,start-of-selection,statement,structure,submit,%
123      subtract,summary,summing,suppress,system,table,tables,task,%
124      text,time,to,top-of-page,trace,transaction,transfer,%
125      transfer-dynpro,translate,type,unpack,update,user-command,%
126      using,value,when,where,while>window,with,workfile,write,},%
127      morecomment=[l]" ,%
128      morecomment=[f] [commentstyle] [0]*,%
129      morestring=[d]' %
130  }[keywords,comments,strings,procnames]

```

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

```

131 \lst@definlanguage[R/2 4.3]{ABAP}[R/2 5.0]{ABAP}%
132 {deletekeywords={function,importing,exporting,changing,exceptions,%
133      raise,raising}%
134 }[keywords,comments,strings]
135 </lang2>

```

2.2 ACSL

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

```

136 <*lang1>
137 %%
138 %% ACSL definition (c) 2000 by Andreas Matthias
139 %%
140 \lst@definlanguage{ACSL}[90]{Fortran}%
141 {morekeywords={algorithm,cinterval,constant,derivative,discrete,%
142      dynamic,errtag,initial,interval,maxterval,mininterval,%
143      merror,xerror,nsteps,procedural,save,schedule,sort,%
144      table,terminal,termt,variable},%
145      sensitive=false,%
146      morecomment=[l]!%
147 }[keywords, comments]%
148 </lang1>

```

2.3 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.

```
149 <*lang1>
150 %%
151 %% Ada 95 definition (c) Torsten Neuer
152 %%
153 %% Ada 2005 definition (c) 2006 Santiago Urue\~{n}a Pascual
154 %%                               <Santiago.Uruena@upm.es>
155 %%
156 \lst@definlanguage[2005]{Ada}[95]{Ada}%
157 {morekeywords={interface,overriding,synchronized}}%
158 \lst@definlanguage[95]{Ada}[83]{Ada}%
159 {morekeywords={abstract,aliased,protected,requeue,tagged,until}}%
160 \lst@definlanguage[83]{Ada}%
161 {morekeywords={abort,abs,accept,access,all,and,array,at,begin,body,%
162 case,constant,declare,delay,delta,digits,do,else,elsif,end,entry,%
163 exception,exit,for,function,generic,goto,if,in,is,limited,loop,%
164 mod,new,not,null,of,or,others,out,package,pragma,private,%
165 procedure,raise,range,record,rem,renames,return,reverse,select,%
166 separate,subtype,task,terminate,then,type,use,when,while,with,%
167 xor},%
168 sensitive=f,%
169 morecomment=[l]--, %
170 morestring=[m]", % percent not defined as stringizer so far
171 morestring=[m]' %
172 }[keywords,comments,strings]%
173 </lang1>
```

2.4 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 .

```
174 <*lang3>
```

```

175 \lst@definlanguage[68]{Algol}%
176 % ??? should 'i' be a keyword
177 {morekeywords={abs,and,arg,begin,bin,bits,bool,by,bytes,case,channel,%
178     char,co,comment,compl,conj,divab,do,down,elem,elif,else,empty,%
179     end,entier,eq,esac,exit,false,fi,file,flex,for,format,from,ge,%
180     goto,gt,heap,if,im,in,int,is,isnt,le,leng,level,loc,long,lt,lwb,%
181     minusab,mod,modab,mode,ne,nil,not,od,odd,of,op,or,ouse,out,over,%
182     overab,par,plusab,plusto,pr,pragmat,prio,proc,re,real,ref,repr,%
183     round,sema,shl,short,shorten,shr,sign,skip,string,struct,then,%
184     timesab,to,true,union,up,upb,void,while},%
185     sensitive=f,% ???
186     morecomment=[s]{\#}{\#},%
187     keywordcomment={co,comment}%
188 }[keywords,comments,keywordcomments]%

189 \lst@definlanguage[60]{Algol}%
190 {morekeywords={array,begin,Boolean,code,comment,div,do,else,end,%
191     false,for,goto,if,integer,label,own,power,procedure,real,step,%
192     string,switch,then,true,until,value,while},%
193     sensitive=f,% ???
194     keywordcommentsemicolon={end}{else,end}{comment}%
195 }[keywords,keywordcomments]%
196 </lang3>

```

2.5 Assembler

Credits go to Michael Franke.

```

197 <*lang3>
198 %%
199 %% Motorola 68K definition (c) 2006 Michael Franke
200 %%
201 \lst@definlanguage[Motorola68k]{Assembler}%
202 {morekeywords={ABCD,ADD,%
203 ADDA,ADDI,ADDQ,ADDX,AND,ANDI,ASL,ASR,BCC,BLS,BCS,BLT,BEQ,BMI,BF,BNE,BGE,BPL,%
204 BGT,BT,BHI,BVC,BLE,BVS,BCHG,BCLR,BRA,BSET,BSR,BTST,CHK,CLR,CMP,CMPA,CMPI,CMPM,%
205 DBCC,DBLS,DBCS,DBLT,DBEQ,DBMI,DBF,DBNE,DBGE,DBPL,DBGT,DBT,DBHI,DBVC,DBLE,DBVS,DIVS,%
206 DIVU,EOR,EORI,EXG,EXT,ILLEGAL,JMP,JSR,LEA,LINK,LSL,LSR,MOVE,MOVEA,MOVEM,MOVEP,MOVEQ,%
207 MULS,MULU,NBCD,NEG,NEGX,NOP,NOT,OR,ORI,PEA,RESET,ROL,ROR,ROXL,ROXR,RTE,RTR,RTS,SBCD,%
208 SCC,SLS,SCS,SLT,SEQ,SMI,SF,SNE,SGE,SPL,SGT,ST,SHI,SVC,SLE,SVS,STOP,SUB,SUBA,SUBI,SUBQ,%
209 SUBX,SWAP,TAS,TRAP,TRAPV,TST,UNLK},%
210     sensitive=false,%
211     morecomment=[l]*,%
212     morecomment=[l];%
213 }[keywords,comments,strings]
214 </lang3>

```

Credits go to Andrew Zabolotny.

```

215 <*lang3>
216 %%
217 %% x86masm definition (c) 2002 Andrew Zabolotny

```



```

218 %%
219 \lst@definlanguage[x86masm]{Assembler}%
220 {morekeywords={al,ah,ax,eax,bl,bh,bx,ebx,cl,ch,cx,ecx,d1,dh,dx,edx,%
221     si,esi,di,edi,bp,ebp,sp,esp,cs,ds,es,ss,fs,gs,cr0,cr1,cr2,cr3,%
222     db0,db1,db2,db3,db4,db5,db6,db7,tr0,tr1,tr2,tr3,tr4,tr5,tr6,tr7,%
223     st,aaa,aad,aam,aas,adc,add,and,arpl,bound,bsf,bsr,bswap,bt,btc,%
224     btr,bts,call,cbw,cdq,clc,cld,cli,clts,cmc,cmp,cmps,cmpsb,cmpsw,%
225     cmpsd,cmpxchg,cwd,cwde,daa,das,dec,div,enter,hlt,idiv,imul,in,%
226     inc,ins,int,into,invd,invlpg,iret,ja,jae,jb,jbe,jc,jcxz,jecxz,%
227     je,jg,jge,jl,jle,jna,jnae,jnb,jnbe,jnc,jne,jng,jnge,jnl,jnle,%
228     jno,jnp,jns,jnz,jo,jp,jpe,jpo,js,jz,jmp,lahf,lar,lea,leave,lgdt,%
229     lidt,lldt,lmsw,lock,lods,lodsb,lodsw,lodsd,loop,loopz,loopnz,%
230     loope,loopne,lds,les,lfs,lgs,lss,ls1,ltr,mov,movs,movsb,movsw,%
231     movsd,movsx,movzx,mul,neg,nop,not,or,out,outs,pop,popa,popad,%
232     popf,popfd,push,pusha,pushad,pushf,pushfd,rcl,rcr,rep,repz,%
233     repne,repz,repnz,ret,retf,rol,ror,sahf,sal,sar,sbb,scas,scas,%
234     setae,setb,setbe,setc,sete,setg,setge,setl,setle,setna,setnae,%
235     setnb,setnbe,setnc,setne,setng,setnge,setnl,setnle,setno,setnp,%
236     setns,setnz,seto,setp,setpe,setpo,sets,setw,sgdt,shl,shld,shr,%
237     shrd,sidt,sldt,smsw,stc,std,sti,stos,stosb,stosw,stosd,sub,%
238     test,verr,verw,wait,winvd,xadd,xchg,xlatb,xor,fabs,fadd,fbld,%
239     fbstp,fchs,fclex,fcom,fcos,fdecstp,fdiv,fdivr,ffree,fiadd,ficom,%
240     fidiv,fidivr,fild,fimul,fincstp,finit,fist,fisub,fisubr,fld,fld1,%
241     fldl2e,fldl2t,fldlg2,fldln2,fldpi,fldz,fldcw,fldenv,fmul,fnop,%
242     fpatan,fprem,fprem1,fptan,frndint,frstor,fsave,fscaler,fsetpm,%
243     fsin,fsincos,fsqrt,fst,fstcw,fstenv,fstsw,fsub,fsubr,ftst,fucom,%
244     fwait,fxam,fxch,fxtract,fyl2x,fyl2xp1,f2xm1},%
245     morekeywords=[2]{.align,.alpha,assume,byte,code,comm,comment,.const,%
246         .cref,.data,.data?,db,dd,df,dosseg,dq,dt,dw,dword,else,end,endif,%
247         endm,endp,ends,eq,equ,.err,.err1,.err2,.errb,.errdef,.errdif,%
248         .erre,.erridn,.errnb,.errndef,.errnz,event,exitm,extrn,far,%
249         .fardata,.fardata?,fword,ge,group,gt,high,if,if1,if2,ifb,ifdef,%
250         ifdif,ife,ifidn,ifnb,ifndef,include,includelib,irp,irpc,label,%
251         .lall,le,length,.lfcond,.list,local,low,lt,macro,mask,mod,.model,%
252         name,ne,near,offset,org,out,page,proc,ptr,public,purge,qword,%
253         radix,record,rept,.sall,seg,segment,.seq,.sfcond,short,size,%
254         .stack,struc,subttl,tbyte,.tfcond,this,title,type,.type,width,%
255         word,.xall,.xcref,.xlist},%
256     alsoletter=.,alsodigit=?,%
257     sensitive=f,%
258     morestring=[b]",%
259     morestring=[b]',%
260     morecomment=[l];%
261     }[keywords,comments,strings]
262 </lang3>

```

2.6 Awk

Thanks to Dr. Christoph Giess for providing these definitions.

```

263 <*lang1>
264 %%
265 %% awk definitions (c) Christoph Giess
266 %%
267 \lst@definlanguage[gnu]{Awk}[POSIX]{Awk}%
268 {morekeywords={and,asort,bindtextdomain,compl,dcgettext,gensub,%
269     lshift,mktime,or,rshift,strftime,strtonum,system,xor,extension}%
270 }%
271 \lst@definlanguage[POSIX]{Awk}%
272 {keywords={BEGIN,END,close,getline,next,nextfile,print,printf,%
273     system,fflush,atan2,cos,exp,int,log,rand,sin,sqrt,srand,gsub,%
274     index,length,match,split,sprintf,strtonum,sub,substr,tolower,%
275     toupper,if,while,do,for,break,continue,delete,exit,function,%
276     return},%
277     sensitive,%
278     morecomment=[l]\#,%
279     morecomment=[l]//,%
280     morecomment=[s]{/*}{*/},%
281     morestring=[b]"%
282 }[keywords,comments,strings]%
283 </lang1>

```

2.7 Basic

Credits go to Robert Frank.

```

284 <*lang1>
285 %%
286 %% Visual Basic definition (c) 2002 Robert Frank
287 %%
288 \lst@definlanguage[Visual]{Basic}
289 {morekeywords={Abs,Array,Asc,AscB,AscW,Atn,Avg,CBool,CByte,CCur,%
290     CDate,CDBl,Cdec,Choose,Chr,ChrB,ChrW,CInt,CLng,Command,Cos,%
291     Count,CreateObject,CSng,CStr,CurDir,CVar,CVDate,CVErr,Date,%
292     DateAdd,DateDiff,DatePart,DateSerial,DateValue,Day,DDB,Dir,%
293     DoEvents,Environ,EOF,Error,Exp,FileAttr,FileDateTime,FileLen,%
294     Fix,Format,FreeFile,FV,GetAllStrings,GetAttr,%
295     GetAutoServerSettings,GetObject,GetSetting,Hex,Hour,IIf,%
296     IMEStatus,Input,InputB,InputBox,InStr,InstB,Int,Integer,IPmt,%
297     IsArray,IsDate,IsEmpty,IsError,IsMissing,IsNull,IsNumeric,%
298     IsObject,LBound,LCase,Left,LeftB,Len,LenB,LoadPicture,Loc,LOF,%
299     Log,Ltrim,Max,Mid,MidB,Min,Minute,MIRR,Month,MsgBox,Now,NPer,%
300     NPV,Oct,Partition,Pmt,PPmt,PV,QBColor,Rate,RGB,Right,RightB,Rnd,%
301     Rtrim,Second,Seek,Sgn,Shell,Sin,SLN,Space,Spc,Sqr,StDev,StDevP,%
302     Str,StrComp,StrConv,String,Switch,Sum,SYD,Tab,Tan,Time,Timer,%
303     TimeSerial,TimeValue,Trim,TypeName,UBound,Ucase,Val,Var,VarP,%
304     VarType,Weekday,Year},% functions
305     morekeywords=[2]{Accept,Activate,Add,AddCustom,AddFile,AddFromFile,%
306         AddFromTemplate,AddItem,AddNew,AddToAddInToolbar,%
307         AddToolboxProgID,Append,AppendChunk,Arrange,Assert,AsyncRead,%

```

```

308 BatchUpdate, BeginTrans, Bind, Cancel, CancelAsyncRead, CancelBatch, %
309 CancelUpdate, CanPropertyChange, CaptureImage, CellText, CellValue, %
310 Circle, Clear, ClearFields, ClearSel, ClearSelCols, Clone, Close, Cls, %
311 ColContaining, ColumnSize, CommitTrans, CompactDatabase, Compose, %
312 Connect, Copy, CopyQueryDef, CreateDatabase, CreateDragImage, %
313 CreateEmbed, CreateField, CreateGroup, CreateIndex, CreateLink, %
314 CreatePreparedStatement, CreateProperty, CreateQuery, %
315 CreateQueryDef, CreateRelation, CreateTableDef, CreateUser, %
316 CreateWorkspace, Customize, Delete, DeleteColumnLabels, %
317 DeleteColumns, DeleteRowLabels, DeleteRows, DoVerb, Drag, Draw, Edit, %
318 EditCopy, EditPaste, EndDoc, EnsureVisible, EstablishConnection, %
319 Execute, ExtractIcon, Fetch, FetchVerbs, Files, FillCache, Find, %
320 FindFirst, FindItem, FindLast, FindNext, FindPrevious, Forward, %
321 GetBookmark, GetChunk, GetClipString, GetData, GetFirstVisible, %
322 GetFormat, GetHeader, GetLineFromChar, GetNumTicks, GetRows, %
323 GetSelectedPart, GetText, GetVisibleCount, GoBack, GoForward, Hide, %
324 HitTest, HoldFields, Idle, InitializeLabels, InsertColumnLabels, %
325 InsertColumns, InsertObjDlg, InsertRowLabels, InsertRows, Item, %
326 KillDoc, Layout, Line, LinkExecute, LinkPoke, LinkRequest, LinkSend, %
327 Listen, LoadFile, LoadResData, LoadResPicture, LoadResString, %
328 LogEvent, MakeCompileFile, MakeReplica, MoreResults, Move, MoveData, %
329 MoveFirst, MoveLast, MoveNext, MovePrevious, NavigateTo, NewPage, %
330 NewPassword, NextRecordset, OLEDrag, OnAddinsUpdate, OnConnection, %
331 OnDisconnection, OnStartupComplete, Open, OpenConnection, %
332 OpenDatabase, OpenQueryDef, OpenRecordset, OpenResultset, OpenURL, %
333 Overlay, PaintPicture, Paste, PastSpecialDlg, PeekData, Play, Point, %
334 PopulatePartial, PopupMenu, Print, PrintForm, PropertyChanged, Pset, %
335 Quit, Raise, RandomDataFill, RandomFillColumns, RandomFillRows, %
336 rdoCreateEnvironment, rdoRegisterDataSource, ReadFromFile, %
337 ReadProperty, Rebind, ReFill, Refresh, RefreshLink, RegisterDatabase, %
338 Reload, Remove, RemoveAddInFromToolbar, RemoveItem, Render, %
339 RepairDatabase, Reply, ReplyAll, Requery, ResetCustom, %
340 ResetCustomLabel, ResolveName, RestoreToolbar, Resync, Rollback, %
341 RollbackTrans, RowBookmark, RowContaining, RowTop, Save, SaveAs, %
342 SaveFile, SaveToFile, SaveToolbar, SaveToOle1File, Scale, ScaleX, %
343 ScaleY, Scroll, Select, SelectAll, SelectPart, SelPrint, Send, %
344 SendData, Set, SetAutoServerSettings, SetData, SetFocus, SetOption, %
345 SetSize, SetText, SetViewport, Show, ShowColor, ShowFont, ShowHelp, %
346 ShowOpen, ShowPrinter, ShowSave, ShowWhatsThis, SignOff, SignOn, Size, %
347 Span, SplitContaining, StartLabelEdit, StartLogging, Stop, %
348 Synchronize, TextHeight, TextWidth, ToDefaults, TwipsToChartPart, %
349 TypeByChartType, Update, UpdateControls, UpdateRecord, UpdateRow, %
350 Upto, WhatsThisMode, WriteProperty, ZOrder}, % methods
351 morekeywords=[3]{AccessKeyPress, AfterAddFile, AfterChangeFileName, %
352 AfterCloseFile, AfterColEdit, AfterColUpdate, AfterDelete, %
353 AfterInsert, AfterLabelEdit, AfterRemoveFile, AfterUpdate, %
354 AfterWriteFile, AmbienChanged, ApplyChanges, Associate, %
355 AsyncReadComplete, AxisActivated, AxisLabelActivated, %
356 AxisLabelSelected, AxisLabelUpdated, AxisSelected, %
357 AxisTitleActivated, AxisTitleSelected, AxisTitleUpdated, %

```

```

358     AxisUpdated, BeforeClick, BeforeColEdit, BeforeColUpdate, %
359     BeforeConnect, BeforeDelete, BeforeInsert, BeforeLabelEdit, %
360     BeforeLoadFile, BeforeUpdate, ButtonClick, ButtonCompleted, %
361     ButtonGotFocus, ButtonLostFocus, Change, ChartActivated, %
362     ChartSelected, ChartUpdated, Click, ColEdit, Collapse, ColResize, %
363     ColumnClick, Compare, ConfigChageCancelled, ConfigChanged, %
364     ConnectionRequest, DataArrival, DataChanged, DataUpdated, DblClick, %
365     Deactivate, DeviceArrival, DeviceOtherEvent, DeviceQueryRemove, %
366     DeviceQueryRemoveFailed, DeviceRemoveComplete, DeviceRemovePending, %
367     DevModeChange, Disconnect, DisplayChanged, Dissociate, %
368     DoGetNewFileName, Done, DonePainting, DownClick, DragDrop, DragOver, %
369     DropDown, EditProperty, EnterCell, EnterFocus, Event, ExitFocus, %
370     Expand, FootnoteActivated, FootnoteSelected, FootnoteUpdated, %
371     GotFocus, HeadClick, InfoMessage, Initialize, IniProperties, %
372     ItemActivated, ItemAdded, ItemCheck, ItemClick, ItemReloaded, %
373     ItemRemoved, ItemRenamed, ItemSeletected, KeyDown, KeyPress, KeyUp, %
374     LeaveCell, LegendActivated, LegendSelected, LegendUpdated, %
375     LinkClose, LinkError, LinkNotify, LinkOpen, Load, LostFocus, %
376     MouseDown, MouseMove, MouseUp, NodeClick, ObjectMove, %
377     OLECompleteDrag, OLEDragDrop, OLEDragOver, OLEGiveFeedback, %
378     OLESetData, OLEStartDrag, OnAddNew, OnComm, Paint, PanelClick, %
379     PanelDblClick, PathChange, PatternChange, PlotActivated, %
380     PlotSelected, PlotUpdated, PointActivated, PointLabelActivated, %
381     PointLabelSelected, PointLabelUpdated, PointSelected, %
382     PointUpdated, PowerQuerySuspend, PowerResume, PowerStatusChanged, %
383     PowerSuspend, QueryChangeConfig, QueryComplete, QueryCompleted, %
384     QueryTimeout, QueryUnload, ReadProperties, Reposition, %
385     RequestChangeFileName, RequestWriteFile, Resize, ResultsChanged, %
386     RowColChange, RowCurrencyChange, RowResize, RowStatusChanged, %
387     SelChange, SelectionChanged, SendComplete, SendProgress, %
388     SeriesActivated, SeriesSelected, SeriesUpdated, SettingChanged, %
389     SplitChange, StateChanged, StatusUpdate, SysColorsChanged, %
390     Terminate, TimeChanged, TitleActivated, TitleSelected, %
391     TitleActivated, UnboundAddData, UnboundDeleteRow, %
392     UnboundGetRelativeBookmark, UnboundReadData, UnboundWriteData, %
393     Unload, UpClick, Updated, Validate, ValidationError, WillAssociate, %
394     WillChangeData, WillDissociate, WillExecute, WillUpdateRows, %
395     WithEvents, WriteProperties}, % VB-events
396     morekeywords= [4] {AppActivate, Base, Beep, Call, Case, ChDir, ChDrive, %
397         Const, Declare, DefBool, DefByte, DefCur, DefDate, DefDb1, DefDec, %
398         DefInt, DefLng, DefObj, DefSng, DefStr, Deftype, DefVar, DeleteSetting, %
399         Dim, Do, Else, ElseIf, End, Enum, Erase, Event, Exit, Explicit, FileCopy, %
400         For, ForEach, Friend, Function, Get, GoSub, GoTo, If, Implements, Kill, %
401         Let, LineInput, Lock, Lset, Mkdir, Name, Next, OnError, On, Option, %
402         Private, Property, Public, Put, RaiseEvent, Randomize, ReDim, Rem, %
403         Reset, Resume, Return, Rmdir, Rset, SavePicture, SaveSetting, %
404         SendKeys, SetAttr, Static, Sub, Then, Type, Unlock, Wend, While, Width, %
405         With, Write}, % statements
406     sensitive=false, %
407     keywordcomment=rem, %

```

```

408 MoreSelectCharTable=\def\lst@BeginKC@{% chmod
409 \lst@ResetToken
410 \lst@BeginComment\lst@GPmode{{\lst@commentstyle}%
411 \lst@Lmodetrue\lst@modetrue}\@empty},%
412 morecomment=[l]{'},%
413 morecomment=[s]{/*}{*/},%
414 morestring=[b]",%
415 }[keywords,comments,strings,keywordcomments]
416 \</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.

2.8 Clean

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

```

417 \<lang3>
418 %%
419 %% Clean definition (c) 1999 Jos'e Romildo Malaquias
420 %%
421 %% Clean 1.3 : some standard functional language: pure, lazy,
422 %%             polymorphic type system, modules, type classes,
423 %%             garbage collection, functions as first class citizens
424 %%
425 \lst@definlanguage{Clean}%
426 {otherkeywords={:,:=,::,::=,::=>,<-,<=:,\{,\},\{|\,|\},\#,\#!,|,\&,%
427 [,],!,.,.\,\,\,;,_,}%
428 morekeywords={from,definition,implementation,import,module,system,%
429 case,code,if,in,let,let!,of,where,with,infix,infixl,infixr},%
430 moreendkeywords={True,False,Start,Int,Real,Char,Bool,String,World,%
431 File,ProcId},%
432 sensitive,%
433 morecomment=[l]//,% missing comma: Markus Pahlow
434 morecomment=[n]{/*}{*/},%
435 morestring=[b]"%
436 }[keywords,comments,strings]%
437 \</lang3>

```

2.9 Corba IDL

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

```

438 \<lang2>
439 %%
440 %% Corba IDL definition (c) 1999 Jens T. Berger Thielemann
441 %%
442 \lst@definlanguage[CORBA]{IDL}%
443 {morekeywords={any,attribute,boolean,case,char,const,context,default,%
444 double,enum,exception,fixed,float,in,inout,interface,long,module,%

```

```

445     native, Object, octet, oneway, out, raises, readonly, sequence, short, %
446     string, struct, switch, typedef, union, unsigned, void, wchar, wstring, %
447     FALSE, TRUE}, %
448     sensitive, %
449     moredirectives={define, elif, else, endif, error, if, ifdef, ifndef, line, %
450     include, pragma, undef, warning}, %
451     moredelim=[directive]\#, %
452     morecomment=[l]//, %
453     morecomment=[s]{/*}{*/}, %
454     morestring=[b]"%
455 }[keywords, comments, strings, directives]%
456 </lang2>

```

2.10 C, C++, et al

```

457 <*lang1>

```

For compatibility the ‘ANSI’ language is defined in terms of ISO.

```

458 \lst@definlanguage[ANSI]{C++}[ISO]{C++}{C}%

```

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

```

459 \lst@definlanguage[GNU]{C++}[ISO]{C++}%
460 {morekeywords={__attribute__, __extension__, __restrict, __restrict__, %
461     typeof, __typeof__}, %
462 }%
463 \lst@definlanguage[Visual]{C++}[ISO]{C++}%
464 {morekeywords={__asm, __based, __cdecl, __declspec, dllexport, %
465     dllimport, __except, __fastcall, __finally, __inline, __int8, __int16, %
466     __int32, __int64, naked, __stdcall, thread, __try, __leave}, %
467 }%
468 \lst@definlanguage[ISO]{C++}[ANSI]{C}%
469 {morekeywords={and, and_eq, asm, bad_cast, bad_typeid, bitand, bitor, bool, %
470     catch, class, compl, const_cast, delete, dynamic_cast, explicit, export, %
471     false, friend, inline, mutable, namespace, new, not, not_eq, operator, or, %
472     or_eq, private, protected, public, reinterpret_cast, static_cast, %
473     template, this, throw, true, try, typeid, type_info, typename, using, %
474     virtual, wchar_t, xor, xor_eq}, %
475 }%
476 </lang1>

```

Objective-C is due to Detlev Dröge.

```

477 <*lang1>
478 %%
479 %% Objective-C definition (c) 1997 Detlev Droege
480 %%
481 \lst@definlanguage[Objective]{C}[ANSI]{C}
482 {morekeywords={bycopy, id, in, inout, oneway, out, self, super, %
483     @class, @defs, @encode, @end, @implementation, @interface, @private, %
484     @protected, @protocol, @public, @selector}, %

```

```

485     moredirectives={import}%
486 }%
487 </lang1>

    Jörg Viermann provided the keywords for Handel-C.
488 <*lang1>
489 %%
490 %% Handel-C definition, refer http://www.celoxica.com
491 %%
492 \lst@definlanguage[Handel]{C}[ANSI]{C}
493 {morekeywords={assert,chan,chanin,chanout,clock,delay,expr,external,%
494     external_divide,family,ifselect,in,inline,interface,internal,%
495     internal_divid,intwidth,let,macro,mpram,par,part,prialt,proc,ram,%
496     releasesema,reset,rom,select,sema,set,seq,shared,signal,try,%
497     reset,trysema,typeof,undefined,width,with,wom},%
498 }%
499 </lang1>
500 <*lang1>
501 \lst@definlanguage[ANSI]{C}%
502 {morekeywords={auto,break,case,char,const,continue,default,do,double,%
503     else,enum,extern,float,for,goto,if,int,long,register,return,%
504     short,signed,sizeof,static,struct,switch,typedef,union,unsigned,%
505     void,volatile,while},%
506     sensitive,%
507     morecomment=[s]{/*}{*/},%
508     morecomment=[l]//,% nonstandard
509     morestring=[b]",%
510     morestring=[b]',%
511     moredelim=[directive]\#,%
512     moredirectives={define,elif,else,endif,error,if,ifdef,ifndef,line,%
513         include,pragma,undef,warning}%
514 }[keywords,comments,strings,directives]%
515 </lang1>
516 <*lang1>

    Thanks go to Martin Brodbeck.
517 %%
518 %% C-Sharp definition (c) 2002 Martin Brodbeck
519 %%
520 \lst@definlanguage[Sharp]{C}%
521 {morekeywords={abstract,base,bool,break,byte,case,catch,char,checked,%
522     class,const,continue,decimal,default,delegate,do,double,else,%
523     enum,event,explicit,extern,false,finally,fixed,float,for,foreach,%
524     goto,if,implicit,in,int,interface,internal,is,lock,long,%
525     namespace,new,null,object,operator,out,override,params,private,%
526     protected,public,readonly,ref,return,sbyte,sealed,short,sizeof,%
527     static,string,struct,switch,this,throw,true,try,typeof,uint,%

```

```

528         ulong,unchecked,unsafe,ushort,using,virtual,void,while,%
529         as,volatile,stackalloc},% Kai K\'ohne
530     sensitive,%
531     morecomment=[s]{/*}{*/},%
532     morecomment=[l]//,%
533     morestring=[b]"
534 }[keywords,comments,strings]%
535 </lang1>

```

2.11 Caml and Objective Caml

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

```

536 <*lang2>
537 %%
538 %% (Objective) Caml definition (c) 1999 Patrick Cousot
539 %%
540 %% Objective CAML and Caml light are freely available, together with a
541 %% reference manual, at URL ftp.inria.fr/lang/caml-light for the Unix,
542 %% Windows and Macintosh OS operating systems.
543 %%
544 \lstdefinlanguage[Objective]{Caml}[light]{Caml}
545 {deletekeywords={not,prefix,value,where},%
546   morekeywords={assert,asr,class,closed,constraint,external,false,%
547     functor,include,inherit,land,lazy,lor,lsl,lsr,lxor,method,mod,%
548     module,new,open,parser,private,sig,struct,true,val,virtual,when,%
549     object,ref},% TH
550 }%
551 \lstdefinlanguage[light]{Caml}
552 {morekeywords={and,as,begin,do,done,downto,else,end,exception,for,%
553   fun,function,if,in,let,match,mutable,not,of,or,prefix,rec,then,%
554   to,try,type,value,where,while,with},%
555   sensitive,%
556   morecomment=[n]{(*){*)},%
557   morestring=[b]" ,%
558   moredelim=*[directive]\#,%
559   moredirectives={open,close,include}%
560 }[keywords,comments,strings,directives]%
561 </lang2>

```

2.12 Common Intermediate Language

This language definition for CIL (Common Intermediate Language, part of Microsoft's .NET interface) was provided by Olaf Conradi

```

562 <*lang3>
563 \lstdefinlanguage{CIL}%
564 {morekeywords=[1]{assembly,beforefieldinit,class,default,cdecl,cil,corflags,%

```



```

565         culture,custom,data,entrypoint,fastcall,field,file,%
566         hidebysig,hash,il,imagebase,locals,managed,marshall,%
567         maxstack,mresource,method,module,namespace,publickey,%
568         stdcall,subsystem,thiscall,unmanaged,vararg,ver,vtfixup,%
569     % types
570     bool,char,float32,float64,int,int8,int16,int32,%
571     int64,method,native,object,string,modopt,modreq,pinned,%
572     typedref,valuetype,unsigned,void,%
573     % defining types
574     abstract,ansi,auto,autochar,beforefieldinit,boxed,class,%
575     explicit,extends,implements,interface,famandassem,family,%
576     famorassem,inherits,nested,override,pack,private,property,%
577     public,rtspecialname,sealed,sequential,serializable,size,%
578     specialname,static,unicode,%
579     % postfix
580     algorithm,alignment,extern,init,from,nometadata,with},%
581     morekeywords=[2]{add,and,arglist,beq,bge,bgt,ble,blt,bne,br,break,brfalse,%
582     brtrue,call,calli,ceq,cgt,ckfinite,clt,conv,cpblk,div,%
583     dup,endfilter,endfinally,initblk,jmp,ldarg,ldarga,ldc,%
584     ldftn,ldind,ldloc,ldloca,ldnull,leave,localloc,mul,neg,%
585     nop,not,or,pop,rem,ret,shl,shr,starg,stind,stloc,sub,%
586     switch,xor,%
587     % prefix
588     tail,unaligned,volatile,%
589     % postfix
590     un,s,ovf,%
591     % object
592     box,callvirt,castclass,cpobj,cctor,ctor,initobj,isinst,%
593     ldelem,ldelema,ldfld,ldflda,ldlen,ldobj,ldsfld,ldsfla,%
594     ldstr,ldtoken,ldvirtftn,mkrefany,newarr,newobj,refanytype,%
595     refanyval,rethrow,sizeof,stelem,stfld,stobj,stsfld,throw,%
596     unbox},%
597     sensitive=true,%
598     morecomment=[1]{//},%
599     morestring=[b]"%
600 }[keywords,comments,strings]%
601 </lang3>

```

2.13 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.

```

602 <*lang2>
603 \lst@definelanguage[ibm]{Cobol}[1985]{Cobol}%
604 {morekeywords={ADDRESS,BEGINNING,COMP-3,COMP-4,COMPUTATIONAL,%
605     COMPUTATIONAL-3,COMPUTATIONAL-4,DISPLAY-1,EGCS,EJECT,ENDING,%

```

```

606     ENTRY,GOBACK, ID,MORE-LABELS, NULL, NULLS, PASSWORD, RECORDING,%
607     RETURN-CODE, SERVICE, SKIP1, SKIP2, SKIP3, SORT-CONTROL, SORT-RETURN,%
608     SUPPRESS, TITLE, WHEN-COMPILED},%
609 }%

610 \lst@definlanguage[1985]{Cobol}[1974]{Cobol}%
611 {morekeywords={ALPHABET,ALPHABETIC-LOWER,ALPHABETIC-UPPER,%
612     ALPHANUMERIC,ALPHANUMERIC-EDITED,ANY,CLASS,COMMON,CONTENT,%
613     CONTINUE,DAY-OF-WEEK,END-ADD,END-CALL,END-COMPUTE,END-DELETE,%
614     END-DIVIDE,END-EVALUATE,END-IF,END-MULTIPLY,END-PERFORM,END-READ,%
615     END-RECEIVE,END-RETURN,END-REWRITE,END-SEARCH,END-START,%
616     END-STRING,END-SUBTRACT,END-UNSTRING,END-WRITE,EVALUATE,EXTERNAL,%
617     FALSE,GLOBAL,INITIALIZE,NUMERIC-EDITED,ORDER,OTHER,%
618     PACKED-DECIMAL,PADDING,PURGE,REFERENCE,RELOAD,REPLACE,STANDARD-1,%
619     STANDARD-2,TEST,THEN,TRUE},%
620 }%

621 \lst@definlanguage[1974]{Cobol}%
622 {morekeywords={ACCEPT,ACCESS,ADD,ADVANCING,AFTER,ALL,ALPHABETIC,ALSO,%
623     ALTER,ALTERNATE,AND,ARE,AREA,AREAS,ASCENDING,ASSIGN,AT,AUTHOR,%
624     BEFORE,BINARY,BLANK,BLOCK,BOTTOM,BY,CALL,CANCEL,CD,CF,CH,%
625     CHARACTER,CHARACTERS,CLOCK-UNITS,CLOSE,COBOL,CODE,CODE-SET,%
626     COLLATING,COLUMN,COMMA,COMMUNICATION,COMP,COMPUTE,CONFIGURATION,%
627     CONTAINS,CONTROL,CONTROLS,CONVERTING,COPY,CORR,CORRESPONDING,%
628     COUNT,CURRENCY,DATA,DATE,DATE-COMPILED,DATE-WRITTEN,DAY,DE,%
629     DEBUG-CONTENTS,DEBUG-ITEM,DEBUG-LINE,DEBUG-NAME,DEBUG-SUB1,%
630     DEBUG-SUB2,DEBUG-SUB3,DEBUGGING,DECIMAL-POINT,DECLARATIVES,%
631     DELETE,DELIMITED,DELIMITER,DEPENDING,DESCENDING,DESTINATION,%
632     DETAIL,DISABLE,DISPLAY,DIVIDE,DIVISION,DOWN,DUPLICATES,DYNAMIC,%
633     EGI,ELSE,EMI,ENABLE,END,END-OF-PAGE,ENTER,ENVIRONMENT,EOP,EQUAL,%
634     ERROR,ESI,EVERY,EXCEPTION,EXIT,EXTEND,FD,FILE,FILE-CONTROL,%
635     FILLER,FINAL,FIRST,FOOTING,FOR,FROM,GENERATE,GIVING,GO,GREATER,%
636     GROUP,HEADING,HIGH-VALUE,HIGH-VALUES,I-O,I-O-CONTROL,%
637     IDENTIFICATION,IF,IN,INDEX,INDEXED,INDICATE,INITIAL,INITIATE,%
638     INPUT,INPUT-OUTPUT,INSPECT,INSTALLATION,INTO,INVALID,IS,JUST,%
639     JUSTIFIED,KEY,LABEL,LAST,LEADING,LEFT,LENGTH,LESS,LIMIT,LIMITS,%
640     LINAGE,LINAGE-COUNTER,LINE,LINE-COUNTER,LINES,LINKAGE,LOCK,%
641     LOW-VALUE,LOW-VALUES,MEMORY,MERGE,MESSAGE,MODE,MODULES,MOVE,%
642     MULTIPLE,MULTIPLY,NATIVE,NEGATIVE,NEXT,NO,NOT,NUMBER,NUMERIC,%
643     OBJECT-COMPUTER,OCCURS,OF,OFF,OMITTED,ON,OPEN,OPTIONAL,OR,%
644     ORGANIZATION,OUTPUT,OVERFLOW,PAGE,PAGE-COUNTER,PERFORM,PF,PH,PIC,%
645     PICTURE,PLUS,POINTER,POSITION,PRINTING,POSITIVE,PRINTING,%
646     PROCEDURE,PROCEDURES,PROCEED,PROGRAM,PROGRAM-ID,QUEUE,QUOTE,%
647     QUOTES,RANDOM,RD,READ,RECEIVE,RECORD,RECORDING,RECORDS,REDEFINES,%
648     REEL,REFERENCES,RELATIVE,RELEASE,REMAINDER,REMOVAL,RENAMES,%
649     REPLACING,REPORT,REPORTING,REPORTS,RERUN,RESERVE,RESET,RETURN,%
650     REVERSED,REWIND,REWRITE,RF,RH,RIGHT,ROUNDED,RUN,SAME,SD,SEARCH,%
651     SECTION,SECURITY,SEGMENT,SEGMENT-LIMIT,SELECT,SEND,SENTENCE,%
652     SEPARATE,SEQUENCE,SEQUENTIAL,SET,SIGN,SIZE,SORT, SORT-MERGE,%
653     SOURCE,SOURCE-COMPUTER,SPACE,SPACES,SPECIAL-NAMES,STANDARD,START,%
654     STATUS,STOP,STRING,SUB-QUEUE-1,SUB-QUEUE-2,SUB-QUEUE-3,SUBTRACT,%

```

```

655      SUM,SYMBOLIC,SYNC,SYNCHRONIZED,TABLE,TALLYING,TAPE,TERMINAL,%
656      TERMINATE,TEXT,THAN,THROUGH,THRU,TIME,TIMES,TO,TOP,TRAILING,TYPE,%
657      UNIT,UNSTRING,UNTIL,UP,UPON,USAGE,USE,USING,VALUE,VALUES,VARYING,%
658      WHEN,WITH,WORDS,WORKING-STORAGE,WRITE,ZERO,ZEROES,ZEROS},%
659      alsodigit=-,%
660      sensitive=f,% ???
661      morecomment=[f][commentstyle][6]*,%
662      morestring=[d]"% ??? doubled
663  }[keywords,comments,strings]%

```

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

```
664 </lang2>
```

2.14 Comal 80

The data is from

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

```

665 <*lang3>
666 \lst@definelanguage{Comal 80}%
667 {morekeywords={AND,AUTO,CASE,DATA,DEL,DIM,DIV,DO,ELSE,ENDCASE,ENDIF,%
668      ENDPROC,ENDWHILE,EOD,EXEC,FALSE,FOR,GOTO,IF,INPUT,INT,LIST,LOAD,%
669      MOD,NEW,NEXT,NOT,OF,OR,PRINT,PROC,RANDOM,RENUM,REPEAT,RND,RUN,%
670      SAVE,SELECT,STOP,TAB,THEN,TRUE,UNTIL,WHILE,ZONE},%
671      sensitive=f,% ???
672      morecomment=[l]//,%
673      morestring=[d]"%
674  }[keywords,comments,strings]%
675 </lang3>

```

2.15 COMMAND.COM Batch Files

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

```

676 <*lang3>
677 \lst@definelanguage[WinXP]{command.com}%
678 {morekeywords={assoc,at,attrib,bootcfg,break,cacls,call,cd,chcp,chdir,%
679      chkdsk,chkntfs,cls,cmd,cmdextversion,color,comp,compact,convert,copy,%
680      date,defined,del,dir,diskcomp,diskcopy,do,doskey,echo,else,endlocal,%
681      erase,errorlevel,exist,exit,fc,find,findstr,for,format,ftype,goto,%
682      graftabl,help,if,in,label,md,mkdir,mode,more,move,not,off,path,%
683      pause,popd,print,prompt,pushd,rd,recover,ren,rename,replace,rmdir,%
684      set,setlocal,shift,sort,start,subst,time,title,tree,type,ver,%
685      verify,vol,xcopy},%

```

```

686     sensitive=false,%
687     alsoother={@},%
688     alsoletter={\%~:-/},%
689     morecomment=[l]{rem},%
690     morecomment=[l]{reM},%
691     morecomment=[l]{rEm},%
692     morecomment=[l]{rEM},%
693     morecomment=[l]{Rem},%
694     morecomment=[l]{ReM},%
695     morecomment=[l]{REm},%
696     morecomment=[l]{REM},%
697     morestring=[d]"%
698 }[keywords,comments,strings]%
699 </lang3>

```

2.16 Comsol Multiphysics

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

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

```

700 <*lang3>
701 \lst@definelanguage{Comsol}%
702 {morekeywords={%
703     adaption,arc1,arc2,arrayr,assemble,aseminit,beziercurve2,block2,%
704     block3,bsplinecurve2,bsplinecurve3,bsplinesurf3,bypassplot,cardg,%
705     ccoeffgroup,chamfer,checkgeom,circ1,circ2,coeff2cell,comsol,%
706     cone2,cone3,Contents,createhexes,createprisms,createquads,csgbl2,%
707     csgbl3,csgcmpbz,csgimplbz,csginitaux,csginitnr,csgproputil,%
708     csgrbconv,csgunique3,csguniquep,csgversion,csgvvovl,curve2,%
709     curve3,cylinder2,cylinder3,datt2str,defastget,display,drawgetobj,%
710     drawreobj,drawsetobj,dst,duplicate,dxflayers,dxfread,dxfwrite,%
711     econe2,econe3,eigloop,elcconstr,elcplbnd,elcplextr,elcplproj,%
712     elcplscalar,elempty,elemreobj,eleqc,eleqw,elevate,elgeom,ellip1,%
713     ellip2,ellipsoid2,ellipsoid3,ellipsoidgen_fl23,elmat,elovar,%
714     elpconstr,elshape,elvar,elvarm,embed,extrude,face3,faceprim3,%
715     fastsetop,fem2jxfem,femblocksu,femdiff,femeig,femexport,femgui,%
716     femimport,femiter,femlab,femlin,femmesh,femmeshep,femnlin,%
717     femplot,femsfun,femsim,femsimlowlevel,femsimserver,femsol,%
718     femsolver,femstate,femstruct,femtime,femwave,festyle,fieldnames,%
719     fillet,fl1d,fl2d,fl3d,flaction,flafun,flappconvert,flappobj,%
720     flaxisequal,flbase,flbinary,flc1hs,flc2hs,flcanpnt,flcell2draw,%
721     flclear,flcolorbar,flcompact,flconeplot,flcontour2mesh,%
722     flcontour2meshaux,flconvreact,flconvreact1d,flconvreact2d,%
723     flconvreact3d,flcyl,flc1hs,flc2hs,fldegree,fldegreer3,%
724     fldegreet3,fldimvarsget,fldisp,fldraw2cell,fldrawnow,flldsmhs,%
725     fldsmhsign,flvalmat,flexch,flexchprop,flfastgeom,flform,flgc,%

```

```

726 flgcbo,flgdconv,flgeom2cellstr,flgeomadj,flgeomarcize,flgeomec,%
727 flgeomed,flgeomepol,flgeomes,flgeomfc,flgeomfd,flgeomfdp,%
728 flgeomff1,flgeomff2,flgeomfn,flgeomfs,flgeomgetlocalsys,%
729 flgeominit,flgeominitprop,flgeomitransform,flgeomloft,flgeommesh,%
730 flgeomnbs,flgeomnes,flgeomnmr,flgeomnv,flgeompsinv,flgeomrmsing,%
731 flgeomrotp,flgeomsd,flgeomsdm,flgeomse,flgeomsf2,flgeomspm,%
732 flgeomtransform,flgeomud,flgeomvtx,flgetdraw,flheat,flheat1d,%
733 flheat2d,flheat3d,flhelmholtz,flhelmholtz1d,flhelmholtz2d,%
734 flhelmholtz3d,flim2curve,flinterp1,fliscont,flismember,%
735 flisnumeric,fljaction,fllaplace,fllaplace1d,fllaplace2d,%
736 fllaplace3d,flload,flloadfl,flloadmatfile,flloadmfile,%
737 fllobj2cellstr,flmakeevalstr,flmapsoljac,flmat2str,flmatch,%
738 flmesh2spline,flmesh2splineaux,flml65setup,flngdof,flnull,%
739 flnullorth,flpde,flpdeac,flpdec,flpdec1d,flpdec2d,flpdec3d,%
740 flpdedc,flpdedc2d,flpdedc3d,flpdedf,flpdedf1d,flpdedf2d,%
741 flpdedf3d,flpdees,flpdees2d,flpdees3d,flpdeg,flpdeg1d,flpdeg2d,%
742 flpdeg3d,flpdeht,flpdeht1d,flpdeht2d,flpdeht3d,flpdems,flpdems2d,%
743 flpdems3d,flpdens,flpdens2d,flpdens3d,flpdepn,flpdeps,flpdesm3d,%
744 flpdew,flpdew1d,flpdew2d,flpdew3d,flpdewb,flpdewb1d,flpdewb2d,%
745 flpdewb3d,flpdewc,flpdewc1d,flpdewc2d,flpdewc3d,flpdewe,%
746 flpdewe3d,flpdewp,flpdewp2d,flpdewp3d,flplot,flpoisson,%
747 flpoisson1d,flpoisson2d,flpoisson3d,flpric2,flpric3,flreobj,%
748 flreport,flresolvepath,flsave,flschrodinger,flschrodinger1d,%
749 flschrodinger2d,flschrodinger3d,flsde,flsdp,flsdt,flsetalpha,%
750 flsetdraw,flsmhs,flsmhsign,flspnull,fltherm_cond1,fltrg,flversion,%
751 flversions,flverver,flwave,flwave1d,flwave2d,flwave3d,%
752 flwriteghist,formstr,gdsread,gencyl2,gencyl3,genextrude,%
753 genextrudeaux,geom,geom0,geom0get,geom1,geom1get,geom2,geom2get,%
754 geom3,geom3get,geom3j2m,geom3m2j,geomaddlblmargin,geomanalyze,%
755 geomarrayr,geomassign,geomcoerce,geomcomp,geomconnect,geomcopy,%
756 geomcsg,geomdel,geomedit,geomexport,geomfile,geomget,%
757 geomgetlabels,geomgetwrkpln,geomimport,geominfo,geominfoaux,%
758 geomlblplot,geomload,geomnumparse,geomobject,geomparse,geomplot,%
759 geomplot1,geomplot2,geomplot3,geomposition,geomproputil,%
760 geomreconstruct,geomreobj,geomserver,geomspline,geomsurf,%
761 geomupdate,get,getfemgeom,getisocurve,getjptr,getmesh,getsdim,%
762 getvmatrixexch,handlesolnumstr,helix1,helix2,helix3,hexahedron2,%
763 hexahedron3,histfrommat,idst,igesread,importplotdata,isempty,%
764 isfield,isfunc,isscript,javaclass,jproputil,jptr2geom,jptrgeom1,%
765 jptrgeom1_fl123,jptrgeom2,jptrgeom2_fl123,jptrgeom3,jptrgeom3_fl123,%
766 keiter,line1,line2,loadobj,loft,matlabinterpdata,mesh2geom,%
767 meshassign,meshcaseadd,meshcasedel,meshcaseutil,meshcheck,%
768 meshembed,meshenrich,meshenrich1,meshenrich2,meshenrich3,%
769 meshexport,meshextend,meshextrude,meshget,meshimport,meshinit,%
770 meshintegrate,meshmap,meshoptim,meshparse,meshplot,meshplot1,%
771 meshplot2,meshplot3,meshplotproputil,meshpoi,meshproputil,%
772 meshptplot,meshqual,meshrefine,meshrevolve,meshsmooth,%
773 meshsmooth2,meshsweep,meshvolume,minus,mirror,mkreflparams,%
774 mmsolve,modetype,move,moveglobalfields,mphproputil,mtimes,%
775 multiphysics,mypostinterp,notscript,onlyelsconstr,outassign,%

```

```

776     paramgeom,pde2draw,pde2equ,pde2fem,pde2geom,pdeblxpd,plus,point1,%
777     point2,point3,poisson,poly1,poly2,postanim,postapplysettings,%
778     postarrow,postarrowbnd,postcolorbar,postcont,postcontdomind,%
779     postcoord,postcopyprop,postcrossplot,postdistrprops,posteval,%
780     postflow,postfnd,postgeomplot,postgetfem,postgetstylecolor,%
781     postglobaleval,postglobalplot,postgp,postinit,postint,postinterp,%
782     postiso,postlin,postmakecontcol,postmax,postmaxmin,postmin,%
783     postmkcontbar,postmknormexpr,postmovie,postnewplot,%
784     postoldmaxminprops,postpd2pm,postplot,postplotconstants,%
785     postpm2pd,postprinc,postprincbnd,postprogui,postproputil,%
786     postslice,postsurf,posttet,posttitle,print2file,pyramid2,%
787     pyramid3,rect1,rect2,restorefields,revolve,rmfield,rotate,%
788     rotmatrix,scale,serialize,set,setmesh,sh2str,sharg_2_5,shbub,%
789     shdisc,shdiv,shherm,shlag,shvec,simplecoerce,simreobj,slblocks,%
790     solassign,solid0,solid1,solid2,solid3,solidprim3,solproputil,%
791     solsize,solveraddcases,sphere2,sphere3,spiceimport,splineaux,%
792     split,splittoprim,square1,square2,stylread,submode,submodes,%
793     subsasgn,subsref,tangent,taucs,tetrahedron2,tetrahedron3,%
794     tobsplines,torus2,torus3,transform,update,updateassoc,%
795     updateassocinfo,updatefem,updateguistruct,updateobj,vrmlread,%
796     xmeshinfo,xmeshinit},%
797     sensitive=false,%
798     morecomment=[l]\%,%
799     morestring=[m]'%
800 }[keywords,comments,strings]%
801 </lang3>

```

2.17 bash, csh, and sh

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

```

802 <*lang1>
803 %%
804 %% csh definition (c) 1998 Kai Below
805 %%
806 \lst@definlanguage{csh}
807 {morekeywords={alias,awk,cat,echo,else,end,endif,endsw,exec,exit,%
808     foreach,glob,goto,history,if,logout,nice,nohup,onintr,repeat,sed,%
809     set,setenv,shift,source,switch,then,time,while,umask,unalias,%
810     unset,wait,while,@,env,argv,child,home,ignoreeof,noclobber,%
811     noglob,nomatch,path,prompt,shell,status,verbose,print,printf,%
812     sqrt,BEGIN,END},%
813     morecomment=[l]\#,%
814     morestring=[d]"%
815 }[keywords,comments,strings]%

```

Thanks to Riccardo Murri for the following two definitions.

```

816 %%
817 %% bash,sh definition (c) 2003 Riccardo Murri <riccardo.murri@gmx.it>

```

```

818 %%
819 \lst@definlanguage{bash}[] {sh}%
820 {morekeywords={alias,bg,bind,builtin,command,compgen,complete,%
821     declare,disown,enable,fc,fg,history,jobs,et,local,logout,printf,%
822     pushd,popd,select,set,suspend,shopt,source,times,type,typeset,%
823     ulimit,unalias,wait},%
824 }%
825 \lst@definlanguage{sh}%
826 {morekeywords={awk,break,case,cat,cd,continue,do,done,echo,else,%
827     env,eval,exec,expr,exit,export,false,fi,for,function,getopts,%
828     hash,history,if,kill,nice,nohup,ps,pwd,read,readonly,return,%
829     sed,shift,test,then,times,trap,true,umask,unset,until,while},%
830 morecomment=[l]\#,%
831 morestring=[d]"%
832 }[keywords,comments,strings]%
833 </lang1>

```

2.18 Delphi

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

```

834 <*lang2>
835 \lst@definlanguage{Delphi}%
836 {morekeywords={and,as,asm,array,begin,case,class,const,constructor,%
837     destructor,div,do,downto,else,end,except,exports,file,finally,%
838     for,function,goto,if,implementation,in,inherited,inline,%
839     initialization,interface,is,label,library,mod,nil,not,object,of,%
840     or,packed,procedure,program,property,raise,record,repeat,set,%
841     shl,shr,string,then,to,try,type,unit,until,uses,var,while,with,%
842     xor,%
843     absolute,abstract,assembler,at,cdecl,default,dynamic,export,%
844     external,far,forward,index,name,near,nodefault,on,override,%
845     private,protected,public,published,read,resident,storedDir,%
846     virtual,write},%
847 moreendkeywords={Abs,AddExitProc,Addr,AllocMem,AnsiCompareStr,%
848     AnsiCompareText,AnsiLowerCase,AnsiUpperCase,Append,AppendStr,%
849     ArcTan,AssignCrt,Assigned,AssignFile,BlockRead,BlockWrite,Break,%
850     ChangeFileExt,ChDir,Chr,CloseFile,ClrEol,ClrScr,Concat,Continue,%
851     Copy,Cos,CSeg,CursorTo,Date,DateTimeToFileDate,DateTimeToStr,%
852     DateTimeToString,DateToStr,DayOfWeek,Dec,DecodeDate,DecodeTime,%
853     Delete,DeleteFile,DiskFree,DiskSize,Dispose,DisposeStr,%
854     DoneWinCrt,DSeg,EncodeDate,EncodeTime,Eof,Eoln,Erase,Exclude,%
855     Exit,Exp,ExpandFileName,ExtractFileExt,ExtractFileName,%
856     ExtractFilePath,FileAge,FileClose,FileDateToDateTime,FileExists,%
857     FileGetAttr,FileGetDate,FileOpen,FilePos,FileRead,FileSearch,%
858     FileSeek,FileSetAttr,FileSetDate,FileSize,FillChar,FindClose,%
859     FindFirst,FindNext,FloatToDecimal,FloatToStrF,FloatToStr,%
860     FloatToText,FloatToTextFmt,Flush,FmtLoadStr,FmtStr,Format,%
861     FormatBuf,FormatDateTime,FormatFloat,Frac,Free,FreeMem,GetDir,%

```

```

862      GetMem,GotoXY,Halt,Hi,High,Inc,Include,InitWinCrt,Insert,Int,%
863      IntToHex,IntToStr,IOResult,IsValidIdent,KeyPressed,Length,Ln,Lo,%
864      LoadStr,Low,LowerCase,MaxAvail,MemAvail,MkDir,Move,New,NewStr,%
865      Now,Odd,Ofs,Ord,ParamCount,ParamStr,Pi,Pos,Pred,Ptr,Random,%
866      Randomize,Read,ReadBuf,ReadKey,ReadLn,ReAllocMem,Rename,%
867      RenameFile,Reset,Rewrite,RmDir,Round,RunError,ScrollTo,Seek,%
868      SeekEof,SeekEoln,Seg,SetTextBuf,Sin,SizeOf,SPtr,Sqr,Sqrt,SSeg,%
869      Str,StrCat,StrComp,StrCopy,StrDispose,StrECopy,StrEnd,StrFmt,%
870      StrLCat,StrLComp,StrLComp,StrLCopy,StrLen,StrLFmt,StrLComp,%
871      StrLower,StrMove,StrNew,StrPas,StrPCopy,StrPos,StrScan,StrRScan,%
872      StrToDate,StrToDateTime,StrToFloat,StrToInt,StrToIntDef,%
873      StrToTime,StrUpper,Succ,Swap,TextToFloat,Time,TimeToStr,%
874      TrackCursor,Trunc,Truncate,TypeOf,UpCase,UpperCase,Val,WhereX,%
875      WhereY,Write,WriteBuf,WriteChar,Writeln},%
876      sensitive=f,%
877      morecomment=[s]{(*){(*)}},%
878      morecomment=[s]{\}{\}{\}},%
879      morecomment=[l]{//},% 2001 Christian Gudrian
880      morestring=[d]'%
881    }[keywords,comments,strings]%
882 </lang2>

```

2.19 Eiffel

Data is from

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

```

883 <*lang2>
884 \lst@definlanguage{Eiffel}%
885 {morekeywords={alias,all,and,as,BIT,BOOLEAN,CHARACTER,check,class,%
886      creation,Current,debug,deferred,do,DOUBLE,else,elseif,end,%
887      ensure,expanded,export,external,false,feature,from,frozen,if,%
888      implies,indexing,infix,inherit,inspect,INTEGER,invariant,is,%
889      like,local,loop,NONE,not,obsolete,old,once,or,POINTER,prefix,%
890      REAL,redefine,rename,require,rescue,Result,retry,select,%
891      separate,STRING,strip,then,true,undefine,unique,until,variant,%
892      when,xor},%
893      sensitive,%
894      morecomment=[l]--,%
895      morestring=[d]"%,%
896    }[keywords,comments,strings]%

```

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

```

897 </lang2>

```


2.20 Elan

The data come from

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

```
898 ⟨*lang3⟩
899 \lst@definlanguage{Elan}%
900 {morekeywords={ABS,AND,BLANK,CAND,CASE,CAT,COLUMNS,CONCR,CONJ,CONST,%
901     COR,DECR,DEFINES,DET,DIV,DOWNT,ELIF,ELSE,END,ENDIF,ENDOP,%
902     ENDPACKET,ENDPROC,ENDREP,ENDSELECT,FALSE,FI,FILE,FOR,FROM,IF,%
903     INCR,INT,INV,LEAVE,LENGTH,LET,MOD,NOT,OF,OP,OR,OTHERWISE,PACKET,%
904     PROC,REAL,REP,REPEAT,ROW,ROWS,SELECT,SIGN,STRUCT,SUB,TEXT,THEN,%
905     TRANSP,TRUE,TYPE,UNTIL,UPTO,VAR,WHILE,WITH,XOR,%
906     maxint,sign,abs,min,max,random,initializerandom,subtext,code,%
907     replace,text,laenge,pos,compress,change,maxreal,smallreal,floor,%
908     pi,e,ln,log2,log10,sqrt,exp,tan,tand,sin,sind,cos,cosd,arctan,%
909     arctand,int,real,lastconversionok,put,putline,line,page,get,%
910     getline,input,output,sequentialfile,maxlinelaenge,reset,eof,%
911     close,complexzero,complexone,complexi,complex,realpart,imagpart,%
912     dphi,phi,vector,norm,replace,matrix,idn,row,column,sub,%
913     replacerow,replacecolumn,replaceelement,transp,errorstop,stop},%
914     sensitive,%
915     morestring=[d] "%
916 }[keywords,strings]%
917 ⟨/lang3⟩
```

2.21 Erlang

Thanks to Daniel Gazard.

```
918 ⟨*lang3⟩
919 %%
920 %% Erlang definition (c) 2003 Daniel Gazard
921 %%
922 \lst@definlanguage{erlang}%
923 {morekeywords={abs,after,and,apply,atom,atom_to_list,band,binary,%
924     binary_to_list,binary_to_term,bor,bsl,bsr,bxor,case,catch,%
925     date,div,element,erase,end,exit,export,float,float_to_list,%
926     get,halt,hash,hd,if,info,import,integer,integer_to_list,%
927     length,link,list,list_to_atom,list_to_float,list_to_integer,%
928     list_to_tuple,module,node,nodes,now,of,or,pid,port,ports,%
929     processes,put,receive,reference,register,registered,rem,%
930     round,self,setelement,size,spawn,throw,time,tl,trace,trunc,%
931     tuple,tuple_to_list,unlink,unregister,whereis,error,false,%
932     infinity,nil,ok,true,undefined,when},%
933     otherkeywords={->,!,[],\{,\}},%
934     morecomment=[l]\%,%
935     morestring=[b] "%
```

```

936   morestring=[b] '%'
937   }[keywords,comments,strings]%
938 </lang3>

```

2.22 Euphoria

Detlef Reimers sent me the language definition.

```

939 <*lang2>

940 %%
941 %% Euphoria definition (c) 1998 Detlef Reimers
942 %%
943 \lst@definelanguage{Euphoria}%
944 % for Euphoria 2.0, Rapid Deployment Software, Kanada
945 {morekeywords={abort,and,and_bits,append,arctan,atom,by,call,%
946   call_proc,call_func,c_proc,c_func,clear_screen,close,%
947   command_line,compare,constant,cos,do,date,else,elsif,end,exit,%
948   find,floor,for,function,getc,getenv,get_key,gets,global,%
949   get_pixel,if,include,integer,length,log,match,machine_func,%
950   machine_proc,mem_copy,mem_set,not,not_bits,or,object,open,%
951   or_bits,procedure,puts,position,prepend,print,printf,power,peek,%
952   poke,pixel,poke4,peek4s,peek4u,return,rand,repeat,remainder,%
953   routine_id,sequence,sqrt,sin,system,sprintf,then,type,to,time,%
954   trace,tan,while,with,without,xor,xor_bits},%
955   sensitive,%
956   morecomment=[1]--,%
957   morestring=[d] ',%
958   morestring=[d] "%
959   }[keywords,comments,strings]%
960 </lang2>

```

2.23 Fortran

Took things from

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

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

```

961 <*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.

```
962 \lst@definelanguage[08]{Fortran}[03]{Fortran}{%
963   morekeywords={ALL, BLOCK, CODIMENSION, CONCURRENT, CONTIGUOUS, CRITICAL,%
964     ERROR, LOCK, SUBMODULE, SYNC, UNLOCK}%
965 }%
```

Fortran 2003 introduces the following keywords:

```
966 \lst@definelanguage[03]{Fortran}[95]{Fortran}{%
967   morekeywords={ABSTRACT, ASSOCIATE, ASYNCHRONOUS, BIND, CLASS, DEFERRED,%
968     ENUM, ENUMERATOR, EXTENDS, FINAL, FLUSH, GENERIC, IMPORT,%
969     NON_OVERRIDABLE, NOPASS, PASS, PROTECTED, VALUE, VOLATILE, WAIT}%
970 }%
```

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

```
971 \lst@definelanguage[90]{Fortran}[95]{Fortran}{}
```

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

```
972 \lst@definelanguage[95]{Fortran}[77]{Fortran}%
973   {deletekeywords=SAVE,%
974     morekeywords={ACTION,ADVANCE,ALLOCATE,ALLOCATABLE,ASSIGNMENT,CASE,%
975       CONTAINS,CYCLE,DEALLOCATE,DEFAULT,DELIM,EXIT,INCLUDE,IN,NONE,IN,%
976       OUT,INTENT,INTERFACE,IOLength,KIND,LEN,MODULE,NAME,NAMelist,NMT,%
977       NULLIFY,ONLY,OPERATOR,OPTIONAL,OUT,PAD,POINTER,POSITION,PRIVATE,%
978       PUBLIC,READWRITE,RECURSIVE,RESULT,SELECT,SEQUENCE,SIZE,STAT,%
979       TARGET,USE,WHERE,WHILE,BLOCKDATA,DOUBLEPRECISION,%
980       ENDBLOCKDATA,ENDFILE,ENDFUNCTION,ENDINTERFACE,%
981       ENDMODULE,ENDPROGRAM,ENDSELECT,ENDSUBROUTINE,ENDTYPE,ENDWHERE,%
982       INOUT,SELECTCASE,%
```

Theses keys were missing from the 1.4 version of listings:

```
983     ELEMENTAL, ELSEWHERE, FORALL, PURE},%
```

and here are the final settings for Fortran

```
984   deletacomment=[f],% no fixed comment line: 1998 Magne Rudshaug
985   morecomment=[l]!%
986 }%
```

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’).

```
987 \lst@definelanguage[77]{Fortran}%
988   {morekeywords={ACCESS,ASSIGN,BACKSPACE,BLANK,BLOCK,CALL,CHARACTER,%
989     CLOSE,COMMON,COMPLEX,CONTINUE,DATA,DIMENSION,DIRECT,DO,DOUBLE,%
990     ELSE,ELSEIF,END,ENDIF,ENDDO,ENTRY,EOF,EQUIVALENCE,ERR,EXIST,EXTERNAL,%
991     FILE,FMT,FORM,FORMAT,FORMATTED,FUNCTION,GO,TO,GOTO,IF,IMPLICIT,%
992     INQUIRE,INTEGER,INTRINSIC,IOSTAT,LOGICAL,NAMED,NEXTREC,NUMBER,%
993     OPEN,OPENED,PARAMETER,PAUSE,PRECISION,PRINT,PROGRAM,READ,REAL,%
```

```

994      REC,RECL,RETURN,REWIND,SEQUENTIAL,STATUS,STOP,SUBROUTINE,THEN,%
995      TYPE,UNFORMATTED,UNIT,WRITE,SAVE},%
996      sensitive=f,%% not Fortran-77 standard, but allowed in Fortran-95 %%
997      morecomment=[f]*,%
998      morecomment=[f]C,%
999      morecomment=[f]c,%
1000     morestring=[d]",%% not Fortran-77 standard, but allowed in Fortran-95 %%
1001     morestring=[d]'%
1002   }[keywords,comments,strings]%
1003 </lang1>

```

2.24 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.

```

1004 <*lang2>
1005 %%
1006 %% GAP definition
1007 %% (c) 2013 Heiko Oberdiek
1008 %%
1009 \lst@definlanguage{GAP}{%
1010   morekeywords={%
1011     Assert,Info,IsBound,QUIT,%
1012     TryNextMethod,Unbind,and,break,%
1013     continue,do,elif,%
1014     else,end,false,fi,for,%
1015     function,if,in,local,%
1016     mod,not,od,or,%
1017     quit,rec,repeat,return,%
1018     then,true,until,while%
1019   },%
1020   sensitive,%
1021   morecomment=[l]\#,%
1022   morestring=[b]",%
1023   morestring=[b]' ,%
1024 }[keywords,comments,strings]
1025 </lang2>

```

2.25 Guarded Command Language (GCL)

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

```

1026 <*lang2>
1027 %%
1028 %% Guarded Command Language (GCL) definition
1029 %% (c) 2002 Mark van Eijk

```

```

1030 %%
1031 \lst@definlanguage{GCL}%
1032 {morekeywords={const,con,var,array,of,skip,if,fi,do,od,div,mod},%
1033   literate={|[]-\ensuremath{\hspace{-0.1em}}|}2%
1034             {|}\-\ensuremath{\hspace{-0.1em}}|}2%
1035             {|[]-\ensuremath{\hspace{-0.1em}}|}2%
1036             {->}\ensuremath{\rightarrow}~}2%
1037             {=}\ensuremath{\equiv}~}2%
1038             {>}\ensuremath{\geq}~}2%
1039             {<}\ensuremath{\leq}~}2%
1040             {/\}\ensuremath{\land}~}2%
1041             {\}\ensuremath{\lor}~}2%
1042             {!}\ensuremath{\lnot}~}1%
1043             {!=}\ensuremath{\neq}~}2%
1044             {max}\ensuremath{\uparrow}~}1%
1045             {min}\ensuremath{\downarrow}~}1,%
1046   sensitive=f,%
1047   morecomment=[s]{\{\}\},%
1048   morestring=[d]'%
1049 }[keywords,comments,strings]%
1050 </lang2>

```

2.26 Gnuplot

Thanks to Dr. Christoph Giess for providing this definition.

```

1051 <*lang2>
1052 %%
1053 %% gnuplot definition (c) Christoph Giess
1054 %%
1055 \lst@definlanguage{Gnuplot}%
1056 {keywords={abs,acos,acosh,arg,asin,asinh,atan,atan2,atanh,besj0,%
1057   besj1,besy0,besy1,ceil,cos,cosh,erf,erfc,exp,floor,gamma,ibeta,%
1058   inverf,igamma,imag,invnorm,int,lgamma,log,log10,norm,rand,real,%
1059   sgn,sin,sinh,sqrt,tan,tanh,column,tm_hour,tm_mday,tm_min,tm_mon,%
1060   tm_sec,tm_wday,tm_yday,tm_year,valid,cd,call,clear,exit,fit,%
1061   help,if,load,pause,plot,print,pwd,quit,replot,reread,reset,save,%
1062   set,show,shell,spplot,test,update,angles,arrow,autoscale,border,%
1063   boxwidth,clabel,clip,ctrparam,contour,data,dgrid3d,dummy,%
1064   format,function,functions,grid,hidden3d,isosamples,key,keytitle,%
1065   label,logscale,mapping,offsets,output,parametric,pointsize,%
1066   polar,rrange,samples,size,style,surface,terminal,tics,time,%
1067   timefmt,title,trange,urange,variables,view,vrange,xdata,xlabel,%
1068   xmargin,xrange,xtics,mxtics,mytics,xdtics,xmtics,xzeroaxis,%
1069   ydata,ylabel,yrange,ytics,ydtics,ymtics,yzeroaxis,zdata,zero,%
1070   zeroaxis,zlabel,zrange,ztics,zdtics,zmtics,timefm,using,title,%
1071   with,index,every,thru,smooth},%
1072   sensitive,%
1073   comment=[l]\#,%
1074   morestring=[b]" ,%

```

```

1075     morestring=[b]',',%
1076   }[keywords,comments,strings]%
1077 </lang2>

```

2.27 Haskell

Thanks to Peter Bartke for providing the new definition.

```

1078 <*lang2>

1079 %%
1080 %% Haskell98 as implemented in Hugs98. See http://www.haskell.org
1081 %% All keywords from Prelude and Standard Libraries
1082 %% (c) 1999 Peter Bartke
1083 %%
1084 \lst@definlanguage{Haskell}%
1085 {otherkeywords={=>},%
1086   morekeywords={abstype,if,then,else,case,class,data,default,deriving,%
1087     hiding,if,in,infix,infixl,infixr,import,instance,let,module,%
1088     newtype,of,qualified,type,where,do,AbsoluteSeek,AppendMode,%
1089     Array,BlockBuffering,Bool,BufferMode,Char,Complex,Double,Either,%
1090     FilePath,Float,Int,Integer,IO,IOError,Ix,LineBuffering,Maybe,%
1091     Ordering,NoBuffering,ReadMode,ReadWriteMode,ReadS,RelativeSeek,%
1092     SeekFromEnd,SeekMode,ShowS,StdGen,String,Void,Bounded,Enum,Eq,%
1093     Eval,ExitCode,exitFailure,exitSuccess,Floating,Fractional,%
1094     Functor,Handle,HandlePosn,IOMode,Integral,List,Monad,MonadPlus,%
1095     MonadZero,Num,Numeric,Ord,Random,RandomGen,Ratio,Rational,Read,%
1096     Real,RealFloat,RealFrac,Show,System,Prelude,EQ,False,GT,Just,%
1097     Left,LT,Nothing,Right,WriteMode,True,abs,accum,accumArray,%
1098     accumulate,acos,acosh,all,and,any,ap,appendFile,applyM,%
1099     approxRational,array,asTypeOf,asin,asinh,assocs,atan,atan2,atanh,%
1100     bounds,bracket,bracket_,break,catch,catMaybes,ceiling,chr,cis,%
1101     compare,concat,concatMap,conjugate,const,cos,cosh,curry,cycle,%
1102     decodeFloat,delete,deleteBy,deleteFirstsBy,denominator,%
1103     digitToInt,div,divMod,drop,dropWhile,either,elem,elems,elemIndex,%
1104     elemIndices,encodeFloat,enumFrom,enumFromThen,enumFromThenTo,%
1105     enumFromTo,error,even,exitFailure,exitWith,exp,exponent,fail,%
1106     filter,filterM,find,findIndex,findIndices,flip,floatDigits,%
1107     floatRadix,floatRange,floatToDigits,floor,foldl,foldM,foldl1,%
1108     foldr,foldr1,fromDouble,fromEnum,fromInt,fromInteger,%
1109     fromIntegral,fromJust,fromMaybe,fromRat,fromRational,%
1110     fromRealFrac,fst,gcd,genericLength,genericTake,genericDrop,%
1111     genericSplitAt,genericIndex,genericReplicate,getArgs,getChar,%
1112     getContents,getEnv,getLine,getProgName,getStdGen,getStdRandom,%
1113     group,groupBy,guard,hClose,hFileSize,hFlush,hGetBuffering,%
1114     hGetChar,hGetContents,hGetLine,hGetPosn,hIsClosed,hIsEOF,hIsOpen,%
1115     hIsReadable,hIsSeekable,hIsWritable,hLookAhead,hPutChar,hPutStr,%
1116     hPutStrLn,hPrint,hReady,hSeek,hSetBuffering,hSetPosn,head,%
1117     hugsIsEOF,hugsHIsEOF,hugsIsSearchErr,hugsIsNameErr,%
1118     hugsIsWriteErr,id,ioError,imagPart,index,indices,init,inits,%
1119     inRange,insert,insertBy,interact,intersect,intersectBy,%

```

```

1120 intersperse,intToDigit,ioeGetErrorString,ioeGetFileName,%
1121 ioeGetHandle,isAlreadyExistsError,isAlreadyInUseError,isAlpha,%
1122 isAlphaNum,isAscii,isControl,isDenormalized,isDoesNotExistError,%
1123 isDigit,isEOF,isEOFError,isFullError,isHexDigit,isIEEE,%
1124 isIllegalOperation,isInfinite,isJust,isLower,isNaN,%
1125 isNegativeZero,isNothing,isOctDigit,isPermissionError,isPrefixOf,%
1126 isPrint,isSpace,isSuffixOf,isUpper,isUserError,iterate,ixmap,%
1127 join,last,lcm,length,lex,lexDigits,lexLitChar,liftM,liftM2,%
1128 liftM3,liftM4,liftM5,lines,listArray,listToMaybe,log,logBase,%
1129 lookup,magnitude,makePolar,map,mapAccumL,mapAccumR,mapAndUnzipM,%
1130 mapM,mapM_,mapMaybe,max,maxBound,maximum,maximumBy,maybe,%
1131 maybeToList,min,minBound,minimum,minimumBy,mkPolar,mkStdGen,%
1132 mplus,mod,msum,mzero,negate,next,newStdGen,not,notElem,nub,nubBy,%
1133 null,numerator,odd,openFile,or,ord,otherwise,partition,phase,pi,%
1134 polar,pred,print,product,properFraction,putChar,putStr,putStrLn,%
1135 quot,quotRem,random,randomIO,randomR,randomRIO,randomRs,randoms,%
1136 rangeSize,read,readDec,readFile,readFloat,readHex,readInt,readIO,%
1137 readList,readLitChar,readLn,readParen,readOct,readSigned,reads,%
1138 readsPrec,realPart,realToFrac,recip,rem,repeat,replicate,return,%
1139 reverse,round,scaleFloat,scanl,scanl1,scanr,scanr1,seq,sequence,%
1140 sequence_,setStdGen,show,showChar,showEFloat,showFFloat,%
1141 showFloat,showGFloat,showInt,showList,showLitChar,showParen,%
1142 showSigned,showString,shows,showsPrec,significand,signum,sin,%
1143 sinh,snd,sort,sortBy,span,split,splitAt,sqrt,stderr,stdin,stdout,%
1144 strict,subtract,succ,sum,system,tail,tails,take,takeWhile,tan,%
1145 tanh,toEnum,toInt,toInteger,toLower,toRational,toUpper,transpose,%
1146 truncate,try,uncurry,undefined,unfoldr,union,unionBy,unless,%
1147 unlines,until,unwords,unzip,unzip3,unzip4,unzip5,unzip6,unzip7,%
1148 userError,when,words,writeFile,zero,zip,zip3,zip4,zip5,zip6,zip7,%
1149 zipWith,zipWithM,zipWithM_,zipWith3,zipWith4,zipWith5,zipWith6,%
1150 zipWith7},%
1151 sensitive,%
1152 morecomment=[1]--,%
1153 morecomment=[n]{\{-}\{-\}},%
1154 morestring=[b]"%
1155 }[keywords,comments,strings]%
1156 </lang2>

```

2.28 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.

```

1157 <*lang1>
1158 \lst@definlanguage{HTML}%
1159 {morekeywords={A, ABBR, ACRONYM, ADDRESS, APPLET, AREA, B, BASE, BASEFONT, %
1160 BDO, BIG, BLOCKQUOTE, BODY, BR, BUTTON, CAPTION, CENTER, CITE, CODE, COL, %
1161 COLGROUP, DD, DEL, DFN, DIR, DIV, DL, DOCTYPE, DT, EM, FIELDSET, FONT, FORM, %
1162 FRAME, FRAMESET, HEAD, HR, H1, H2, H3, H4, H5, H6, HTML, I, IFRAME, IMG, INPUT, %

```

```

1163     INS, ISINDEX, KBD, LABEL, LEGEND, LH, LI, LINK, LISTING, MAP, META, MENU, %
1164     NOFRAMES, NOSCRIPT, OBJECT, OPTGROUP, OPTION, P, PARAM, PLAINTEXT, PRE, %
1165     OL, Q, S, SAMP, SCRIPT, SELECT, SMALL, SPAN, STRIKE, STRING, STRONG, STYLE, %
1166     SUB, SUP, TABLE, TBODY, TD, TEXTAREA, TFOOT, TH, THEAD, TITLE, TR, TT, U, UL, %
1167     VAR, XMP, %
1168     accesskey, action, align, alink, alt, archive, axis, background, bgcolor, %
1169     border, cellpadding, cellspacing, charset, checked, cite, class, classid, %
1170     code, codebase, codetype, color, cols, colspan, content, coords, data, %
1171     datetime, defer, disabled, dir, event, error, for, frameborder, headers, %
1172     height, href, hreflang, hspace, http-equiv, id, ismap, label, lang, link, %
1173     longdesc, marginwidth, marginheight, maxlength, media, method, multiple, %
1174     name, nohref, noresize, noshade, nowrap, onblur, onchange, onclick, %
1175     ondblclick, onfocus, onkeydown, onkeypress, onkeyup, onload, onmousedown, %
1176     onprofile, readonly, onmousemove, onmouseout, onmouseover, onmouseup, %
1177     onselect, onunload, rel, rev, rows, rowspan, scheme, scope, scrolling, %
1178     selected, shape, size, src, standby, style, tabindex, text, title, type, %
1179     units, usemap, valign, value, valuetype, vlink, vspace, width, xmlns}, %
1180     tag=**[s]<>,%
1181     sensitive=f,%
1182     morestring=[d]",% ??? doubled

```

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

```

1183     MoreSelectCharTable=%
1184         \lst@CArgX--\relax\lst@DefDelimB{}{}%
1185         {\ifnum\lst@mode=\lst@tagmode\else
1186             \expandafter\@gobblethree
1187             \fi}%
1188         \lst@BeginComment\lst@commentmode{{\lst@commentstyle}}%
1189         \lst@CArgX--\relax\lst@DefDelimE{}{}{}%
1190         \lst@EndComment\lst@commentmode
1191     }[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.

```

1192 </lang1>

```

2.29 IDL

The definition is from Jürgen Heim.

```

1193 <*lang2>
1194 %%
1195 %% IDL definition (c) 1998 Juergen Heim
1196 %%
1197 \lst@definlanguage{IDL}%
1198 {morekeywords={and,begin,case,common,do,else,end,endcase,elseif,%
1199     endfor,endif,endrep,endwhile,eq,for,function,ge,goto,gt,if,le,lt,%
1200     mod,ne,not,of,on_ioerror,or,pro,repeat,return,then,until,while,%

```



```

1201     xor,on_error,openw,openr,openu,print,printf,printu,plot,read,%
1202     readf,readu,writew,stop},%
1203     sensitive=f,%
1204     morecomment=[l];,%
1205     morestring=[d]'%
1206 }[keywords,comments,strings]%
1207 </lang2>

```

2.30 Inform

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

```

1208 <*lang2>
1209 %%
1210 %% Inform definition (c) 2003 Jonathan Sauer
1211 %%
1212 \lst@definlanguage{inform}{%
1213     % Language keywords
1214     morekeywords={breakdo,else,false,for,has,hasnt,if,%
1215                 in,indirect,jump,notin,nothing,NULL,objectloop,ofclass,%
1216                 private,property,provides,return,rfalse,rtrue,self,string,%
1217                 switch,to,true,until,while,with,%
1218                 creature,held,multiexcept,multiheld,multiinside,noun,number,%
1219                 scope,topic},%
1220     %
1221     % Inform functions
1222     morekeywords=[2]{box,child,children,font,give,inversion,metaclass,move,%
1223                 new_line,parent,print,print_ret,read,remove,restore,sibling,%
1224                 save,spaces,quit,style,bold,underline,reverse,roman remaining,%
1225                 create,destroy,recreate,copy},%
1226     %
1227     % Inform definitions
1228     morekeywords=[3]{Attribute,Array,Class,Constant,Default,End,Endif,Extend,%
1229                 Global,Ifdef,Iffalse,Ifndef,Ifnot,Iftrue,Include,Object,%
1230                 Property,Verb,Release,Serial,Statusline},%
1231     %
1232     % Library attributes
1233     morekeywords=[4]{absent,animate,clothing,concealed,container,door,edible,%
1234                 enterable,female,general,light,lockable locked,male,moved,%
1235                 neuter,on,open,openable,pluralname,proper,scenery,scored,%
1236                 static,supporter,switchable,talkable,transparent,visited,%
1237                 workflag,worn},%
1238     %
1239     % Library properties
1240     morekeywords=[5]{n_to,s_to,e_to,w_to,ne_to,nw_to,se_to,sw_to,in_to,%
1241                 out_to,u_to,d_to,add_to_scope,after,article,articles,before,%
1242                 cant_go,capacity,daemon,describe,description,door_dir,door_to,%
1243                 each_turn,found_in,grammar,initial,inside_description,invent,%

```

```

1244         life,list_together,name number,orders,parse_name,plural,%
1245         react_after,react_before,short_name,short_name_indef,time_left,%
1246         time_out,when_closed,when_open,when_on,when_off,%
1247         with_key},
1248     %
1249     % Library routines
1250     morekeywords=[6]{Achieved,AfterRoutines,AllowPushDir,Banner,ChangePlayer,%
1251         CommonAncestor,DictionaryLookup,GetGNAOfObject,HasLightSource,%
1252         IndirectlyContains,IsSeeThrough,Locale,LoopOverScope,LTl_Insert,%
1253         MoveFloatingObjects,NextWord,NextWordStopped,NounDomain,%
1254         ObjectIsUntouchable OffersLight,ParseToken,PlaceInScope,PlayerTo,%
1255         PronounNotice,PronounValue,ScopeWithin,SetPronoun,SetTime,%
1256         StartDaemon,StartTimer,StopDaemon,StopTimer,TestScope,TryNumber,%
1257         UnsignedCompare,WordAddress,WordInProperty,WordLength,%
1258         WriteListFrom,YesOrNo},%
1259     %
1260     % Library,entry points
1261     morekeywords=[7]{AfterLife,AfterPrompt,Amusing,BeforeParsing,ChooseObjects,%
1262         DarkToDark,DeathMessage,GamePostRoutine GamePreRoutine,%
1263         Initialise,InScope,LookRoutine,NewRoom,ParseNoun,ParseNumber,%
1264         ParserError,PrintRank,PrintTaskName,PrintVerb,TimePasses,%
1265         UnknownVerb},%
1266     %
1267     % Library constants
1268     morekeywords=[8]{NEWLINE_BIT,INDENT_BIT,FULLINV_BIT,ENGLISH_BIT,RECURSE_BIT,%
1269         ALWAYS_BIT,TERSE_BIT,PARTINV_BIT,DEFART_BIT,WORKFLAG_BIT,%
1270         ISARE_BIT,CONCEAL_BIT},%
1271     %
1272     % Library,meta actions
1273     morekeywords=[9]{Pronouns,Quit,Restart,Restore,Save,Verify,ScriptOn,ScriptOff,%
1274         NotifyOn,NotifyOff,Places,Objects,Score,FullScore,Version,LMode1,%
1275         LMode2,Lmode3},%
1276     %
1277     % Library,main actions
1278     morekeywords=[10]{Close,Disrobe,Drop,Eat,Empty,EmptyT,Enter,Examine,Exit,GetOff,%
1279         Give,Go,GoIn,Insert,Inv,InvTall,InvWide,Lock,Look,Open,PutOn,Remove,%
1280         Search,Show,SwitchOff,SwitchOn,Take,Transfer,Unlock VagueGo,%
1281         Wear},%
1282     %
1283     % Library,stub actions
1284     morekeywords=[11]{Answer,Ask,AskFor,Attack,Blow,Burn,Buy,Climb,Consult,Cut,Dig,%
1285         Drink,Fill,Jump,JumpOver,Kiss,Listen,LookUnder,Mild,No,Pray,Pull,%
1286         Push,PushDir,Rub,Set,SetTo,Sing,Sleep,Smell,,Sleep,Smell,Sorry,%
1287         Squeeze,Strong,Swim,Swing,Taste,Tell,Think,ThrowAt,Tie,Touch,Turn,%
1288         Wait,Wake,WakeOther,Wave,WaveHands,Yes},%
1289     %
1290     otherkeywords={->,<-->},%
1291     sensitive=false,%
1292     morestring=[d]{"},%
1293     morecomment=[l]{"!}%

```

```

1294 }[keywords,comments,strings]%
1295 </lang2>

```

2.31 Java

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

```

1296 <*lang1>
1297 %%
1298 %% AspectJ definition (c) Robert Wenner
1299 %%
1300 \lst@definlanguage[AspectJ]{Java}[] {Java}%
1301 {morekeywords={%
1302     adviceexecution,after,args,around,aspect,aspectOf,before,%
1303     call,cflow,cflowbelow,%
1304 % declare error,declare parents,declare precedence,
1305 % declare soft,declare warning,
1306     execution,get,handler,if,initialization,issingleton,pointcut,%
1307     percflow,percflowbelow,perthis,pertarget,preinitialization,%
1308     privileged,proceed,returning,set,staticinitialization,strictfp,%
1309     target,this,thisEnclosingJoinPoint,thisJoinPoint,throwing,%
1310     within,withincode},%
1311 MoreSelectCharTable=%
1312     \lst@DefSaveDef{'.'}\lst@umdot{\lst@umdot\global\let\lst@derefop\@empty}%
1313     \ifx\lst@derefinstalled\@empty\else
1314         \global\let\lst@derefinstalled\@empty
1315 \lst@AddToHook{Output}%
1316 {\lst@ifkeywords
1317     \ifx\lst@derefop\@empty
1318         \global\let\lst@derefop\relax
1319         \ifx\lst@thestyle\lst@gkeywords@sty
1320             \ifx\lst@currstyle\relax
1321                 \let\lst@thestyle\lst@identifierstyle
1322             \else
1323                 \let\lst@thestyle\lst@currstyle
1324             \fi
1325         \fi
1326     \fi}
1327 \fi}
1328 \lst@AddToHook{BOL}{\global\let\lst@derefop\relax}%
1329 \lst@AddTo\lst@ProcessSpace{\global\let\lst@derefop\relax}%
1330 \fi
1331 }%
1332 </lang1>

```

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

```

1333 <*lang1>
1334 \lst@definlanguage{Java}%
1335 {morekeywords={abstract,boolean,break,byte,case,catch,char,class,%

```

```

1336     const,continue,default,do,double,else,extends,false,final,%
1337     finally,float,for,goto,if,implements,import,instanceof,int,%
1338     interface,label,long,native,new,null,package,private,protected,%
1339     public,return,short,static,super,switch,synchronized,this,throw,%
1340     throws,transient,true,try,void,volatile,while},%
1341     sensitive,%
1342     morecomment=[l]//,%
1343     morecomment=[s]{/*}{*/},%
1344     morestring=[b]",%
1345     morestring=[b]',%
1346 }[keywords,comments,strings]%

```

Herbert Voss added the keyword label.

```
1347 </lang1>
```

Martine Gautier made the following contribution.

```

1348 <*lang1>
1349 %%
1350 %% ByteCodeJava definition (c) 2004 Martine Gautier
1351 %%
1352 \lst@definlanguage{JVMIS}%
1353 {morekeywords={aaload,astore,acnst_null,aload,aload_0,aload_1,%
1354     aload_2,aload_3,anewarray,areturn,arraylength,astore,astore_0,%
1355     astore_1,astore_2,astore_3,athrow,baload,bastore,bipush,caload,%
1356     castore,checkcast,d2f,d2i,d2l,dadd,daload,dastore,dcmprg,dcmpl,%
1357     dconst_0,dconst_1,ddiv,dload,dload_0,dload_1,dload_2,dload_3,%
1358     dmul,dneg,drem,dreturn,dstore,dstore_0,dstore_1,dstore_2,%
1359     dstore_3,dsub,dup,dup_x1,dup_x2,dup2,dup2_x1,dup2_x2,f2d,%
1360     f2i,f2l,fadd,faload,fastore,fcmpg,fcmpl,fconst_0,fconst_1,%
1361     fconst_2,fdiv,fload,fload_0,fload_1,fload_2,fload_3,fmul,%
1362     fneg,frem,freturn,fstore,fstore_0,fstore_1,fstore_2,fstore_3,%
1363     fsub,getfield,getstatic,goto,goto_w,i2b,i2c,i2d,i2f,i2l,i2s,%
1364     iadd,iaload,iand,iastore,iconst_0,iconst_1,iconst_2,iconst_3,%
1365     iconst_4,iconst_5,idiv,if_acmpeq,if_acmpne,if_icmppeq,if_icmpne,%
1366     if_icmplt,if_cmpge,if_cmpgt,if_cmple,ifeq,ifne,iflt,ifge,ifgt,%
1367     ifle,ifnonnull,ifnull,iinc,iload,iload_0,iload_1,iload_2,%
1368     iload_3,imul,ineg,instanceof,invokeinterface,invokespecial,%
1369     invokestatic,invokevirtual,ior,irem,ireturn,ishl,ishr,istore,%
1370     istore_0,istore_1,istore_2,istore_3,isub,iushr,ixor,jsr,jsr_w,%
1371     l2d,l2f,l2i,ladd,laload,land,lastore,lcmp,lconst_0,lconst_1,%
1372     ldc,ldc_w,ldc2_w,ldiv,lload,lload_0,lload_1,lload_2,lload_3,%
1373     lmul,lneg,lookupswitch,lor,lrem,lreturn,lshl,lshr,lstore,%
1374     lstore_0,lstore_1,lstore_2,lstore_3,lsub,lushr,lxor,%
1375     monitorenter,monitorexit,multianewarray,new,newarray,nop,pop,%
1376     pop2,putfield,putstatic,ret,return,saload,sastore,sipush,swap,%
1377     tableswitch,wide,limit,locals,stack},%
1378 }[keywords]%
1379 </lang1>

```

2.32 ksh

Thanks to Jeffrey Ratchliffe for this language definition.

```
1380 < *lang3>
1381 \lst@definlanguage{ksh}
1382 {morekeywords={alias,awk,cat,echo,else,elif,fi,exec,exit,%
1383     for,in,do,done,select,case,esac,while,until,function,%
1384     time,export,cd,eval,fc,fg,kill,let,pwd,read,return,rm,%
1385     glob,goto,history,if,logout,nice,nohup,onintr,repeat,sed,%
1386     set,setenv,shift,source,switch,then,umask,unalias,%
1387     unset,wait,@,env,argv,child,home,ignoreeof,noclobber,%
1388     noglob,nomatch,path,prompt,shell,status,verbose,print,printf,%
1389     sqrt,BEGIN,END},%
1390     morecomment=[l]\#,%
1391     morestring=[d]" ,%
1392     morestring=[d]' ,%
1393     morestring=[d]' %
1394 }[keywords,comments,strings]%
1395 % \begin{macrocode}
1396 < /lang3>
```

Herbert Voss suggested to add the string delimiter ‘.

2.33 Lingo

Thanks to Mark Schade for this language definition.

```
1397 < *lang3>
1398 \lst@definlanguage{Lingo}
1399 {morekeywords={abort,after,and,before,do,down,halt,me,new,not,of,%
1400     on,or,otherwise,pass,put,result,return,set,tell,the,then,to,with,%
1401     repeat,while,case,if,else,true,false,global,property,\_global,\_key,%
1402     \_mouse,\_movie,\_player,\_sound,\_system,abbr,abbrev,abbreviated,abs,%
1403     actionsenabled,activateapplication,activatewindow,active3drenderer,%
1404     activecastlib,activewindow,actorlist,add,addat,addbackdrop,addcamera,%
1405     addchild,addmodifier,addoverlay,addprop,addtoworld,addvertex,alert,%
1406     alerthook,alignment,allowcustomcaching,allowgraphicmenu,allowsavelocal,%
1407     allowtransportcontrol,allowvolumecontrol,allowzooming,alphathreshold,%
1408     ambient,ambientcolor,ancestor,angle,anglebetween,animationenabled,%
1409     antialias,antialiasthreshold,append,applicationname,applicationpath,%
1410     appminimize,atan,attenuation,attributevalue,auto,autoblend,automask,%
1411     autotab,axisangle,back,backcolor,backdrop,backgroundcolor,backspace,%
1412     beep,beep,beginrecording,beginsprite,beveldepth,beveltype,bgcolor,%
1413     bias,bitand,bitmap,bitmapsizes,bitnot,bitor,bitrate,bitspersample,%
1414     bitxor,blend,blendconstant,blendconstantlist,blendfactor,blendfunction,%
1415     blendfunctionlist,blendlevel,blendrange,blendsource,blendsourcelist,%
1416     blendtime,bone,bonesplayer,border,both,bottom,bottomcap,bottomradius,%
1417     bottomspacing,boundary,boundingsphere,box,boxdropshadow,boxtype,%
1418     breakconnection,breakloop,brightness,broadcastprops,browername,%
1419     buffersize,build,buttonsenabled,buttonstyle,buttontype,bytesstreamed,%
```

1420 boolean, cachedocverify, cachesize, call, callancestor, camera, cameracount, %
1421 cameraposition, camerarotation, cancelidleload, castlib, castlibnum, %
1422 castmemberlist, center, centerregpoint, centerstage, changearea, channelcount, %
1423 char, characterset, charpostoloc, chars, charspacing, charonum, %
1424 checkboxaccess, checkboxtype, checkmark, checknetmessages, child, chunksize, %
1425 clearatrender, clearcache, clearerror, clearframe, clearglobals, clearvalue, %
1426 clickloc, clickmode, clickon, clone, clonedeep, clonemodelfromcastmember, %
1427 clonemotionfromcastmember, close, closed, closewindow, closexlib, collision, %
1428 collisiondata, collisionnormal, color, world, colorbuffer, colorbufferdepth, %
1429 colordepth, colorlist, colorrange, colors, colorsteps, commanddown, comments, %
1430 compressed, connecttonetserver, constrainh, constraint, constrainv, , %
1431 continue, controldown, controller, copypixels, copyrightinfo, copyto, %
1432 copytoclipboard, cos, count, cpuhogticks, creaseangle, creases, [contains], %
1433 createfolder, createmask, creatematte, creationdate, creator, crop, cross, %
1434 crossproduct, cuepassed, cuepointnames, cuepointtimes, currentloopstate, %
1435 currentspritenum, currenttime, cursor, cursorsize, curve, cylinder, ate, day, %
1436 deactivateapplication, deactivatewindow, debug, debugplaybackenabled, %
1437 decaymode, defaultrect, defaultrectmode, delay, delete, deleteall, deleteat, %
1438 deletecamera, deletefolder, deleteframe, deletegroup, deletelight, %
1439 deletemodel, deletemodelresource, deletemotion, deleteone, deleteprop, %
1440 deleteshader, deletetexture, deletevertex, density, depth, depthbufferdepth, %
1441 desktoprectlist, diffuse, diffusecolor, diffuselightmap, %
1442 digitalvideotimescale, digitalvideotype, direction, directionalcolor, %
1443 directionalpreset, directtostage, disableimagingtransformation, displayface, %
1444 displaymode, distanceto, distribution, dither, done, doneparsing, dot, %
1445 dotproduct, doubleclick, downloadnetthing, drag, draw, drawrect, dropshadow, %
1446 duplicate, duplicateframe, duration, editable, editshortcutsenabled, %
1447 elapsedtime, emissive, emitter, empty, emulatemultibuttonmouse, enabled, %
1448 enablehotspot, end, endangle, endcolor, endframe, endrecording, endsprite, %
1449 endtime, enter, enterframe, environment, erase, error, eventpassmode, %
1450 exchange, exists, exit, exitframe, exitlock, exp, externalevent, %
1451 externalparamcount, externalparamname, externalparamvalue, extractalpha, %
1452 extrude3d, face, fadein, fadeout, fadeto, far, field, fieldofview, filename, %
1453 fill, fillcolor, fillcycles, filldirection, filled, fillmode, filloffset, %
1454 fillscale, findempty, findlabel, findpos, findposnear, finishidleload, %
1455 firstindent, fixedlinespace, fixedrate, fixstagesize, flashrect, flashtostage, %
1456 flat, fliph, flipv, float, floatp, floatprecision, flush, flushinputevents, %
1457 fog, folderchar, font, fontsize, fontstyle, forecolor, forget, frame, %
1458 framecount, framelabel, framepalette, framerate, frameready, framescript, %
1459 framesound1, framesound2, framestohms, frametempo, frametransition, freeblock, %
1460 freebytes, fromcastmember, fromimageobject, front, frontwindow, %
1461 generatenormals, getaprop, getat, getbehaviordescription, getbehaviortooltip, %
1462 getboneid, geterror, geterrorstring, gethardwareinfo, gethotspotrect, getlast, %
1463 getlatestnetid, getnetaddresscookie, getneterrorstring, getnetmessage, %
1464 getnetoutgoingbytes, getnettext, getnormalized, getnthfilenameinfolder, %
1465 getnumberwaitingnetmessages, getone, getpeerconnectionlist, getpixel, %
1466 getplaylist, getpos, getpref, getprop, getpropat, getpropertydescriptionlist, %
1467 getrendererservices, getstreamstatus, gettemppath, getworldtransform, globals, %
1468 glossmap, go, gotoframe, gotonetmovie, gotonetpage, gradienttype, gravity, %
1469 group, handler, handlers, height, heightvertices, high, highlightpercentage, %

1470 highlightstrength,hilite,hither,hittest,hmstoframes,hold,hotspot,html,%
 1471 hyperlink,hyperlinkclicked,hyperlinkrange,hyperlinks,hyperlinkstate,%
 1472 id3tags,identity,idle,idlehandlerperiod,idleloaddone,idleloadmode,%
 1473 idleloadperiod,idleloadtag,idlereadchunksizes,ilk,image,imagecompression,%
 1474 imageenabled,imagequality,immovable,importfileinto,inflate,ink,inker,%
 1475 inlineimeenabled,insertbackdrop,insertframe,insertoverlay,inside,%
 1476 installmenu,instance,integer,integerp,interface,interpolate,%
 1477 interpolateto,intersect,index,interval,inverse,invert,invertmask,%
 1478 isbusy,isinworld,isoktoattach,ispastcuepoint,item,itemdelimiter,kerning,%
 1479 kerningthreshold,key,keyboardfocussprite,keycode,keydown,keydownscript,%
 1480 keyframeplayer,keypressed,keyup,keyupscript,label,labellist,last,%
 1481 lastchannel,lastclick,lastevent,lastframe,lastkey,lastroll,left,%
 1482 leftindent,length,lengthvertices,level,lifetime,light,line,linearlist,%
 1483 linecolor,linecount,linedirection,lineheight,lineoffset,linepostolocv,%
 1484 linesize,linkas,linked,list,listp,loaded,loadfile,loc,loch,locked,%
 1485 locktranslation,loctocharpos,locv,locvtolinepos,locz,lod,log,long,%
 1486 loop,loopcount,loopenendtime,loopsremaining,loopstarttime,machinetype,%
 1487 magnitude,map,mapImageToStage,mapmembertostage,mapstagetomember,margin,%
 1488 marker,markerlist,mask,max,maxinteger,maxspeed,mci,media,mediaready,%
 1489 member,membernum,members,memorysize,menu,mesh,meshdeform,milliseconds,%
 1490 min,minspeed,modal,mode,model,modela,modelb,modelresource,%
 1491 modelsunderloc,modelsunderray,modelunderloc,modified,modifiedby,%
 1492 modifieddate,modifier,modifiers,month,mostrecentcuepoint,motion,%
 1493 mousechar,mousedown,mousedownscript,mouseenter,mouseh,mouseitem,%
 1494 mouseleave,mouselevel,mouseline,mouseloc,mousemember,mouseoverbutton,%
 1495 mouseup,mouseupoutside,mouseupscript,mousev,mousewithin,mouseword,move,%
 1496 moveablesprite,movetoback,movetofront,movevertex,movevertexhandle,%
 1497 movewindow,movie,movieaboutinfo,moviecopyrightinfo,moviefilefreysize,%
 1498 moviefilesize,moviefileversion,movieimagecompression,movieimagequality,%
 1499 moviename,moviepath,movierate,movietime,moviextralist,mpegplayer,%
 1500 multiply,multisound,name,near,nearfiltering,neighbor,netabort,netdone,%
 1501 neterror,netlastmoddate,netmime,netpresent,netstatus,nettextresult,%
 1502 netthrottleticks,newcamera,newcurve,newgroup,newlight,newmesh,newmodel,%
 1503 newmodelresource,newmotion,newshader,newtexture,next,none,normalize,%
 1504 normallist,normals,nothing,notify,nudge,number,numchannels,%
 1505 numparticles,numsegments,numtochar,objectp,offset,open,openresfile,%
 1506 openwindow,openxlib,optiondown,organizationname,originalfont,originh,%
 1507 originmode,originpoint,originv,orthoheight,overlay,pageheight,palette,%
 1508 palettemapping,paletteref,paletteindex,pan,paragraph,param,paramcount,%
 1509 parent,parsestring,particle,pasteclipboardinto,path,pathname,%
 1510 pathstrength,pattern,pause,pausedatstart,pausestate,percentplayed,%
 1511 percentstreamed,period,perpendicularto,persistent,pi,picture,picturep,%
 1512 plane,platform,play,playbackmode,playfile,playing,playlist,playnext,%
 1513 playrate,point,pointat,pointatorientation,pointinhyperlink,%
 1514 pointofcontact,pointtochar,pointtoitem,pointtoline,pointtoparagraph,%
 1515 pointtoword,position,positionreset,posterframe,postnettext,power,%
 1516 preferred3drenderer,preload,preloadbuffer,preloadeventabort,preloadmember,%
 1517 preloadmode,preloadmovie,preloadnetthing,preloadram,preloadtime,%
 1518 premultiply,prepareframe,preparemovie,prerotate,prescale,pretranslate,%
 1519 previous,primitives,printfrom,productversion,projection,projectionangle,%

1520 propList,proxyserver,ptthotspotid,puppet,puppetpalette,puppetsound,%
 1521 puppetsprite,puppettempo,puppettransition,purgepriority,%
 1522 qtregisteraccesskey,qtunregisteraccesskey,quad,quality,queue,quit,quote,%
 1523 radius,ramneeded,random,randomseed,randomvector,rateshift,rawnew,read,%
 1524 readvalue,recordfont,rect,ref,reflectionmap,reflectivity,region,%
 1525 registerforevent,registerscript,regpoint,regpointvertex,removebackdrop,%
 1526 removefromworld,removelast,removemodifier,removeoverlay,rename,renderer,%
 1527 rendererdevicelist,renderformat,renderstyle,resetworld,resizewindow,%
 1528 resolution,resolve,resolvea,resolveb,resource,restart,resume,%
 1529 reverttoworlddefaults,rewind,rgb,rgba4444,rgba5550,rgba5551,rgba5650,%
 1530 rgba8880,rgba8888,right,rightindent,rightmousedown,rightmouseup,%
 1531 rollover,romanlingo,rootlock,rootnode,rotate,rotation,rotationreset,%
 1532 rtf,runmode,runpropertydialog,safeplayer,samplecount,samplerate,%
 1533 samplesize,save,savedlocal,savemovie,scale,scalemode,score,scorecolor,%
 1534 scoreselection,script,scriptexecutionstyle,scriptinstancetype,scriptlist,%
 1535 scriptnum,scriptsenabled,scripttext,scripttype,scrollbyline,scrollbypage,%
 1536 scrolltop,sds,searchcurrentfolder,searchpath,searchpaths,seconds,%
 1537 selectedtext,selection,selend,selstart,sendallsprites,sendevent,%
 1538 sendnetmessage,sendsprite,serialnumber,setalpha,setaprop,setat,%
 1539 setcollisioncallback,setflashproperty,setnetbufferlimits,%
 1540 setnetmessagehandler,setpixel,setplaylist,setpref,setprop,setscripelist,%
 1541 settrackenabled,setvariable,shader,shaderlist,shadowpercentage,%
 1542 shadowstrength,shapetype,shiftdown,shininess,shockwave3d,short,%
 1543 showglobals,showlocals,showprops,showresfile,showxlib,shutdown,%
 1544 silhouettes,sin,size,sizerange,skew,sleep,smoothness,sort,sound,%
 1545 soundbusy,soundchannel,sounddevice,sounddevicelist,soundenabled,%
 1546 soundkeepdevice,soundlevel,soundmixmedia,source,sourcerect,space,%
 1547 specular,specularcolor,specularlightmap,sphere,spotangle,spotdecay,%
 1548 sprite,spritenum,spritespacetoworldspace,sqrt,stage,stagebottom,%
 1549 stagecolor,stageleft,stageright,stagetoflash,stagetop,standard,%
 1550 startangle,startframe,startmovie,starttime,starttimer,state,static,%
 1551 status,stepframe,stilldown,stop,stopevent,stopmovie,stoptime,stream,%
 1552 streammode,streamname,streamsize,streamstatus,string,stringp,%
 1553 strokecolor,strokewidth,style,subdivision,sweep,swing,switchcolordepth,%
 1554 symbol,symbolp,systemdate,tab,tabcount,tabs,tan,target,%
 1555 tellstreamstatus,tension,text,texture,texturecoordinatelist,%
 1556 texturecoordinates,texturelayer,texturelist,texturemember,texturemode,%
 1557 texturemodelist,texturerenderformat,texturerepeat,texturerepeatlist,%
 1558 texturetransform,texturetransformlist,texturetype,thumbnail,ticks,tilt,%
 1559 time,timeout,timeouthandler,timeoutkeydown,timeoutlapsed,timeoutlength,%
 1560 timeoutlist,timeoutmouse,timeoutplay,timeoutscrip,timer,timescale,%
 1561 title,titlevisible,toon,top,topcap,topradius,topspacing,trace,%
 1562 traceload,tracelogfile,trackcount,trackenabled,tracknextkeytime,%
 1563 tracknextsampletime,trackpreviouskeytime,trackprevioussampletime,%
 1564 trackstarttime,trackstoptime,tracktext,tracktype,trails,transform,%
 1565 transitiontype,translate,triggercallback,trimwhitespace,tunneldepth,%
 1566 tweened,tweenmode,type,[transparent],union,unload,unloadmember,%
 1567 unloadmovie,unregisterallevents,update,updateframe,updatelock,%
 1568 updatemovieenabled,updatestage,url,usealpha,usediffusewithtexture,%
 1569 usefastquads,usehypertextstyles,uselineoffset,userdata,username,value,%


```

1570     vector,version,vertex,vertexlist,vertices,video,videoforwindowspresent,%
1571     viewh,viewpoint,viewscale,vieww,visibility,visible,void,voidp,volume,%
1572     volumeinfo,wait,waitfornetconnection,warmode,width,widthvertices,wind,%
1573     window>windowlist>windowpresent>windowtype>word>wordwrap>world,%
1574     worldposition>worldspacetospritespace>worldtransform>wraptransform,%
1575     wraptransformlist>write>writevalue,,xaxis>xtra>xtralist>xtras,,yaxis,%
1576     year,yon,zaxis>zoombox>zoomwindow>repeat>Conditional>Boolean>TypeDef,%
1577     Statement>Operator>String>Comment>Identifier>Special>x,y,z}
1578     sensitive=false,
1579     morecomment=[1]{--},
1580     morestring=[b]",
1581 }[keywords,comments,strings]%
1582 % \begin{macrocode}
1583 \end{macrocode}

```

2.34 Lisp, AutoLisp

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.

```

1584 \*lang2>
1585 \lst@definlanguage{Lisp}%
1586 {morekeywords={abort,abs,acons,acos,acosh,adjoin,alphanumericp,alter,%
1587     append,apply,apropos,aref,arrayp,ash,asin,asinh,assoc,atan,atanh,%
1588     atom,bit,boole,boundp,break,butlast,byte,catenate,ceiling,cerror,%
1589     char,character,characterp,choose,chunk,cis,close,clrhsh,coerce,%
1590     collect,commonp,compile,complement,complex,complexp,concatenate,%
1591     conjugate,cons,consp,constantp,continue,cos,cosh,cotruncate,%
1592     count,delete,denominator,describe,directory,disassemble,%
1593     documentation,dpb,dribble,ed,eighth,elt,enclose,endp,eq,eql,%
1594     equal,equalp,error,eval,evalhook,evenp,every,exp,expand,export,%
1595     expt,fboundp,fceiling,fdefinition,ffloor,fifth,fill,find,first,%
1596     float,floatp,floor,fmakunbound,format,fourth,fround,ftruncate,%
1597     funcall,functionp,gatherer,gcd,generator,gensym,gentemp,get,getf,%
1598     gethash,identity,imagpart,import,inspect,integerp,intern,%
1599     intersection,tively,isqrt,keywordp,last,latch,lcm,ldb,ldiff,%
1600     length,list,listen,listp,load,log,logand,logbitp,logcount,logeqv,%
1601     logior,lognand,lognor,lognot,logtest,logxor,macroexpand,%
1602     makunbound,map,mapc,mapcan,mapcar,mapcon,maphash,mapl,maplist,%
1603     mask,max,member,merge,min,mingle,minusp,mismatch,mod,namestring,%
1604     nbutlast,nconc,nintersection,ninth,not,notany,notevery,nreconc,%
1605     nreverse,nsublis,nsubst,nth,nthcdr,null,numberp,numerator,nunion,%
1606     oddp,open,packagep,pairlis,pathname,pathnamep,phase,plusp,%

```

```

1607 position,positions,pprint,previous,princ,print,proclaim,provide,%
1608 random,rassoc,rational,rationalize,rationalp,read,readtablep,%
1609 realp,realpart,reduce,rem,remhash,remove,remprop,replace,require,%
1610 rest,revappend,reverse,room,round,rplaca,rplacd,sbit,scan,schar,%
1611 search,second,series,set,seventh,shadow,signal,signum,sin,sinh,%
1612 sixth,sleep,some,sort,split,sqrt,streamp,string,stringp,sublis,%
1613 subseq,subseries,subsetp,subst,substitute,subtypep,svref,sxhash,%
1614 symbolp,tailp,tan,tanh,tenth,terpri,third,truename,truncate,%
1615 typep,unexport,unintern,union,until,values,vector,vectorp,warn,%
1616 write,zerop,and,assert,case,ccase,cond,ctypecase,decf,declaim,%
1617 defclass,defconstant,defgeneric,defmacro,defmethod,defpackage,%
1618 defparameter,defsetf,defstruct,deftype,defun,defvar,do,dolist,%
1619 dotimes,ecase,encapsulated,etypecase,flet,formatter,gathering,%
1620 incf,iterate,labels,let,locally,loop,macrolet,mapping,or,pop,%
1621 producing,prog,psetf,psetq,push,pushnew,remf,return,rotatf,%
1622 setf,shiftf,step,time,trace,etypecase,unless,untrace,when},%
1623 sensitive,% ???
1624 alsodigit=-,%
1625 morecomment=[l];,%
1626 morecomment=[s]{\#|}{|\#},% 1997 Aslak Raanes
1627 morestring=[b]"%
1628 }[keywords,comments,strings]%
1629 </lang2>
1630 <*lang2>

```

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

```

1631 %%
1632 %% AutoLISP/VisualLISP - Stefan Lagotzki, info@lagotzki.de
1633 %%
1634 \lst@definlanguage[Auto]{Lisp}%
1635 {morekeywords={abs,acad_colordlg,acad_helpdlg,acad_strlsort,%
1636 action_tile,add_list,alert,alloc,and,angle,angtof,angtos,append,%
1637 apply,arx,arxload,arxunload,ascii,assoc,atan,atof,atoi,atom,%
1638 atoms-family,autoarxload,autoload,Boole,boundp,caddr,cadr,car,%
1639 cdr,chr,client_data_tile,close,command,cond,cons,cos,cvunit,%
1640 defun,defun-q,defun-q-list-ref,defun-q-list-set,dictadd,dictnext,%
1641 dictremove,dictrename,dictsearch,dimx_tile,dimy_tile,distance,%
1642 distof,done_dialog,end_image,end_list,entdel,entget,entlast,%
1643 entmake,entmakex,entmod,entnext,entsel,entupd,eq,equal,*error*,%
1644 eval,exit,exp,expand,expt,fill_image,findfile,fix,float,foreach,%
1645 function,gc,gcd,get_attr,get_tile,getangle,getcfg,getcname,%
1646 getcorner,getdist,getenv,getfiled,getint,getkword,getorient,%
1647 getpoint,getreal,getstring,getvar,graphscr,grclear,grdraw,grread,%
1648 grtext,grvecs,handent,help,if,initdia,initget,inters,itoa,lambda,%
1649 last,layoutlist,length,list,listp,load,load_dialog,log,logand,%
1650 logior,lsh,mapcar,max,mem,member,menucmd,menugroup,min,minus,%
1651 mode_tile,namedobjdict,nentsel,nentselp,new_dialog,not,nth,%
1652 null,numberp,open,or,osnap,polar,prin1,princ,print,progn,prompt,%
1653 quit,quote,read,read-char,read-line,redraw,regapp,rem,repeat,%

```

```

1654 reverse,rtos,set,set_tile,setcfg,setenv,setfunhelp,setq,%
1655 setvar,setview,sin,slide_image,sinvalid,sqrt,ssadd,ssdel,ssget,%
1656 ssgetfirst,sslenght,ssmemb,ssname,ssnamex,sssetfirst,startapp,%
1657 start_dialog,start_image,start_list,strcmp,strcmpi,strcmpn,subst,%
1658 substr,tablet,tblnext,tblobjname,tblsearch,term_dialog,terpri,%
1659 textbox,textpage,textscr,trace,trans,type,unload_dialog,untrace,%
1660 vector_image,ver,vl-acad-defun,vl-acad-undefun,vl-arx-import,%
1661 vl-bb-ref,vl-bb-set,vl-catch-all-apply,%
1662 vl-catch-all-error-message,vl-catch-all-error-p,vl-cmdf,vl-consp,%
1663 vl-directory-files,vl-doc-export,vl-doc-import,vl-doc-ref,%
1664 vl-doc-set,vl-every,vl-exit-with-error,vl-exit-with-value,%
1665 vl-file-copy,vl-file-delete,vl-file-directory-p,vl-file-rename,%
1666 vl-file-size,vl-file-systime,vl-filename-base,%
1667 vl-filename-directory,vl-filename-extension,vl-filename-mktemp,%
1668 vl-get-resource,vl-list*,vl-list->string,%
1669 vl-list-exported-functions,vl-list-length,vl-list-loaded-vlx,%
1670 vl-load-all,vl-load-com,vl-load-reactors,vl-member-if,%
1671 vl-member-if-not,vl-position,vl-prin1-to-string,%
1672 vl-princ-to-string,vl-propagate,vl-registry-delete,%
1673 vl-registry-descendents,vl-registry-read,vl-registry-write,%
1674 vl-remove,vl-remove-if,vl-remove-if-not,vl-some,vl-sort,%
1675 vl-sort-i,vl-string->list,vl-string-elt,vl-string-left-trim,%
1676 vl-string-mismatch,vl-string-position,vl-string-right-trim,%
1677 vl-string-search,vl-string-subst,vl-string-translate,%
1678 vl-string-trim,vl-symbol-name,vl-symbol-value,vl-symbolp,%
1679 vl-unload-vlx,vl-vbaload,vl-vbarun,vl-vlx-loaded-p,vlax-3D-point,%
1680 vlax-add-cmd,vlax-create-object,vlax-curve-getArea,%
1681 vlax-curve-getDistAtParam,vlax-curve-getDistAtPoint,%
1682 vlax-curve-getEndParam,vlax-curve-getEndPoint,%
1683 vlax-curve-getParamAtDist,vlax-curve-getParamAtPoint,%
1684 vlax-curve-getPointAtDist,vlax-curve-getPointAtParam,%
1685 vlax-curve-getStartParam,vlax-curve-getStartPoint,%
1686 vlax-curve-isClosed,vlax-curve-isPeriodic,vlax-curve-isPlanar,%
1687 vlax-curve-getClosestPointTo,%
1688 vlax-curve-getClosestPointToProjection,vlax-curve-getFirstDeriv,%
1689 vlax-curve-getSecondDeriv,vlax-dump-object,%
1690 vlax-ename->vla-object,vlax-erased-p,vlax-for,%
1691 vlax-get-acad-object,vlax-get-object,vlax-get-or-create-object,%
1692 vlax-get-property,vlax-import-type-library,vlax-invoke-method,%
1693 vlax-ldata-delete,vlax-ldata-get,vlax-ldata-list,vlax-ldata-put,%
1694 vlax-ldata-test,vlax-make-safearray,vlax-make-variant,%
1695 vlax-map-collection,vlax-method-applicable-p,%
1696 vlax-object-released-p,vlax-product-key,%
1697 vlax-property-available-p,vlax-put-property,vlax-read-enabled-p,%
1698 vlax-release-object,vlax-remove-cmd,vlax-safearray-fill,%
1699 vlax-safearray-get-dim,vlax-safearray-get-element,%
1700 vlax-safearray-get-l-bound,vlax-safearray-get-u-bound,%
1701 vlax-safearray-put-element,vlax-safearray-type,%
1702 vlax-safearray->list,vlax-tmatrix,vlax-typeinfo-available-p,%
1703 vlax-variant-change-type,vlax-variant-type,vlax-variant-value,%

```

```

1704     vlax-vla-object->ename,vlax-write-enabled-p,vlisp-compile,%
1705     vlr-acdb-reactor,vlr-add,vlr-added-p,vlr-beep-reaction,%
1706     vlr-command-reactor,vlr-current-reaction-name,vlr-data,%
1707     vlr-data-set,vlr-deepclone-reactor,vlr-docmanager-reactor,%
1708     vlr-dwg-reactor,vlr-dxf-reactor,vlr-editor-reactor,%
1709     vlr-insert-reactor,vlr-linker-reactor,vlr-lisp-reactor,%
1710     vlr-miscellaneous-reactor,vlr-mouse-reactor,vlr-notification,%
1711     vlr-object-reactor,vlr-owner-add,vlr-owner-remove,vlr-owners,%
1712     vlr-pers,vlr-pers-list,vlr-pers-p,vlr-pers-release,%
1713     vlr-reaction-names,vlr-reaction-set,vlr-reactions,vlr-reactors,%
1714     vlr-remove,vlr-remove-all,vlr-set-notification,%
1715     vlr-sysvar-reactor,vlr-toolbar-reactor,vlr-trace-reaction,%
1716     vlr-type,vlr-types,vlr-undo-reactor,vlr-wblock-reactor,%
1717     vlr-window-reactor,vlr-xref-reactor,vports,wcmatch,while,%
1718     write-char,write-line,xdroom,xdsizex,zerop},%
1719     alsodigit=->,%
1720     otherkeywords={1+,1-},%
1721     sensitive=false,%
1722     morecomment=[1];,%
1723     morecomment=[1];;,%
1724     morestring=[b]"%
1725 }[keywords,comments,strings]%
1726 </lang2>

```

2.35 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

```

1727 <*lang3>
1728 \lst@definelanguage{LLVM}{%
1729     morekeywords={%

```

- Instructions

```

1730         ret,br,switch,indirectbr,invoke,resume,unreachable,%
1731         add,fadd,sub,fsub,mul,fmul,udiv,sdiv,fdiv,urem,srem,frem,%
1732         shl,lshr,ashr,and,or,xor,%
1733         extractelement,insertelement,shufflevector,%
1734         extractvalue,insertvalue,%
1735         alloca,load,store,fence,cmpxchg,atomicrmw,getelementptr,%
1736         trunc,zext,sext,fptrunc,fpext,fptoui,fptosi,uitofp,sitofp,ptrtoint,%
1737         inttoptr,bitcast,to,%
1738         icmp,fcmp,phi,select,call,va_arg,landingpad,%

```

²In this section ‘I’ is Scott Pakin.

- Atomic operations – some duplication with the above

```
1739      xchg,add,sub,and,nand,or,xor,max,min,umax,umin,%
```

- Comparisons

```
1740      eq,ne,ugt,uge,ult,ule,sgt,sge,slt,sle,%
1741      false,oeq,ogt,oge,olt,ole,one,ord,ueq,ugt,uge,ult,ule,une,uno,true,%
```

- Linkage types

```
1742      private,linker_private,linker_private_weak,linker_private_weak_def_auto,%
1743      internal,available_externally,linkonce,common,weak,appending,extern_weak,%
1744      linkonce_odr,weak_odr,external,dllimport,dlllexport,%
```

- Function headers

```
1745      define,declare,%
```

- Parameter attributes

```
1746      zeroext,signext,inreg,byval,sret,noalias,nocapture,next,%
```

- Garbage collector names

```
1747      gc,%
```

- Function attributes

```
1748      address_safety,alignstack,alwaysinline,nonlazybind,inlinehint,naked,%
1749      noimplicitfloat,noinline,noredzone,noreturn,nounwind,optsize,readnone,%
1750      readonly,returns_twice,ssp,sspreq,uwtable,%
```

- Module-level inline assembly

```
1751      module,asm,%
```

- Data layout

```
1752      target,datalayout,%
```

- Inline assembler expressions

```
1753      sideeffect,alignstack,%
```

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

```
1754      nuw,nsw,exact,inbounds,unnamed_addr},%
1755      morekeywords=[2]{%
```

- Types

```
1756      i1,i2,i4,i8,i16,i32,i64,i128,i256,i512,i1024,% <-- Most common integers
1757      half,float,double,x86_fp80,fp128,ppc_fp128,x86mmx,%
1758      void,label,metadata},%
1759      alsoletter=.,%
1760      sensitive=false,%
```

```

1761         morecomment=[1];,%
1762         morestring=[b]"%
1763     }
1764 </lang3>

```

2.36 Logo

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

```

1765 <*lang3>
1766 \lst@definelanguage{Logo}%
1767 % ??? {end,unix} also keywords
1768 {morekeywords={and,atan,arctan,both,break,bf,bl,butfirst,butlast,%
1769     cbreak, close,co,continue,cos,count,clearscreen,cs,debquit,%
1770     describe,diff,difference,ed,edit,either,empty,equalp,er,erase,%
1771     errpause,errquit,fifp,filefprint,fifty,filetype,fip,fileprint,%
1772     fird,fileread,fity,filetype,fiwd,fileword,f,first,or,fp,fprint,%
1773     fput,fty,ftype,full,fullscreen,go,bye,goodbye,gprop,greaterp,%
1774     help,if,iff,iffalse,ift,iftrue,nth,item,keyp,llast,lessp,list,%
1775     local,lput,make,max,maximum,memberp,memtrace,min,minimum,namep,%
1776     not,numberp,oflush,openr,openread,openw,openwrite,op,output,%
1777     pause,plist,pots,pow,pprop,pps,pr,print,product,quotient,random,%
1778     rc,readchar,rl,readlist,remprop,repcount,repeat,request,rnd,run,%
1779     se,sentence,sentencep,setc,setcolor,setipause,setqpause,po,show,%
1780     sin,split,splitscreen,sqrt,stop,sum,test,text,textscreen,thing,%
1781     to,tone,top,toplevel,type,untrace,wait,word,wordp,yaccdebug,is,%
1782     mod,remainder,trace,zerop,back,bk,bto,btouch,fd,forward,fto,%
1783     ftouch,getpen,heading,hit,hitoot,ht,hideturtle,loff,lampoff,lon,%
1784     lampon,lt,left,lot,lotoot,lto,ltouch,penc,pencolor,pd,pendown,pe,%
1785     penerase,penmode,pu,penup,px,penreverse,rt,right,rto,rtouch,%
1786     scrunch,seth,setheading,setscreen,setscreen,setxy,shownp,st,%
1787     showturtle,towardsxy,clean,wipeclean,xcor,ycor,tur,turtle,%
1788     display,dpy},%
1789     sensitive=f% ???
1790 }[keywords]%
1791 </lang3>

```

2.37 Lua

Stephan Hennig contributed the Lua keywords.

```

1792 <*lang2>
1793 %%
1794 %% Lua definitions (c) 2013 Stephan Hennig
1795 %%
1796 \lst@definelanguage[5.0]{Lua}{%

```

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

```
1797  alsoletter={.},%
```

The language definition knows

- language keywords

```
1798      morekeywords=[1]{%
1799          and, break, do, else, elseif, end, false, for, function, if, in,%
1800          local, nil, not, or, repeat, return, then, true, until, while,%
1801      },%
```

- the standard library identifiers

```
1802      morekeywords=[2]{%
```

– coming from the base library

```
1803          _G, _LOADED, _REQUIREDNAME, _VERSION, LUA_PATH,%
1804          assert, collectgarbage, dofile, error, gcinfo, getfenv,%
1805          getmetatable, ipairs, loadfile, loadlib, loadstring, newproxy,%
1806          next, pairs, pcall, print, rawequal, rawget, rawset, require,%
1807          setfenv, setmetatable, tonumber, tostring, type, unpack, xpcall,%
```

– coming from the coroutine library

```
1808          coroutine, coroutine.create, coroutine.resume,%
1809          coroutine.status, coroutine.wrap, coroutine.yield,%
```

– the debug library

```
1810          _TRACEBACK, debug, debug.debug, debug.gethook, debug.getinfo,%
1811          debug.getlocal, debug.getupvalue, debug.sethook, debug.setlocal,%
1812          debug.setupvalue, debug.traceback,%
```

– the io library

```
1813          io, io.close, io.flush, io.input, io.lines, io.open, io.output,%
1814          io.popen, io.read, io.stderr, io.stdin, io.stdout, io.tmpfile,%
1815          io.type, io.write,%
```

– the mathematical library

```
1816          __pow, math, math.abs, math.acos, math.asin, math.atan, math.atan2,%
1817          math.ceil, math.cos, math.deg, math.exp, math.floor, math.frexp,%
1818          math.ldexp, math.log, math.log10, math.max, math.min, math.mod,%
1819          math.pi, math.pow, math.rad, math.random, math.randomseed, math.sin,%
1820          math.sqrt, math.tan,%
```

– the os library

```
1821          os, os.clock, os.date, os.difftime, os.execute, os.exit, os.getenv,%
1822          os.remove, os.rename, os.setlocale, os.time, os.tmpname,%
```

– the string library

```
1823          string, string.byte, string.char, string.dump, string.find,%
1824          string.format, string.gfind, string.gsub, string.len, string.lower,%
1825          string.rep, string.sub, string.upper,%
```

```

        -- the table library
1826         table, table.concat, table.foreach, table.foreachi, table.getn,%
1827         table.insert, table.remove, table.setn, table.sort,%
1828     },%

    and some additional identifiers
1829     morekeywords=[2]{%
1830         _PROMPT, _PROMPT2, arg,%
1831     },%

    These are the common language settings
1832     sensitive=true,%
1833     % single line comments
1834     morecomment=[1]{--},%
1835     % multi line comments
1836     morecomment=[s]{--[{}{}]},%
1837     % backslash escaped strings
1838     morestring=[b]",,%
1839     morestring=[b]',,%
1840     % multi line strings
1841     morestring=[s]{[[{}{}]},%
1842 }[keywords,comments,strings]%

    And here are the new definitions for Lua 5.1:
1843 \lst@definelanguage[5.1]{Lua}[5.0]{Lua}{%

    There are some deletions
1844     deletekeywords=[2]{%
    concerning

        • the base library
1845         _LOADED, _REQUIREDNAME, LUA_PATH, gcinfo, loadlib,%

        • the debug library
1846         _TRACEBACK,%

        • the mathematical library
1847         __pow, math.mod,%

        • the string library
1848         string.gfind,%

        • the table library
1849         table.foreach, table.foreachi, table.getn, table.setn,%
1850     },%

    and some new identifiers in standard libraries like
1851     morekeywords=[2]{%

```


- the base library

```
1852         load, select, %
```

- coroutine library

```
1853         coroutine.running, %
```

- debug library

```
1854         debug.getfenv, debug.getmetatable, debug.getregistry, debug.setfenv, %
1855         debug.setmetatable, %
```

- the mathematical library

```
1856         math.cosh, math.fmod, math.huge, math.modf, math.sinh, math.tanh, %
```

- the package library which itself is new in Lua 5.1

```
1857         module, package, package.config, package.cpath, package.loaded, %
1858         package.loaders, package.loadlib, package.path, package.preload, %
1859         package.seeall, %
```

- the string library and

```
1860         string.gmatch, string.match, string.reverse, %
```

- the table library

```
1861         table.maxn, %
1862     }, %
```

In Lua 5.1 long bracket comments were introduced also

```
1863     morecomment=[s]{-- [= {} {} ]}, %
1864     morecomment=[s]{-- [= {} {} ==]}, %
1865     morecomment=[s]{-- [== {} {} ==]}, %
1866     morecomment=[s]{-- [=== {} {} ===]}, %
1867     morecomment=[s]{-- [==== {} {} ====]}, %
1868     morecomment=[s]{-- [===== {} {} =====]}, %
1869     morecomment=[s]{-- [====={ } {} =====]}, %
1870     morecomment=[s]{-- [===== {} {} =====]}, %
1871     morecomment=[s]{-- [===== {} {} =====]}, %
1872     morecomment=[s]{-- [===== {} {} =====]}, %
```

as well as long bracket strings

```
1873     morestring=[s]{[= {} {} ]}, %
1874     morestring=[s]{[= {} {} ==]}, %
1875     morestring=[s]{[== {} {} ==]}, %
1876     morestring=[s]{[=== {} {} ===]}, %
1877     morestring=[s]{[==== {} {} ====]}, %
1878     morestring=[s]{[===== {} {} =====]}, %
1879     morestring=[s]{[====={ } {} =====]}, %
1880     morestring=[s]{[===== {} {} =====]}, %
1881     morestring=[s]{[===== {} {} =====]}, %
1882     morestring=[s]{[===== {} {} =====]}, %
1883 } [keywords, comments, strings] %
```

Lua 5.2 also has some changed features. These are

```
1884 \lst@definelanguage[5.2]{Lua}[5.1]{Lua}{%
```

- new language keywords

```
1885     morekeywords=[1]{%
1886         goto,%
1887     },%
```

- deleted identifiers from the standard libraries like

```
1888     deletekeywords=[2]{%

    – the base library
1889         getfenv, loadstring, module, newproxy, setfenv, unpack,%

    – the debug library
1890         debug.getfenv, debug.setfenv,%

    – the mathematical library
1891         math.log10,%

    – the package library and
1892         package.loaders, package.seeall,%

    – the table library
1893         table.maxn,%
1894     },%
```

Again there are some new identifiers in the standard libraries

```
1895     morekeywords=[2]{%
```

like

- the base library

```
1896         rawlen,%
```

- the bit library

```
1897         bit32, bit32.arshift, bit32.band, bit32.bnot, bit32.bor,%
1898         bit32.btest, bit32.bxor, bit32.extract, bit32.lrotate,%
1899         bit32.lshift, bit32.replace, bit32.rrotate, bit32.rshift,%
```

- the debug library

```
1900         debug.getuservalue, debug.setuservalue, debug.upvalueid,%
1901         debug.upvaluejoin,%
```

- the package library

```
1902         package.searchers, package.searchpath,%
```

- the table library

```
1903         table.pack, table.unpack,%
1904     },%
```

There is a new additional identifier

```
1905     morekeywords=[2]{%
1906         _ENV,%
1907     },%
```

and labels are also new in Lua 5.2

```
1908     moredelim=[s][keywordstyle3]{::}{::},%
1909 }[keywords,comments,strings]%
1910 </lang2>
```

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

```
1911 <*lua-prf>
1912 \usepackage[rgb, x11names]{xcolor}
1913 \lstdefinestyle{Lua}{%
1914     language=[5.2]Lua,
1915     basicstyle=\ttfamily,
1916     columns=spaceflexible,
1917     keywordstyle=\bfseries\color{Blue4},% language keywords
1918     keywordstyle=[2]\bfseries\color{RoyalBlue3},% std. library identifiers
1919     keywordstyle=[3]\bfseries\color{Purple3},% labels
1920     stringstyle=\bfseries\color{Coral4},% strings
1921     commentstyle=\itshape\color{Green4},% comments
1922 }
```

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

```
1923 </lua-prf>
```

2.38 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).

```
1924 <*lang2>
1925 %%
1926 %% Make definitions (c) 2000 Rolf Niepraschk
1927 %%
1928 \lst@definlanguage[gnu]{make}%
1929 {morekeywords={SHELL,MAKE,MAKEFLAGS,$@,$\%,$<,$?,$^,$+,$*,%
1930     @,^,<,\%,+,<,$?,$^,$+,$*,% Markus Pahlow
1931     export,unexport,include,override,define,ifdef,ifneq,ifeq,else,%
1932     endif,vpath,subst,patsubst,strip,findstring,filter,filter-out,%
1933     sort,dir,notdir,suffix,basename,addsuffix,addprefix,join,word,%
1934     words,firstword,wildcard,shell,origin,foreach,%
```

```

1935      @D,@F,*D,*F,\%D,\%F,<D,<F,^D,^F,+D,+F,?D,?F,%
1936      AR,AS,CC,CXX,CO,CPP,FC,GET,LEX,PC,YACC,YACCR,MAKEINFO,TEXI2DVI,%
1937      WEAVE,CWEAVE,TANGLE,CTANGLE,RM,M2C,LINT,COMPILE,LINK,PREPROCESS,%
1938      CHECKOUT,%
1939      ARFLAGS,ASFLAGS,CFLAGS,CXXFLAGS,COFLAGS,CPPFLAGS,FFLAGS,GFLAGS,%
1940      LDFLAGS,LOADLIBES,LFLAGS,PFLAGS,RFLAGS,YFLAGS,M2FLAGS,MODFLAGS,%
1941      LINTFLAGS,MAKEINFO_FLAGS,TEXI2DVI_FLAGS,COFLAGS,GFLAGS,%
1942      OUTPUT_OPTION,SCCS_OUTPUT_OPTION,% missing comma: Markus Pahlow
1943      .PHONY,.SUFFIXES,.DEFAULT,.PRECIOUS,.INTERMEDIATE,.SECONDARY,%
1944      .IGNORE,.SILENT,.EXPORT_ALL_VARIABLES,MAKEFILES,VPATH,MAKESHELL,%
1945      MAKELEVEL,MAKECMDGOALS,SUFFIXES},%
1946      sensitive=true,
1947      morecomment=[l]\#,%
1948      morestring=[b]"%
1949  }[keywords,comments,strings,make]%

1950 \lst@definelanguage{make}
1951 {morekeywords={SHELL,MAKE,MAKEFLAGS,$@,$\%,$<,$?,$^,$+,$*},%
1952      sensitive=true,%
1953      morecomment=[l]\#,%
1954      morestring=[b]"%
1955  }[keywords,comments,strings,make]%

```

The two [b]-arguments have been added after a bug report by Dr. Jobst Hoffmann
1956 </lang2>

2.39 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.

```

1957 <*lang1>

1958 \lst@definelanguage{Matlab}%
1959 {morekeywords={gt,lt,gt,lt,amp,abs,acos,acosh,acot,acoth,acsc,acsch,%
1960      all,angle,ans,any,asec,asech,asin,asinh,atan,atan2,atanh,auread,%
1961      auwrite,axes,axis,balance,bar,bessel,besselk,bessely,beta,%
1962      betainc,betaln,blanks,bone,break,brighten,capture,card2pol,%
1963      card2sph,caxis,cd,cdf2rdf,cedit,ceil,chol,cla,clabel,clc,clear,%
1964      clf,clock,close,colmmd,Colon,colorbar,colormap,ColorSpec,colperm,%
1965      comet,comet3,compan,compass,computer,cond,condest,conj,contour,%
1966      contour3,contourc,contrast,conv,conv2,cool,copper,corrcoef,cos,%
1967      cosh,cot,coth,cov,cplxpair,cputime,cross,csc,csch,csvread,%
1968      csvwrite,cumprod,cumsum,cylinder,date,dbclean,dbcont,dbdown,%
1969      dbquit,dbstack,dbstatus,dbstep,dbstop,dbtype,dbup,ddeadv,ddeexec,%
1970      ddeinit,ddepoke,ddereq,ddeterm,ddeunadv,deblank,dec2hex,deconv,%
1971      del2,delete,demo,det,diag,diary,diff,diffuse,dir,disp,dlmread,%
1972      dlmwrite,dmperm,dot,drawnow,echo,eig,ellipj,ellipke,else,elseif,%
1973      end,engClose,engEvalString,engGetFull,engGetMatrix,engOpen,%
1974      engOutputBuffer,engPutFull,engPutMatrix,engSetEvalCallback,%
1975      engSetEvalTimeout,engWinInit,eps,erf,erfc,erfcx,erfinv,error,%
1976      errorbar,etime,etree,eval,exist,exp,expint,expm,expo,eye,fclose,%

```

```

1977 feather,feof,ferror,feval,fft,fft2,fftshift,fgetl,fgets,figure,%
1978 fill,fill3,filter,filter2,find,findstr,finite,fix,flag,flipr,%
1979 flipud,floor,flops,fmin,fmins,fopen,for,format,fplot,fprintf,%
1980 fread,frewind,fscanf,fseek,ftell,full,function,funm,fwrite,fzero,%
1981 gallery,gamma,gammainc,gammaln,gca,gcd,gcf,gco,get,getenv,%
1982 getframe,ginput,global,gplot,gradient,gray,graymon,grid,griddata,%
1983 gtext,hadamard,hankel,help,hess,hex2dec,hex2num,hidden,hilb,hist,%
1984 hold,home,hostid,hot,hsv,hsv2rgb,if,ifft,ifft2,imag,image,%
1985 imagesc,Inf,info,input,int2str,interp1,interp2,interpft,inv,%
1986 invhilb,isempty,isglobal,ishold,isieee,isinf,isletter,isnan,%
1987 isreal,isspace,issparse,isstr,jet,keyboard,kron,lasterr,lcm,%
1988 legend,legendre,length,lin2mu,line,linspace,load,log,log10,log2,%
1989 loglog,logm,logspace,lookfor,lower,ls,lscov,lu,magic,matClose,%
1990 matDeleteMatrix,matGetDir,matGetFp,matGetFull,matGetMatrix,%
1991 matGetNextMatrix,matGetString,matlabrc,matlabroot,matOpen,%
1992 matPutFull,matPutMatrix,matPutString,max,mean,median,menu,mesh,%
1993 meshc,meshgrid,meshz,mexAtExit,mexCallMATLAB,mexdebug,%
1994 mexErrMsgTxt,mexEvalString,mexFunction,mexGetFull,mexGetMatrix,%
1995 mexGetMatrixPtr,mexPrintf,mexPutFull,mexPutMatrix,mexSetTrapFlag,%
1996 min,more,movie,moviein,mu2lin,mxMalloc,mxCopyCharacterToPtr,%
1997 mxCopyComplex16ToPtr,mxCopyInteger4ToPtr,mxCopyPtrToCharacter,%
1998 mxCopyPtrToComplex16,mxCopyPtrToInteger4,mxCopyPtrToReal8,%
1999 mxCopyReal8ToPtr,mxCreateFull,mxCreateSparse,mxCreateString,%
2000 mxFree,mxFreeMatrix,mxGetIr,mxGetJc,mxGetM,mxGetN,mxGetName,%
2001 mxGetNzmax,mxGetPi,mxGetPr,mxGetScalar,mxGetString,mxIsComplex,%
2002 mxIsFull,mxIsNumeric,mxIsSparse,mxIsString,mxIsTypeDouble,%
2003 mxSetIr,mxSetJc,mxSetM,mxSetN,mxSetName,mxSetNzmax,mxSetPi,%
2004 mxSetPr,NaN,nargchk,nargin,nargout,newplot,nextpow2,nls,nz,%
2005 nonzeros,norm,normest,null,num2str,nzmax,ode23,ode45,orient,orth,%
2006 pack,pascal,patch,path,pause,pcolor,pi,pink,pinv,plot,plot3,%
2007 pol2cart,polar,poly,polyder,polyeig,polyfit,polyval,polyvalm,%
2008 pow2,print,printopt,prism,prod,pwd,qr,qrdelete,qrinsert,quad,%
2009 quad8,quit,quiver,qz,rand,randn,randperm,rank,rat,rats,rbbox,%
2010 rcond,real,realmax,realmin,refresh,rem,reset,reshape,residue,%
2011 return,rgb2hsv,rgbplot,rootobject,roots,rose,rosser,rot90,rotate,%
2012 round,rref,rrefmovie,rsf2csf,save,saxis,schur,sec,sech,semilogx,%
2013 semilogy,set,setstr,shading,sign,sin,sinh,size,slice,sort,sound,%
2014 spalloc,sparse,spaugment,spconvert,spdiags,specular,speye,spfun,%
2015 sph2cart,sphere,spinmap,spline,spones,spparms,sprandn,sprandsym,%
2016 sprank,sprintf,spy,sqrt,sqrtm,sscanf,stairs,startup,std,stem,%
2017 str2mat,str2num,strcmp,strings,strrep,strtok,subplot,subscribe,%
2018 subspace,sum,surf,surface,surfc,surfl,surfnorm,svd,symbfact,%
2019 symmmd,symrcm,tan,tanh,tempdir,tempname,terminal,text,tic,title,%
2020 toc,toeplitz,trace,trapz,tril,triu,type,uicontrol,uigetfile,%
2021 uimenu,uiputfile,unix,unwrap,upper,vander,ver,version,view,%
2022 viewmtx,waitforbuttonpress,waterfall,wavread,wavwrite,what,%
2023 whatsnew,which,while,white,whitebg,who,whos,wilkinson,wk1read,%
2024 wk1write,xlabel,xor,ylabel,zeros,zlabel,zoom},%
2025 sensitive,%
2026 morecomment=[1]\%,%

```

```

2027     morestring=[m] '%
2028 }[keywords,comments,strings]%
2029 </lang1>

```

2.40 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.

```

2030 <*lang1>
2031 \lst@definlanguage[5.2]{Mathematica}[3.0]{Mathematica}%%
2032 {morekeywords={Above,AbsoluteOptions,AbsoluteTiming,AccountingForm,%
2033     AccuracyGoal,Active,ActiveItem,AddOnHelpPath,%
2034     AdjustmentBox,AdjustmentBoxOptions,After,AiryAiPrime,%
2035     AlgebraicRulesData,Algebraics,Alias,AlignmentMarker,%
2036     AllowInlineCells,AllowScriptLevelChange,Analytic,AnimationCycleOffset,%
2037     AnimationCycleRepetitions,AnimationDirection,AnimationDisplayTime,ApartSquareFree,%
2038     AppellF1,ArgumentCountQ,ArrayDepth,ArrayPlot,%
2039     ArrayQ,ArrayRules,AspectRatioFixed,Assuming,%
2040     Assumptions,AutoDelete,AutoEvaluateEvents,AutoGeneratedPackage,%
2041     AutoIndent,AutoIndentSpacings,AutoItalicWords,AutoloadPath,%
2042     AutoOpenNotebooks,AutoOpenPalettes,AutoScroll,AutoSpacing,%
2043     AutoStyleOptions,Axis,BackgroundTasksSettings,Backsubstitution,%
2044     Backward,Baseline,Before,BeginDialogPacket,%
2045     BeginFrontEndInteractionPacket,Below,BezoutMatrix,BinaryFormat,%
2046     BinaryGet,BinaryRead,BinaryReadList,BinaryWrite,%
2047     BitAnd,BitNot,BitOr,BitXor,%
2048     Black,BlankForm,Blue,Boole,%
2049     Booleans,Bottom,Bounds,Box,%
2050     BoxBaselineShift,BoxData,BoxDimensions,BoxFormFormatTypes,%
2051     BoxFrame,BoxMargins,BoxRegion,Brown,%
2052     Buchberger,Button,ButtonBox,ButtonBoxOptions,%
2053     ButtonCell,ButtonContents,ButtonData,ButtonEvaluator,%
2054     ButtonExpandable,ButtonFrame,ButtonFunction,ButtonMargins,%
2055     ButtonMinHeight,ButtonNote,ButtonNotebook,ButtonSource,%
2056     ButtonStyle,ButtonStyleMenuListing,ByteOrdering,CallPacket,%
2057     CarmichaelLambda,Cell,CellAutoOverwrite,CellBaseline,%
2058     CellBoundingBox,CellBracketOptions,CellContents,CellDingbat,%
2059     CellEditDuplicate,CellElementsBoundingBox,CellElementSpacings,CellEvaluationDuplicate,%
2060     CellFrame,CellFrameColor,CellFrameLabelMargins,CellFrameLabels,%
2061     CellFrameMargins,CellGroup,CellGroupData,CellGrouping,%
2062     CellGroupingRules,CellHorizontalScrolling,CellLabel,CellLabelAutoDelete,%
2063     CellLabelMargins,CellLabelPositioning,CellMargins,CellObject,%
2064     CellOpen,CellPasswords,CellPrint,CellSize,%
2065     CellStyle,CellTags,CellularAutomaton,Center,%
2066     CharacterEncoding,CharacterEncodingsPath,CharacteristicPolynomial,CharacterRange,%
2067     CheckAll,CholeskyDecomposition,Clip,ClipboardNotebook,%
2068     Closed,ClosingAutoSave,CoefficientArrays,CoefficientDomain,%
2069     CofactorExpansion,ColonForm,ColorFunctionScaling,ColorRules,%

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2070 ColorSelectorSettings,Column,ColumnAlignments,ColumnLines,%
 2071 ColumnsEqual,ColumnSpacings,ColumnWidths,CommonDefaultFormatTypes,%
 2072 CompileOptimizations,CompletionsListPacket,Complexes,ComplexityFunction,%
 2073 Compose,ComposeSeries,ConfigurationPath,ConjugateTranspose,%
 2074 Connect,ConsoleMessage,ConsoleMessagePacket,ConsolePrint,%
 2075 ContentsBoundingBox,ContextToFileName,ContinuedFraction,ConversionOptions,%
 2076 ConversionRules,ConvertToBitmapPacket,ConvertToPostScript,ConvertToPostScriptPacket,%
 2077 Copyable,CoshIntegral,CounterAssignments,CounterBox,%
 2078 CounterBoxOptions,CounterEvaluator,CounterFunction,CounterIncrements,%
 2079 CounterStyle,CounterStyleMenuListing,CreatePalettePacket,Cross,%
 2080 CurrentlySpeakingPacket,Cyan,CylindricalDecomposition,DampingFactor,%
 2081 DataRange,Debug,DebugTag,Decimal,%
 2082 DedekindEta,DefaultDuplicateCellStyle,DefaultFontProperties,DefaultFormatType,%
 2083 DefaultFormatTypeForStyle,DefaultInlineFormatType,DefaultInputFormatType,
 2084 DefaultNaturalLanguage,%
 2085 DefaultNewCellStyle,DefaultNewInlineCellStyle,DefaultNotebook,DefaultOutputFormatType,%
 2086 DefaultStyleDefinitions,DefaultTextFormatType,DefaultTextInlineFormatType,DefaultValues,%
 2087 DefineExternal,DegreeLexicographic,DegreeReverseLexicographic,Deletable,%
 2088 DeleteContents,DeletionWarning,DelimiterFlashTime,DelimiterMatching,%
 2089 Delimiters,DependentVariables,DiacriticalPositioning,DialogLevel,%
 2090 DifferenceOrder,DigitCharacter,DigitCount,DiracDelta,%
 2091 Direction,DirectoryName,DisableConsolePrintPacket,DiscreteDelta,%
 2092 DisplayAnimation,DisplayEndPacket,DisplayFlushImagePacket,DisplayForm,%
 2093 DisplayPacket,DisplayRules,DisplaySetSizePacket,DisplayString,%
 2094 DivisionFreeRowReduction,DOSTextFormat,DoubleExponential,DoublyInfinite,%
 2095 Down,DragAndDrop,DrawHighlighted,DualLinearProgramming,%
 2096 DumpGet,DumpSave>Edit,Editable,%
 2097 EditButtonSettings>EditCellTagsSettings>EditDefinition>EditIn,%
 2098 Element,EliminationOrder,EllipticExpPrime,EllipticNomeQ,%
 2099 EllipticReducedHalfPeriods,EllipticThetaPrime,Empty,EnableConsolePrintPacket,%
 2100 Encoding,EndAdd,EndDialogPacket,EndFrontEndInteractionPacket,%
 2101 EndOfLine,EndOfString,Enter,EnterExpressionPacket,%
 2102 EnterTextPacket,EqualColumns,EqualRows,EquatedTo,%
 2103 Erfi,ErrorBox,ErrorBoxOptions,ErrorNorm,%
 2104 ErrorPacket,ErrorsDialogSettings,Evaluatable,EvaluatePacket,%
 2105 EvaluationCell,EvaluationCompletionAction,EvaluationMonitor,EvaluationNotebook,%
 2106 Evaluator,EvaluatorNames,EventEvaluator,ExactNumberQ,%
 2107 ExactRootIsolation,Except,ExcludedForms,Exists,%
 2108 ExitDialog,ExponentPosition,ExponentStep,Export,%
 2109 ExportAutoReplacements,ExportPacket,ExportString,ExpressionPacket,%
 2110 ExpToTrig,Extension,ExternalCall,ExternalDataCharacterEncoding,%
 2111 Extract,Fail,FEDisableConsolePrintPacket,FEEEnableConsolePrintPacket,%
 2112 Fibonacci,File,FileFormat,FileInformation,%
 2113 FileName,FileNameDialogSettings,FindFit,FindInstance,%
 2114 FindMaximum,FindSettings,FitAll,FlushPrintOutputPacket,%
 2115 Font,FontColor,FontFamily,FontName,%
 2116 FontPostScriptName,FontProperties,FontReencoding,FontSize,%
 2117 FontSlant,FontSubstitutions,FontTracking,FontVariations,%
 2118 FontWeight,ForAll,FormatRules,FormatTypeAutoConvert,%
 2119 FormatValues,FormBox,FormBoxOptions,Forward,%

2120 ForwardBackward, FourierCosTransform, FourierParameters, FourierSinTransform, %
 2121 FourierTransform, FractionalPart, FractionBox, FractionBoxOptions, %
 2122 FractionLine, FrameBox, FrameBoxOptions, FresnelC, %
 2123 FresnelS, FromContinuedFraction, FromDigits, FrontEndExecute, %
 2124 FrontEndObject, FrontEndStackSize, FrontEndToken, FrontEndTokenExecute, %
 2125 FrontEndVersion, Full, FullAxes, FullSimplify, %
 2126 FunctionExpand, FunctionInterpolation, GaussKronrod, GaussPoints, %
 2127 GenerateBitmapCaches, GenerateConditions, GeneratedCell, GeneratedParameters, %
 2128 Generic, GetBoundingBoxSizePacket, GetContext, GetFileName, %
 2129 GetFrontEndOptionsDataPacket, GetLinebreakInformationPacket, %
 2130 GetMenusPacket, GetPageBreakInformationPacket, %
 2131 Glaisher, GlobalPreferences, GlobalSession, Gradient, %
 2132 GraphicsData, GraphicsGrouping, Gray, Green, %
 2133 Grid, GridBaseline, GridBox, GridBoxOptions, %
 2134 GridCreationSettings, GridDefaultElement, GridFrame, GridFrameMargins, %
 2135 GroupPageBreakWithin, HarmonicNumber, Hash, HashTable, %
 2136 HeadCompose, HelpBrowserLookup, HelpBrowserNotebook, HelpBrowserSettings, %
 2137 HessenbergDecomposition, Hessian, HoldAllComplete, HoldComplete, %
 2138 HoldPattern, Horizontal, HorizontalForm, HorizontalScrollPosition, %
 2139 HTMLSave, Hypergeometric0F1Regularized, Hypergeometric1F1Regularized, %
 2140 Hypergeometric2F1Regularized, %
 2141 HypergeometricPFQ, HypergeometricPFQRegularized, HyperlinkCreationSettings, Hyphenation, %
 2142 HyphenationOptions, IgnoreCase, ImageCache, ImageCacheValid, %
 2143 ImageMargins, ImageOffset, ImageRangeCache, ImageRegion, %
 2144 ImageResolution, ImageRotated, ImageSize, Import, %
 2145 ImportAutoReplacements, ImportString, IncludeFileExtension, IncludeSingularTerm, %
 2146 IndentingNewlineSpacings, IndentMaxFraction, IndexCreationOptions, Inequality, %
 2147 InexactNumberQ, InexactNumbers, Inherited, InitializationCell, %
 2148 InitializationCellEvaluation, InitializationCellWarning, %
 2149 InlineCounterAssignments, InlineCounterIncrements, %
 2150 InlineRules, InputAliases, InputAutoFormat, InputAutoReplacements, %
 2151 InputGrouping, InputNamePacket, InputNotebook, InputPacket, %
 2152 InputSettings, InputStringPacket, InputToBoxFormPacket, InputToInputForm, %
 2153 InputToStandardForm, InsertionPointObject, IntegerExponent, IntegerPart, %
 2154 Integers, Interactive, Interlaced, InterpolationOrder, %
 2155 InterpolationPoints, InterpolationPrecision, InterpretationBox, %
 2156 InterpretationBoxOptions, %
 2157 InterpretTemplate, InterruptSettings, Interval, IntervalIntersection, %
 2158 IntervalMemberQ, IntervalUnion, InverseBetaRegularized, InverseEllipticNomeQ, %
 2159 InverseErf, InverseErfc, InverseFourierCosTransform, %
 2160 InverseFourierSinTransform, %
 2161 InverseFourierTransform, InverseGammaRegularized, InverseJacobiCD, %
 2162 InverseJacobiCN, %
 2163 InverseJacobiCS, InverseJacobiDC, InverseJacobiDN, InverseJacobiDS, %
 2164 InverseJacobiNC, InverseJacobiND, InverseJacobiNS, InverseJacobiSC, %
 2165 InverseJacobiSD, InverseLaplaceTransform, InverseWeierstrassP, InverseZTransform, %
 2166 Jacobian, JacobiCD, JacobiCN, JacobiCS, %
 2167 JacobiDC, JacobiDN, JacobiDS, JacobiNC, %
 2168 JacobiND, JacobiNS, JacobiSC, JacobiSD, %
 2169 JordanDecomposition, K, Khinchin, KleinInvariantJ, %

2170 KroneckerDelta,Language,LanguageCategory,LaplaceTransform,%
 2171 Larger,Launch,LayoutInformation,Left,%
 2172 LetterCharacter,Lexicographic,LicenseID,LimitsPositioning,%
 2173 LimitsPositioningTokens,LinearSolveFunction,LinebreakAdjustments,LineBreakWithin,%
 2174 LineForm,LineIndent,LineSpacing,LineWrapParts,%
 2175 LinkActivate,LinkClose,LinkConnect,LinkConnectedQ,%
 2176 LinkCreate,LinkError,LinkFlush,LinkHost,%
 2177 LinkInterrupt,LinkLaunch,LinkMode,LinkObject,%
 2178 LinkOpen,LinkOptions,LinkPatterns,LinkProtocol,%
 2179 LinkRead,LinkReadHeld,LinkReadyQ,Links,%
 2180 LinkWrite,LinkWriteHeld,ListConvolve,ListCorrelate,%
 2181 Listen,ListInterpolation,ListQ,LiteralSearch,%
 2182 LongestMatch,LongForm,Loopback,LUBackSubstitution,%
 2183 LUDecomposition,MachineID,MachineName,MachinePrecision,%
 2184 MacintoshSystemPageSetup,Magenta,Magnification,MakeBoxes,%
 2185 MakeExpression,MakeRules,Manual,MatchLocalNameQ,%
 2186 MathematicaNotation,MathieuC,MathieuCharacteristicA,MathieuCharacteristicB,%
 2187 MathieuCharacteristicExponent,MathieuCPrime,MathieuS,MathieuSPrime,%
 2188 MathMLForm,MathMLText,MatrixRank,Maximize,%
 2189 MaxIterations,MaxPlotPoints,MaxPoints,MaxRecursion,%
 2190 MaxStepFraction,MaxSteps,MaxStepSize,Mean,%
 2191 Median,MeijerG,MenuPacket,MessageOptions,%
 2192 MessagePacket,MessagesNotebook,MetaCharacters,Method,%
 2193 MethodOptions,Minimize,MinRecursion,MinSize,%
 2194 Mode,ModularLambda,MonomialOrder,MonteCarlo,%
 2195 Most,MousePointerNote,Multidimensional,MultilaunchWarning,%
 2196 MultilineFunction,MultiplicativeOrder,Multiplicity,Nand,%
 2197 NeedCurrentFrontEndPackagePacket,NeedCurrentFrontEndSymbolsPacket,%
 2198 NestedScriptRules,NestWhile,%
 2199 NestWhileList,NevilleThetaC,NevilleThetaD,NevilleThetaN,%
 2200 NevilleThetaS,Newton,Next,NHoldAll,%
 2201 NHoldFirst,NHoldRest,NMaximize,NMinimize,%
 2202 NonAssociative,NonPositive,Nor,Norm,%
 2203 NormalGrouping,NormalSelection,NormFunction,Notebook,%
 2204 NotebookApply,NotebookAutoSave,NotebookClose,NotebookConvert,%
 2205 NotebookConvertSettings,NotebookCreate,NotebookCreateReturnObject,NotebookDefault,%
 2206 NotebookDelete,NotebookDirectory,NotebookFind,NotebookFindReturnObject,%
 2207 NotebookGet,NotebookGetLayoutInformationPacket,NotebookGetMisspellingsPacket,%
 2208 NotebookInformation,%
 2209 NotebookLocate,NotebookObject,NotebookOpen,NotebookOpenReturnObject,%
 2210 NotebookPath,NotebookPrint,NotebookPut,NotebookPutReturnObject,%
 2211 NotebookRead,NotebookResetGeneratedCells,Notebooks,NotebookSave,%
 2212 NotebookSaveAs,NotebookSelection,NotebookSetupLayoutInformationPacket,%
 2213 NotebooksMenu,%
 2214 NotebookWrite,NotElement,NProductExtraFactors,NProductFactors,%
 2215 NRoots,NSumExtraTerms,NSumTerms,NumberMarks,%
 2216 NumberMultiplier,NumberString,NumericFunction,NumericQ,%
 2217 NValues,Offset,OLEData,OneStepRowReduction,%
 2218 Open,OpenFunctionInspectorPacket,OpenSpecialOptions,OptimizationLevel,%
 2219 OptionInspectorSettings,OptionQ,OptionsPacket,OptionValueBox,%

2220 OptionValueBoxOptions, Orange, Ordering, Oscillatory, %
 2221 OutputAutoOverwrite, OutputFormData, OutputGrouping, OutputMathEditExpression, %
 2222 OutputNamePacket, OutputToOutputForm, OutputToStandardForm, Over, %
 2223 Overflow, Overlaps, Overscript, OverscriptBox, %
 2224 OverscriptBoxOptions, OwnValues, PadLeft, PadRight, %
 2225 PageBreakAbove, PageBreakBelow, PageBreakWithin, PageFooterLines, %
 2226 PageFooters, PageHeaderLines, PageHeaders, PalettePath, %
 2227 PaperWidth, ParagraphIndent, ParagraphSpacing, ParameterVariables, %
 2228 ParentConnect, ParentForm, Parenthesize, PasteBoxFormInlineCells, %
 2229 Path, PatternTest, PeriodicInterpolation, Pick, %
 2230 Piecewise, PiecewiseExpand, Pink, Pivoting, %
 2231 PixelConstrained, Placeholder, Plain, Plot3Matrix, %
 2232 PointForm, PolynomialForm, PolynomialReduce, Polynomials, %
 2233 PowerModList, Precedence, PreferencesPath, PreserveStyleSheet, %
 2234 Previous, PrimaryPlaceholder, Primes, PrincipalValue, %
 2235 PrintAction, PrintingCopies, PrintingOptions, PrintingPageRange, %
 2236 PrintingStartingPageNumber, PrintingStyleEnvironment, PrintPrecision, %
 2237 PrivateCellOptions, %
 2238 PrivateEvaluationOptions, PrivateFontOptions, PrivateNotebookOptions, PrivatePaths, %
 2239 ProductLog, PromptForm, Purple, Quantile, %
 2240 QuasiMonteCarlo, QuasiNewton, RadicalBox, RadicalBoxOptions, %
 2241 RandomSeed, RationalFunctions, Rationals, RawData, %
 2242 RawMedium, RealBlockForm, Reals, Reap, %
 2243 Red, Refine, Refresh, RegularExpression, %
 2244 Reinstall, Release, Removed, RenderingOptions, %
 2245 RepeatedString, ReplaceList, Rescale, ResetMenusPacket, %
 2246 Resolve, ResumePacket, ReturnExpressionPacket, ReturnInputFormPacket, %
 2247 ReturnPacket, ReturnTextPacket, Right, Root, %
 2248 RootReduce, RootSum, Row, RowAlignments, %
 2249 RowBox, RowLines, RowMinHeight, RowsEqual, %
 2250 RowSpacings, RSolve, RuleCondition, RuleForm, %
 2251 RulerUnits, Saveable, SaveAutoDelete, ScreenRectangle, %
 2252 ScreenStyleEnvironment, ScriptBaselineShifts, ScriptLevel, ScriptMinSize, %
 2253 ScriptRules, ScriptSizeMultipliers, ScrollingOptions, ScrollPosition, %
 2254 Second, SectionGrouping, Selectable, SelectedNotebook, %
 2255 Selection, SelectionAnimate, SelectionCell, SelectionCellCreateCell, %
 2256 SelectionCellDefaultStyle, SelectionCellParentStyle, SelectionCreateCell, %
 2257 SelectionDuplicateCell, %
 2258 SelectionEvaluate, SelectionEvaluateCreateCell, SelectionMove, SelectionSetStyle, %
 2259 SelectionStrategy, SendFontInformationToKernel, SequenceHold, SequenceLimit, %
 2260 SeriesCoefficient, SetBoxFormNamesPacket, SetEvaluationNotebook, %
 2261 SetFileLoadingContext, %
 2262 SetNotebookStatusLine, SetOptionsPacket, SetSelectedNotebook, %
 2263 SetSpeechParametersPacket, %
 2264 SetValue, ShortestMatch, ShowAutoStyles, ShowCellBracket, %
 2265 ShowCellLabel, ShowCellTags, ShowClosedCellArea, ShowContents, %
 2266 ShowCursorTracker, ShowGroupOpenCloseIcon, ShowPageBreaks, ShowSelection, %
 2267 ShowShortBoxForm, ShowSpecialCharacters, ShowStringCharacters, %
 2268 ShrinkWrapBoundingBox, %
 2269 SingleLetterItalics, SingularityDepth, SingularValueDecomposition, %

2270 SingularValueList,%
 2271 SinhIntegral,Smaller,Socket,SolveDelayed,%
 2272 SoundAndGraphics,Sow,Space,SpaceForm,%
 2273 SpanAdjustments,SpanCharacterRounding,SpanLineThickness,SpanMaxSize,%
 2274 SpanMinSize,SpanningCharacters,SpanSymmetric,Sparse,%
 2275 SparseArray,SpeakTextPacket,SpellingDictionaries,SpellingDictionariesPath,%
 2276 SpellingOptions,SpellingSuggestionsPacket,Spherical,Split,%
 2277 SqrtBox,SqrtBoxOptions,StandardDeviation,StandardForm,%
 2278 StartingStepSize,StartOfLine,StartOfString,StartupSound,%
 2279 StepMonitor,StieltjesGamma,StoppingTest,StringCases,%
 2280 StringCount,StringExpression,StringFreeQ,StringQ,%
 2281 StringReplaceList,StringReplacePart,StringSplit,StripBoxes,%
 2282 StripWrapperBoxes,StructuredSelection,StruveH,StruveL,%
 2283 StyleBox,StyleBoxAutoDelete,StyleBoxOptions,StyleData,%
 2284 StyleDefinitions,StyleForm,StyleMenuListing,StyleNameDialogSettings,%
 2285 StylePrint,StyleSheetPath,Subresultants,SubscriptBox,%
 2286 SubscriptBoxOptions,Subsets,Subsuperscript,SubsuperscriptBox,%
 2287 SubsuperscriptBoxOptions,SubtractFrom,SubValues,SugarCube,%
 2288 SuperscriptBox,SuperscriptBoxOptions,SuspendPacket,SylvesterMatrix,%
 2289 SymbolName,Syntax,SyntaxForm,SyntaxPacket,%
 2290 SystemException,SystemHelpPath,SystemStub,Tab,%
 2291 TabFilling,TabSpacings,TagBox,TagBoxOptions,%
 2292 TaggingRules,TagStyle,TargetFunctions,TemporaryVariable,%
 2293 TensorQ,TeXSave,TextAlignment,TextBoundingBox,%
 2294 TextData,TextJustification,TextLine,TextPacket,%
 2295 TextParagraph,TextRendering,TextStyle,ThisLink,%
 2296 TimeConstraint,TimeVariable,TitleGrouping,ToBoxes,%
 2297 ToColor,ToFileName,Toggle,ToggleFalse,%
 2298 Tolerance,TooBig,Top,ToRadicals,%
 2299 Total,Tr,TraceAction,TraceInternal,%
 2300 TraceLevel,TraditionalForm,TraditionalFunctionNotation,TraditionalNotation,%
 2301 TraditionalOrder,TransformationFunctions,TransparentColor,Trapezoidal,%
 2302 TrigExpand,TrigFactor,TrigFactorList,TrigReduce,%
 2303 TrigToExp,Tuples,UnAlias,Underflow,%
 2304 Underoverscript,UnderoverscriptBox,UnderoverscriptBoxOptions,Underscript,%
 2305 UnderscriptBox,UnderscriptBoxOptions,UndocumentedTestFEParsePacket,%
 2306 UndocumentedTestGetSelectionPacket,%
 2307 UnitStep,Up,URL,Using,%
 2308 V2Get,Value,ValueBox,ValueBoxOptions,%
 2309 ValueForm,Variance,Verbatim,Verbose,%
 2310 VerboseConvertToPostScriptPacket,VerifyConvergence,VerifySolutions,Version,%
 2311 VersionNumber,Vertical,VerticalForm,ViewPointSelectorSettings,%
 2312 Visible,VisibleCell,WeierstrassHalfPeriods,WeierstrassInvariants,%
 2313 WeierstrassSigma,WeierstrassZeta,White,Whitespace,%
 2314 WhitespaceCharacter,WindowClickSelect,WindowElements,WindowFloating,%
 2315 WindowFrame,WindowFrameElements,WindowMargins,WindowMovable,%
 2316 WindowSize,WindowTitle,WindowToolbars,WindowWidth,%
 2317 WordBoundary,WordCharacter,WynnDegree,XMLElement},%
 2318 morendkeywords={\$,\$AddOnsDirectory,\$AnimationDisplayFunction,%
 2319 \$AnimationFunction,%

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2320 $Assumptions,$BaseDirectory,$BoxForms,$ByteOrdering,%
2321 $CharacterEncoding,$ConditionHold,$CurrentLink,$DefaultPath,%
2322 $ExportEncodings,$ExportFormats,$FormatType,$FrontEnd,%
2323 $HistoryLength,$HomeDirectory,$ImportEncodings,$ImportFormats,%
2324 $InitialDirectory,$InstallationDate,$InstallationDirectory,%
2325 $InterfaceEnvironment,%
2326 $LaunchDirectory,$LicenseExpirationDate,$LicenseID,$LicenseProcesses,%
2327 $LicenseServer,$MachineDomain,$MaxExtraPrecision,$MaxLicenseProcesses,%
2328 $MaxNumber,$MaxPiecewiseCases,$MaxPrecision,$MaxRootDegree,%
2329 $MinNumber,$MinPrecision,$NetworkLicense,$NumberMarks,%
2330 $Off,$OutputForms,$ParentLink,$ParentProcessID,%
2331 $PasswordFile,$PathnameSeparator,$PreferencesDirectory,$PrintForms,%
2332 $PrintLiteral,$ProcessID,$ProcessorType,$ProductInformation,%
2333 $ProgramName,$PSDirectDisplay,$RandomState,$RasterFunction,%
2334 $RootDirectory,$SetParentLink,$SoundDisplay,$SuppressInputFormHeads,%
2335 $SystemCharacterEncoding,$SystemID,$TemporaryPrefix,$TextStyle,%
2336 $TopDirectory,$TraceOff,$TraceOn,$TracePattern,%
2337 $TracePostAction,$TracePreAction,$UserAddOnsDirectory,$UserBaseDirectory,%
2338 $UserName,Constant,Flat,HoldAll,%
2339 HoldAllComplete,HoldFirst,HoldRest,Listable,%
2340 Locked,NHoldAll,NHoldFirst,NHoldRest,%
2341 NumericFunction,OneIdentity,Orderless,Protected,%
2342 ReadProtected,SequenceHold},%
2343 }%

2344 %%
2345 %% Mathematica definitions (c) 1999 Michael Wiese
2346 %%
2347 \lst@definlanguage[3.0]{Mathematica}[1.0]{Mathematica}%
2348 {morekeywords={Abort,AbortProtect,AbsoluteDashing,AbsolutePointSize,%
2349 AbsoluteThickness,AbsoluteTime,AccountingFormAiry,AiPrime,AiryBi,%
2350 AiryBiPrime,Alternatives,AnchoredSearch,AxesEdge,AxesOrigin,%
2351 AxesStyle,Background,BetaRegularized,BoxStyle,C,CheckAbort,%
2352 Circle,ClebschGordan,CMYKColor,ColorFunction,ColorOutput,Compile,%
2353 Compiled,CompiledFunction,ComplexExpand,ComposeList,Composition,%
2354 ConstrainedMax,ConstrainedMin,Contexts,ContextToFilename,%
2355 ContourLines,Contours,ContourShading,ContourSmoothing,%
2356 ContourStyle,CopyDirectory,CopyFile,CosIntegral>CreateDirectory,%
2357 Cuboid,Date,DeclarePackage,DefaultColor,DefaultFont>Delete,%
2358 DeleteCases>DeleteDirectory>DeleteFile,Dialog,DialogIndent,%
2359 DialogProlog,DialogSymbols,DigitQ,Directory,DirectoryStack,Disk,%
2360 Dispatch,DownValues,DSolve,Encode,Epilog,Erfc,Evaluate,%
2361 ExponentFunction,FaceGrids,FileByteCount,FileDate,FileNames,%
2362 FileType,Find,FindList,FixedPointList,FlattenAt,Fold,FoldList,%
2363 Frame,FrameLabel,FrameStyle,FrameTicks,FromCharacterCode,%
2364 FromDate,FullGraphics,FullOptions,GammaRegularized,%
2365 GaussianIntegers,GraphicsArray,GraphicsSpacing,GridLines,%
2366 GroebnerBasis,Heads,HeldPart,HomeDirectory,Hue,IgnoreCases,%
2367 InputStream,Install,InString,IntegerDigits,InterpolatingFunction,%
2368 InterpolatingPolynomial,Interpolation,Interrupt,InverseFunction,%

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2369 InverseFunctions, JacobiZeta, LetterQ, LinearProgramming, ListPlay, %
2370 LogGamma, LowerCaseQ, MachineNumberQ, MantissaExponent, MapIndexed, %
2371 MapThread, MatchLocalNames, MatrixExp, MatrixPower, MeshRange, %
2372 MeshStyle, MessageList, Module, NDSolve, NSolve, NullRecords, %
2373 NullWords, NumberFormat, NumberPadding, NumberSigns, OutputStream, %
2374 PaddedForm, ParentDirectory, Pause, Play, PlayRange, PlotRegion, %
2375 PolygonIntersections, PolynomialGCD, PolynomialLCM, PolynomialMod, %
2376 PostScript, PowerExpand, PrecisionGoal, PrimePi, Prolog, %
2377 QRDecomposition, Raster, RasterArray, RealDigits, Record, RecordLists, %
2378 RecordSeparators, ReleaseHold, RenameDirectory, RenameFile, %
2379 ReplaceHeldPart, ReplacePart, ResetDirectory, Residue, %
2380 RiemannSiegelTheta, RiemannSiegelZ, RotateLabel, SameTest, %
2381 SampleDepth, SampledSoundFunction, SampledSoundList, SampleRate, %
2382 SchurDecomposition, SessionTime, SetAccuracy, SetDirectory, %
2383 SetFileDate, SetPrecision, SetStreamPosition, Shallow, SignPadding, %
2384 SinIntegral, SixJSymbol, Skip, Sound, SpellingCorrection, %
2385 SphericalRegion, Stack, StackBegin, StackComplete, StackInhibit, %
2386 StreamPosition, Streams, StringByteCount, StringConversion, %
2387 StringDrop, StringInsert, StringPosition, StringReplace, %
2388 StringReverse, StringTake, StringToStream, SurfaceColor, %
2389 SyntaxLength, SyntaxQ, TableAlignments, TableDepth, %
2390 TableDirections, TableHeadings, TableSpacing, ThreeJSymbol, TimeUsed, %
2391 TimeZone, ToCharacterCode, ToDate, ToHeldExpression, TokenWords, %
2392 ToLowerCase, ToUpperCase, Trace, TraceAbove, TraceBackward, %
2393 TraceDepth, TraceDialog, TraceForward, TraceOff, TraceOn, %
2394 TraceOriginal, TracePrint, TraceScan, Trig, Unevaluated, Uninstall, %
2395 UnsameQ, UpperCaseQ, UpValues, ViewCenter, ViewVertical, With, Word, %
2396 WordSearch, WordSeparators}, %
2397 morendkeywords={Stub, Temporary, $Aborted, $BatchInput, $BatchOutput, %
2398 $CreationDate, $DefaultFont, $DumpDates, $DumpSupported, $Failed, %
2399 $Input, $Inspector, $IterationLimit, $Language, $Letters, $Linked, %
2400 $LinkSupported, $MachineEpsilon, $MachineID, $MachineName, %
2401 $MachinePrecision, $MachineType, $MaxMachineNumber, $MessageList, %
2402 $MessagePrePrint, $MinMachineNumber, $ModuleNumber, $NewMessage, %
2403 $NewSymbol, $Notebooks, $OperatingSystem, $Packages, $PipeSupported, %
2404 $PreRead, $ReleaseNumber, $SessionID, $SoundDisplayFunction, %
2405 $StringConversion, $StringOrder, $SyntaxHandler, $TimeUnit, %
2406 $VersionNumber}%
2407 }%

2408 \lst@definlanguage[1.0]{Mathematica}%
2409 {morekeywords={Abs, Accuracy, AccurayGoal, AddTo, AiryAi, AlgebraicRules, %
2410 AmbientLight, And, Apart, Append, AppendTo, Apply, ArcCos, ArcCosh, %
2411 ArcCot, ArcCoth, ArcCsc, ArcCsch, ArcSec, ArcSech, ArcSin, ArcSinh, %
2412 ArcTan, ArcTanh, Arg, ArithmeticGeometricMean, Array, AspectRatio, %
2413 AtomQ, Attributes, Axes, AxesLabel, BaseForm, Begin, BeginPackage, %
2414 BernoulliB, BesselI, BesselJ, BesselK, BesselY, Beta, Binomial, Blank, %
2415 BlankNullSequence, BlankSequence, Block, Boxed, BoxRatios, Break, Byte, %
2416 ByteCount, Cancel, Cases, Catch, Ceiling, CForm, Character, Characters, %
2417 ChebyshevT, ChebyshevU, Check, Chop, Clear, ClearAll, ClearAttributes, %

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2418 ClipFill, Close, Coefficient, CoefficientList, Collect, ColumnForm, %
 2419 Complement, Complex, CompoundExpression, Condition, Conjugate, %
 2420 Constants, Context, Continuation, Continue, ContourGraphics, %
 2421 ContourPlot, Cos, Cosh, Cot, Coth, Count, Csc, Csch, Cubics, Cyclotomic, %
 2422 D, Dashing, Decompose, Decrement, Default, Definition, Denominator, %
 2423 DensityGraphics, DensityPlot, Depth, Derivative, Det, DiagonalMatrix, %
 2424 DigitBlock, Dimensions, DirectedInfinity, Display, DisplayFunction, %
 2425 Distribute, Divide, DivideBy, Divisors, DivisorSigma, Do, Dot, Drop, Dt, %
 2426 Dump, EdgeForm, Eigensystem, Eigenvalues, Eigenvectors, Eliminate, %
 2427 EllipticE, EllipticExp, EllipticF, EllipticK, EllipticLog, EllipticPi, %
 2428 EllipticTheta, End, EndPackage, EngineeringForm, Environment, Equal, %
 2429 Erf, EulerE, EulerPhi, EvenQ, Exit, Exp, Expand, ExpandAll, %
 2430 ExpandDenominator, ExpandNumerator, ExpIntegralE, ExpIntegralEi, %
 2431 Exponent, Expression, ExtendedGCD, FaceForm, Factor, FactorComplete, %
 2432 Factorial, Factorial2, FactorInteger, FactorList, FactorSquareFree, %
 2433 FactorSquareFreeList, FactorTerms, FactorTermsList, FindMinimum, %
 2434 FindRoot, First, Fit, FixedPoint, Flatten, Floor, FontForm, For, Format, %
 2435 FormatType, FortranForm, Fourier, FreeQ, FullDefinition, FullForm, %
 2436 Function, Gamma, GCD, GegenbauerC, General, Get, Goto, Graphics, %
 2437 Graphics3D, GrayLevel, Greater, GreaterEqual, Head, HermiteH, %
 2438 HiddenSurface, Hold, HoldForm, Hypergeometric0F1, Hypergeometric1F1, %
 2439 Hypergeometric2F1, HypergeometricU, Identity, IdentityMatrix, If, Im, %
 2440 Implies, In, Increment, Indent, Infix, Information, Inner, Input, %
 2441 InputForm, InputString, Insert, Integer, IntegerQ, Integrate, %
 2442 Intersection, Inverse, InverseFourier, InverseJacobiSN, %
 2443 InverseSeries, JacobiAmplitude, JacobiP, JacobiSN, JacobiSymbol, Join, %
 2444 Label, LaguerreL, Last, LatticeReduce, LCM, LeafCount, LegendreP, %
 2445 LegendreQ, LegendreType, Length, LerchPhi, Less, LessEqual, Level, %
 2446 Lighting, LightSources, Limit, Line, LinearSolve, LineBreak, List, %
 2447 ListContourPlot, ListDensityPlot, ListPlot, ListPlot3D, Literal, Log, %
 2448 LogicalExpand, LogIntegral, MainSolve, Map, MapAll, MapAt, MatchQ, %
 2449 MatrixForm, MatrixQ, Max, MaxBend, MaxMemoryUsed, MemberQ, %
 2450 MemoryConstrained, MemoryInUse, Mesh, Message, MessageName, Messages, %
 2451 Min, Minors, Minus, Mod, Modulus, MoebiusMu, Multinomial, N, NameQ, Names, %
 2452 NBernoulliB, Needs, Negative, Nest, NestList, NIntegrate, %
 2453 NonCommutativeMultiply, NonConstants, NonNegative, Normal, Not, %
 2454 NProduct, NSum, NullSpace, Number, NumberForm, NumberPoint, NumberQ, %
 2455 NumberSeparator, Numerator, O, OddQ, Off, On, OpenAppend, OpenRead, %
 2456 OpenTemporary, OpenWrite, Operate, Optional, Options, Or, Order, %
 2457 OrderedQ, Out, Outer, OutputForm, PageHeight, PageWidth, %
 2458 ParametricPlot, ParametricPlot3D, Part, Partition, PartitionsP, %
 2459 PartitionsQ, Pattern, Permutations, Plot, Plot3D, PlotDivision, %
 2460 PlotJoined, PlotLabel, PlotPoints, PlotRange, PlotStyle, Pochhammer, %
 2461 Plus, Point, PointSize, PolyGamma, Polygon, PolyLog, PolynomialQ, %
 2462 PolynomialQuotient, PolynomialRemainder, Position, Positive, Postfix, %
 2463 Power, PowerMod, PrecedenceForm, Precision, PreDecrement, Prefix, %
 2464 PreIncrement, Prepend, PrependTo, Prime, PrimeQ, Print, PrintForm, %
 2465 Product, Protect, PseudoInverse, Put, PutAppend, Quartics, Quit, %
 2466 Quotient, Random, Range, Rationalize, Raw, Re, Read, ReadList, %
 2467 Real, Rectangle, Reduce, Remove, RenderAll, Repeated, RepeatedNull, %

```

2468 Replace,ReplaceAll,ReplaceRepeated,Rest,Resultant,Return,Reverse,%
2469 RGBColor,Roots,RotateLeft,RotateRight,Round,RowReduce,Rule,%
2470 RuleDelayed,Run,RunThrough,SameQ,Save,Scaled,Scan,ScientificForm,%
2471 Sec,Sech,SeedRandom,Select,Sequence,SequenceForm,Series,%
2472 SeriesData,Set,SetAttributes,SetDelayed,SetOptions,Shading,Share,%
2473 Short,Show,Sign,Signature,Simplify,Sin,SingularValues,Sinh,%
2474 Skeleton,Slot,SlotSequence,Solve,SolveAlways,Sort,%
2475 SphericalHarmonicY,Splice,Sqrt,StirlingS1,StirlingS2,String,%
2476 StringBreak,StringForm,StringJoin,StringLength,StringMatchQ,%
2477 StringSkeleton,Subscript,Subscripted,Subtract,SubtractForm,Sum,%
2478 Superscript,SurfaceGraphics,Switch,Symbol,Table,TableForm,TagSet,%
2479 TagSetDelayed,TagUnset,Take,Tan,Tanh,ToString,TensorRank,TeXForm,%
2480 Text,TextForm,Thickness,Thread,Through,Throw,Ticks,%
2481 TimeConstrained,Times,TimesBy,Timing,ToExpression,Together,%
2482 ToRules,ToString,TotalHeight,TotalWidth,Transpose,TreeForm,TrueQ,%
2483 Unequal,Union,Unique,Unprotect,Unset,Update,UpSet,UpSetDelayed,%
2484 ValueQ,Variables,VectorQ,ViewPoint,WeierstrassP,%
2485 WeierstrassPPrime,Which,While,WorkingPrecision,Write,WriteString,%
2486 Xor,ZeroTest,Zeta},%
2487 moreendkeywords={All,Automatic,Catalan,ComplexInfinity,Constant,%
2488 Degree,E,EndOfFile,EulerGamma,False,Flat,GoldenRatio,HoldAll,%
2489 HoldFirst,HoldRest,I,Indeterminate,Infinity,Listable,Locked,%
2490 Modular,None,Null,OneIdentity,Orderless,Pi,Protected,%
2491 ReadProtected,True,$CommandLine,$Context,$ContextPath,$Display,%
2492 $DisplayFunction,$Echo,$Epilog,$IgnoreEOF,$Line,$Messages,%
2493 $Output,$Path,$Post,$Pre,$PrePrint,$RecursionLimit,$System,%
2494 $Urgent,$Version},%
2495 sensitive,%
2496 morecomment=[s]{(*)},%
2497 morestring=[d]"%
2498 }[keywords,comments,strings]%
2499 </lang1>

```

2.41 Mercury

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

```

2500 <*lang2>
2501 %%
2502 %% Mercury definition (c) 1997 Dominique de Waleffe
2503 %% Extended (c) 2001 Ralph Becket
2504 %%
2505 \lst@definlanguage{Mercury}%
2506 {otherkeywords={::,->,<-->,<-->,<-->,<-->,<-->,<-->,<-->,%
2507   morekeywords={module,include_module,import_module,interface,%
2508     end_module,implementation,mode,is,failure,semidet,nondet,det,%
2509     multi,erroneous,inst,in,out,di,uo,ui,type,typeclass,instance,%
2510     where,with_type,pred,func,lambda,impure,semipure,if,then,else,%

```

```

2511     some,all,not,true,fail,pragma,memo,no_inline,inline,loop_check,%
2512     minimal_model,fact_table,type_spec,terminates,does_not_terminate,%
2513     check_termination,promise_only_solution,unsafe_promise_unique,%
2514     source_file,obsolete,import,export,c_header_code,c_code,%
2515     foreign_code,foreign_proc,may_call_mercury,will_not_call_mercury,%
2516     thread_safe,not_thread_safe},%
2517     sensitive=t,%
2518     morecomment=[l]\%,%
2519     morecomment=[s]{/*}{*/},%
2520     morestring=[bd]" ,%
2521     morestring=[bd]'%
2522 }[keywords,comments,strings]%
2523 </lang2>

```

2.42 MetaPost

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

```

2524 <*lang3>
2525 %%
2526 %% MetaPost definition (c) 2004 Brooks Moses
2527 %% This definition is based on the language specifications
2528 %% contained in the _User's Manual for Metapost_, with the core
2529 %% language enhancements that are described in the _Drawing
2530 %% Graphs with MetaPost_ documentation.
2531 %%
2532 \lst@definlanguage{MetaPost}%
2533 {% keywords[1] = MetaPost primitives (not found in following tables)
2534     morekeywords={end,begingroup,endgroup,beginfig,endfig,def,vardef,%
2535         primary,secondary,tertiary,primarydef,secondarydef,tertiarydef,%
2536         expr,suffix,text,enddef,if,fi,else,elseif,for,forsuffixes,%
2537         forever,endfor,upto,downto,stop,until,tension,controls,on,off,%
2538         btex,etex,within,input},
2539     % keywords[2] = Operators (Tables 6-9 in MetaPost User's manual)
2540     morekeywords=[2]{abs,and,angle,arclength,arctime,ASCII,bbox,bluepart,%
2541         boolean,bot,ceiling,center,char,color,cosd,cutafter,cutbefore,%
2542         cycle,decimal,dir,direction,directionpoint,directiontime,div,%
2543         dotprod,floor,fontsize,greenpart,hex,infont,intersectionpoint,%
2544         intersectiontimes,inverse,known,length,lft,llcorner,lrcorner,%
2545         makepath,makepen,mexp,mlog,mod,normaldeviate,not,numeric,oct,%
2546         odd,or,pair,path,pen,penoffset,picture,point,postcontrol,%
2547         precontrol,redpart,reverse,rotated,round,rt,scaled,shifted,%
2548         sind,slanted,sqrt,str,string,subpath,substring,top,transform,%
2549         transformed,ulcorner,uniformdeviate,unitvector,unknown,%
2550         urcorner,whatever,xpart,xscaled,xxpart,ypart,yscaled,%
2551         yxpart,ypart,zscaled,of,reflectedabout,rotatedaround,ulft,urt,%
2552         llft,lrt,readfrom,write,stroked,filled,textual,clipped,bounded,%
2553         pathpart,penpart,dashpart,textpart,fontpart},%

```



```

2554 % keywords[3] = Commands (Table 10)
2555 morekeywords=[3]{addto,clip,cutdraw,draw,drawarrow,drawdblarrow,%
2556     fill,filldraw,interim,let,loggingall,newinternal,pickup,%
2557     save,setbounds,shipout,show,showdependencies,showtoken,%
2558     showvariable,special,tracingall,tracingnone,undraw,unfill,%
2559     unfilldraw,to,also,contour,doublepath,withcolor,withpen,%
2560     dashed,randomseed},%
2561 % keywords[4] = Function-Like Macros (Table 11)
2562 morekeywords=[4]{boxit,boxjoin,bpath,buildcycle,circleit,dashpattern,%
2563     decr,dotlabel,dotlabels,drawboxed,drawboxes,drawoptions,%
2564     drawunboxed,fixpos,fixsize,incr,interpath,label,labels,max,min,pic,%
2565     thelabel,z,image},%
2566 % keywords[5] = Internal and Predefined Variables (Tables 3, 4)
2567 morekeywords=[5]{ahangle,ahlength,bboxmargin,charcode,circmargin,%
2568     day,defaultdx,defaultdy,defaultpen,defaultscale,labeloffset,%
2569     linecap,linejoin,miterlimit,month,pausing,prologues,showstopping,%
2570     time,tracingcapsules,tracingchoices,tracingcommands,%
2571     tracingequations,tracinglostchars,tracingmacros,tracingonline,%
2572     tracingoutput,tracingrestores,tracingspecs,tracingstats,%
2573     tracingtitles,truecorners,warningcheck,year},
2574 morekeywords=[5]{background,currentpen,currentpicture,cuttings,%
2575     defaultfont},%
2576 % keywords[6] = Predefined Constants (Table 5)
2577 morekeywords=[6]{beveled,black,blue,bp,butt,cc,cm,dd,ditto,down,%
2578     epsilon,evenly,false,fullcircle,green,halfcircle,identity,%
2579     in,infinity,left,mitered,mm,nullpicture,origin,pc,pencircle,%
2580     pt,quatercircle,red,right,rounded,squared,true,unitsquare,%
2581     up,white,withdots},
2582 sensitive=false,%
2583 alsoother={0123456789$},%
2584 morecomment=[1]\%,%
2585 morestring=[mf]{input\ },%
2586 morestring=[b]"%
2587 }[keywords,comments,strings,mf]%
2588  $\end{code}$ 

```

2.43 Miranda

Thanks to Peter Bartke for providing the definition.

```

2589  $\begin{code}$ 
2590 %%
2591 %% Miranda definition (c) 1998 Peter Bartke
2592 %%
2593 %% Miranda: pure lazy functional language with polymorphic type system,
2594 %%     garbage collection and functions as first class citizens
2595 %%
2596 \lst@definlanguage{Miranda}%
2597 {morekeywords={abstype,div,if,mod,otherwise,readvals,show,type,where,%

```

```

2598     with,bool,char,num,sys_message,False,True,Appendfile,Closefile,%
2599     Exit,Stderr,Stdout,System,Tofile,\\%include,\\%export,\\%free,%
2600     \\%insert,abs,and,arctan,cjustify,code,concat,const,converse,cos,%
2601     decode,digit,drop,dropwhile,entier,error,exp,filemode,filter,%
2602     foldl,foldl1,foldr,foldr1,force,fst,getenv,hd,hugenum,id,index,%
2603     init,integer,iterate,last,lay,lain,letter,limit,lines,ljustify,%
2604     log,log10,map,map2,max,max2,member,merge,min,min2,mkset,neg,%
2605     numval,or,pi,postfix,product,read,rep,repeat,reverse,rjustify,%
2606     scan,seq,showfloat,shownum,showscaled,sin,snd,sort,spaces,sqrt,%
2607     subtract,sum,system,take,takewhile,tinynum,tl,transpose,undef,%
2608     until,zip2,zip3,zip4,zip5,zip6,zip},%
2609     sensitive,%
2610     morecomment=[l]||,%
2611     morestring=[b]"%
2612 }[keywords,comments,strings]%
2613 </lang2>

```

2.44 Mizar

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

```

2614 <*lang3>
2615 %%
2616 %% Mizar definition (c) 2003 Adam Grabowski
2617 %%
2618 %% Mizar is freely available at URL www.mizar.org for the Linux x86,
2619 %% Solaris x86, and Windows operating systems.
2620 %%
2621 \lst@definlanguage{Mizar}%
2622 {otherkeywords={->,(\\#,\\#),\\#),\\&},%
2623     morekeywords={vocabulary,constructors,$1,$1,$2,$3,$4,$5,$6,$7,$8,%
2624         @proof,according,aggregate,and,antonym,as,associativity,assume,%
2625         asymmetry,attr,be,begin,being,by,canceled,case,cases,cluster,%
2626         clusters,coherence,commutativity,compatibility,connectedness,%
2627         consider,consistency,constructors,contradiction,correctness,def,%
2628         deffunc,define,definition,definitions,defpred,end,environ,equality,%
2629         ex,exactly,existence,for,from,func,given,hence,hereby,holds,%
2630         idempotence,if,iff,implies,involutiveness,irreflexivity,is,it,%
2631         let,means,mode,non,not,notation,now,of,or,otherwise,over,per,%
2632         pred,prefix,projectivity,proof,provided,qua,reconsider,redefine,%
2633         reflexivity,requirements,reserve,scheme,schemes,section,selector,%
2634         set,st,struct,such,suppose,symmetry,synonym,take,that,the,then,%
2635         theorem,theorems,thesis,thus,to,transitivity,uniqueness,%
2636         vocabulary,where},%
2637     sensitive=t,%
2638     morecomment=[l]:;%
2639 }[keywords,comments]%
2640 </lang3>

```

2.45 ML

Thanks to Torben Hoffmann for providing the definition.

```
2641 <*lang2>
2642 %%
2643 %% ML definition (c) 1999 Torben Hoffmann
2644 %%
2645 \lst@definlanguage{ML}%
2646 {morekeywords={abstype,and,andalso,as,case,do,datatype,else,end,%
2647     eqtype,exception,fn,fun,functor,handle,if,in,include,infix,%
2648     infixr,let,local,nonfix,of,op,open,orelse,raise,rec,sharing,sig,%
2649     signature,struct,structure,then,type,val,with,withtype,while},%
2650     sensitive,%
2651     morecomment=[n]{(*)},%
2652     morestring=[d]"%
2653 }[keywords,comments,strings]%
2654 </lang2>
```

2.46 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.

```
2655 <*lang3>
2656 \lst@definlanguage{Modula-2}%
2657 {morekeywords={AND,ARRAY,BEGIN,BY,CASE,CONST,DIV,DO,ELSE,ELSIF,END,%
2658     EXIT,EXPORT,FOR,FROM,IF,IMPLEMENTATION,IMPORT,IN,MOD,MODULE,NOT,%
2659     OF,OR,POINTER,PROCEDURE,QUALIFIED,RECORD,REPEAT,RETURN,SET,THEN,%
2660     TYPE,UNTIL,VAR,WHILE,WITH,ABS,BITSET,BOOLEAN,CAP,CARDINAL,CHAR,%
2661     CHR,DEC,EXCL,FALSE,FLOAT,HALT,HIGH,INC,INCL,INTEGER,LONGCARD,%
2662     LONGINT,LONGREAL,MAX,MIN,NIL,ODD,ORD,PROC,REAL,SIZE,TRUE,TRUNC,%
2663     VAL,DEFINITION,LOOP},% added keywords due to Peter Bartke 99/07/22
2664     sensitive,%
2665     morecomment=[n]{(*)},%
2666     morestring=[d]',%
2667     morestring=[d]"%
2668 }[keywords,comments,strings]%
2669 </lang3>
```

2.47 MuPAD

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

```
2670 <*lang3>
```

```

2671 \lst@definelanguage{MuPAD}{%
2672     morekeywords={end,next,break,if,then,elif,else,end_if,case,end_case,%
2673         otherwise,for,from,to,step,downto,in,end_for,while,end_while,%
2674         repeat,until,end_repeat,or,and,not,xor,div,mod,union,minus,%
2675         intersect,subset,proc,begin,end_proc,domain,end_domain,category,%
2676         end_category,axiom,end_axiom,quit,delete,frame},%
2677     morekeywords=[2]{NIL,FAIL,TRUE,FALSE,UNKNOWN,I,RD_INF,RD_NINF,%
2678         RD_NAN,name,local,option,save,inherits,of,do},%
2679     otherkeywords={\%if,?,!,:=,<,>,<=,<>,>=,==,<=>,:,.,.,.,->,%
2680         @,@@,\$},%
2681     sensitive=true,%
2682     morecomment=[1]{//},%
2683     morecomment=[n]{/*}{*/},%
2684     morestring=[b]",%
2685     morestring=[d]{'%
2686 }[keywords,comments,strings]
2687 </lang3>

```

2.48 NASTRAN

```

2688 <*lang3>

```

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

```

2689 \lst@definelanguage{NASTRAN}
2690 {morekeywords={ENDDATA},%
2691     morecomment=[1]$,%
2692     MoreSelectCharTable=%
2693         \lst@CargX BEGIN\ BULK\relax\lst@CDef{%
2694             {\lst@ifmode\else \ifnum\lst@length=\z@
2695                 \lst@EnterMode{\lst@GPmode}{\lst@modetrue
2696                     \let\lst@currstyle\lst@gkeywords@sty}%
2697             \fi \fi}%
2698             {\ifnum\lst@mode=\lst@GPmode
2699                 \lst@XPrintToken \lst@LeaveMode
2700             \fi}%
2701 }[keywords,comments]%
2702 </lang3>

```

2.49 Oberon-2

```

2703 <*lang3>

```

```

2704 \lst@definelanguage{Oberon-2}%
2705 {morekeywords={ARRAY,BEGIN,BOOLEAN,BY,CASE,CHAR,CONST,DIV,DO,ELSE,%
2706     ELSIF,END,EXIT,FALSE,FOR,IF,IMPORT,IN,INTEGER,IS,LONGINT,%
2707     LONGREAL,LOOP,MOD,MODULE,NIL,OF,OR,POINTER,PROCEDURE,REAL,RECORD,%
2708     REPEAT,RETURN,SET,SHORTINT,THEN,TO,TRUE,TYPE,UNTIL,VAR,WHILE,%
2709     WITH,ABS,ASH,CAP,CHR,COPY,DEC,ENTIER,EXCL,HALT,INC,INCL,LEN,LONG,%
2710     MAX,MIN,NEW,ODD,ORD,SHORT,SIZE},%
2711     sensitive,%

```

```

2712     morecomment=[n]{(*){(*)}},%
2713     morestring=[d] ',%
2714     morestring=[d] "%
2715 }[keywords,comments,strings]%
2716 </lang3>

```

2.50 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.

```

2717 <*lang3>
2718 %%
2719 %% OCL definition (c) 2000 Achim D. Brucker
2720 %%
2721 %% You are allowed to use, modify and distribute this code either under
2722 %% the terms of the LPPL (version 1.0 or later) or the GPL (version 2.0
2723 %% or later).
2724 %%

```

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).

```

2725 \lst@definlanguage[decorative]{OCL}{OMG}{OCL}
2726 {otherkeywords={@pre},%
2727     moreendkeywords={name,attributes,associatoinEnds,operations,%
2728         supertypes,allSupertypes,allInstances,oclIsKindOf,oclIsTypeOf,%
2729         oclAsType,oclInState,oclIsNew,evaluationType,abs,floor,round,max,%
2730         min,div,mod,size,concat,toUpper,toLower,substring,includes,%
2731         excludes,count,includesAll,excludesAll,isEmpty,notEmpty,sum,%
2732         exists,forAll,isUnique,sortedBy,iterate,union,intersection,%
2733         including,excluding,symmetricDifference,select,reject,collect,%
2734         asSequence,asBag,asSequence,asSet,append,prepend,subSequence,at,%
2735         first,last,true,false,isQuery}%
2736 }%

```

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):

```

2737 \lst@definlanguage[OMG]{OCL}%
2738 {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):

```
2739     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:

```
2740     morekeywords=[3]{Boolean,Integer,Real,String,Set,Sequence,Bag,%
2741         OclType,OclAny,OclExpression,Enumeration,Collection,},%
2742     sensitive=t,%
2743     morecomment=[1]--, %
2744     morestring=[d]'%
2745 }[keywords,comments,strings]%
```

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

```
2746 </lang3>
```

2.51 Octave

```
2747 <*lang1>
```

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

```
2748 %%
2749 %% Octave definition (c) 2001,2002 Ulrich G. Wortmann
2750 %%
2751 \lst@definlanguage{Octave}%
2752 {morekeywords={gt,lt,amp,abs,acos,acosh,acot,acoth,acsc,acsch,%
2753     all,angle,ans,any,asec,asech,asin,asinh,atan,atan2,atanh,auread,%
2754     auwrite,axes,axis,balance,bar,bessel,besselk,bessely,beta,%
2755     betainc,betaln,blanks,bone,break,brighten,capture,card2pol,%
2756     card2sph,caxis,cd,cdf2rdf,cedit,ceil,chol,cla,clabel,clc,clear,%
2757     clf,clock,close,colmmd,Colon,colorbar,colormap,ColorSpec,colperm,%
2758     comet,comet3,compan,compass,computer,cond,condest,conj,contour,%
2759     contour3,contourc,contrast,conv,conv2,cool,copper,corrcoef,cos,%
2760     cosh,cot,coth,cov,cplxpair,cputime,cross,csc,csch,csread,%
2761     csvwrite,cumprod,cumsum,cylinder,date,dbclean,dbcont,dbdown,%
2762     dbquit,dbstack,dbstatus,dbstep,dbstop,dbtype,dbup,ddeadv,ddeexec,%
2763     ddeinit,ddepoke,ddereq,ddeterm,ddeunadv,deblank,dec2hex,deconv,%
2764     del2,delete,demo,det,diag,diary,diff,diffuse,dir,disp,dlmread,%
2765     dlmwrite,dmperm,dot,drawnow,echo,eig,ellipj,ellipke,else,elseif,%
2766     end,engClose,engEvalString,engGetFull,engGetMatrix,engOpen,%
2767     engOutputBuffer,engPutFull,engPutMatrix,engSetEvalCallback,%
2768     engSetEvalTimeout,engWinInit,eps,erf,erfc,erfcx,erfinv,%
2769     errorbar,etime,etree,eval,exist,exp,expint,expm,expo,eye,fclose,%
2770     feather,feof,ferror,feval,fft,fft2,fftshift,fgetl,fgets,figure,%
2771     fill,fill3,filter,filter2,find,findstr,finite,fix,flag,flipr,%
2772     flipud,floor,flops,fmin,fmins,fopen,for,format,fplot,fprintf,%
2773     fread,frewind,fscanf,fseek,ftell,full,function,funm,fwrite,fzero,%
```

```

2774 gallery,gamma,gammainc,gammaln,gca,gcd,gcf,gco,get,getenv,%
2775 getframe,ginput,global,gplot,gradient,gray,graymon,grid,griddata,%
2776 gtext,hadamard,hankel,help,hess,hex2dec,hex2num,hidden,hilb,hist,%
2777 hold,home,hostid,hot,hsv,hsv2rgb,if,ifft,ifft2,imag,image,%
2778 imagesc,Inf,info,input,int2str,interp1,interp2,interpft,inv,%
2779 invhilb,isempty,isglobal,ishold,isieee,isinf,isletter,isnan,%
2780 isreal,isspace,issparse,isstr,jet,keyboard,kron,lasterr,lcm,%
2781 legend,legendre,length,lin2mu,line,linspace,load,log,log10,log2,%
2782 loglog,logm,logspace,lookfor,lower,ls,lscov,lu,magic,matClose,%
2783 matDeleteMatrix,matGetDir,matGetFp,matGetFull,matGetMatrix,%
2784 matGetNextMatrix,matGetString,matlabrc,matlabroot,matOpen,%
2785 matPutFull,matPutMatrix,matPutString,max,mean,median,menu,mesh,%
2786 meshc,meshgrid,meshz,mexAtExit,mexCallMATLAB,mexdebug,%
2787 mexErrMsgTxt,mexEvalString,mexFunction,mexGetFull,mexGetMatrix,%
2788 mexGetMatrixPtr,mexPrintf,mexPutFull,mexPutMatrix,mexSetTrapFlag,%
2789 min,more,movie,moviein,mu2lin,mxMalloc,mxCopyCharacterToPtr,%
2790 mxCopyComplex16ToPtr,mxCopyInteger4ToPtr,mxCopyPtrToCharacter,%
2791 mxCopyPtrToComplex16,mxCopyPtrToInteger4,mxCopyPtrToReal8,%
2792 mxCopyReal8ToPtr,mxCreateFull,mxCreateSparse,mxCreateString,%
2793 mxFree,mxFreeMatrix,mxGetIr,mxGetJc,mxGetM,mxGetN,mxGetName,%
2794 mxGetNzmax,mxGetPi,mxGetPr,mxGetScalar,mxGetString,mxIsComplex,%
2795 mxIsFull,mxIsNumeric,mxIsSparse,mxIsString,mxIsTypeDouble,%
2796 mxSetIr,mxSetJc,mxSetM,mxSetN,mxSetName,mxSetNzmax,mxSetPi,%
2797 mxSetPr,NaN,nargchk,nargin,nargout,newplot,nextpow2,nnls,nnz,%
2798 nonzeros,norm,normest,null,num2str,nzmax,ode23,ode45,orient,orth,%
2799 pack,pascal,patch,path,pause,pcolor,pi,pink,pinv,plot,plot3,%
2800 pol2cart,polar,poly,polyder,polyeig,polyfit,polyval,polyvalm,%
2801 pow2,print,printopt,prism,prod,pwd,qr,qrdelete,qrinsert,quad,%
2802 quad8,quit,quiver,qz,rand,randn,randperm,rank,rat,rats,rbbox,%
2803 rcond,real,realmax,realmin,refresh,rem,reset,reshape,residue,%
2804 return,rgb2hsv,rgbplot,rootobject,roots,rose,rosser,rot90,rotate,%
2805 round,rref,rrefmovie,rsf2csf,save,saxis,schur,sec,sech,semilogx,%
2806 semilogy,set,setstr,shading,sign,sin,sinh,size,slice,sort,sound,%
2807 spalloc,sparse,spaugment,spconvert,spdiags,specular,speye,spfun,%
2808 sph2cart,sphere,spinmap,spline,spones,spparms,sprandn,sprandsym,%
2809 sprank,sprintf,spy,sqrt,sqrtm,sscanf,stair,stairs,startup,std,stem,%
2810 str2mat,str2num,strcmp,strings,strrep,strtok,subplot,subscribe,%
2811 subspace,sum,surf,surface,surfc,surfl,surfnorm,svd,symbfact,%
2812 symmmd,symrcm,tan,tanh,tempdir,tempname,terminal,text,tic,title,%
2813 toc,toeplitz,trace,trapz,tril,triu,type,uicontrol,uigetfile,%
2814 uimenu,uiputfile,unix,unwrap,upper,vander,ver,version,view,%
2815 viewmtx,waitforbuttonpress,waterfall,wavread,wavwrite,what,%
2816 whatsnew,which,while,white,whitebg,who,whos,wilkinson,wk1read,%
2817 stderr,stdout,plot,set,endif,wk1write,xlabel,xor,ylabel,zeros,%
2818 xlabel,zoom,endwhile,endfunction,printf,case,switch,otherwise,%
2819 system,lsode,endfor,error,ones,oneplot,__gnuplot_set__,do,until},%
2820 sensitive=t,%
2821 morecomment=[1]\#,%
2822 morecomment=[1]\#\#,%
2823 morecomment=[1]\%,%

```

```

2824     morestring=[m] ',%
2825     morestring=[m] "%
2826   }[keywords,comments,strings]%
2827 </lang1>

```

2.52 Oz

```

2828 <*lang2>

```

Thanks to Andres Becerra Sandoval for providing this language definition.

```

2829 %%
2830 %% Oz definition (c) Andres Becerra Sandoval
2831 %%
2832 \lst@definlanguage{Oz}%
2833   {morekeywords={andthen,at,attr,case,catch,choice,class,%
2834     cond,declare,define,dis,div,else,elsecase,%
2835     elseif,end,export,fail,false,feat,finally,%
2836     from,fun,functor,if,import,in,local,%
2837     lock,meth,mod,not,of,or,orelse,%
2838     prepare,proc,prop,raise,require,self,skip,%
2839     then,thread,true,try,unit},%
2840     sensitive=true,%
2841     morecomment=[l]{\%},%
2842     morecomment=[s]{/*}{*/},%
2843     morestring=[b]",%
2844     morestring=[d]'%
2845   }[keywords,comments,strings]%
2846 </lang2>

```

2.53 Pascal

```

2847 <*lang1>

```

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

```

2848 \lst@definlanguage[XSC]{Pascal}[Standard]{Pascal}
2849   {deletekeywords={alfa,byte,pack,unpack},% 1998 Andreas Stephan
2850     morekeywords={dynamic,external,forward,global,module,nil,operator,%
2851       priority,sum,type,use,dispose,mark,page,release,cimatrix,%
2852       cinterval,civector,cmatrix,complex,cvector,dotprecision,imatrix,%
2853       interval,ivector,rmatrix,rvector,string,im,inf,re,sup,chr,comp,%
2854       eof,eoln,expo,image,ival,lb,lbound,length,loc,mant,maxlength,odd,%
2855       ord,pos,pred,round,rval,sign,substring,succ,trunc,ub,ubound}%
2856   }%
2857 \lst@definlanguage[Borland6]{Pascal}[Standard]{Pascal}
2858   {morekeywords={asm,constructor,destructor,implementation,inline,%
2859     interface,nil,object,shl,shr,string,unit,uses,xor},%
2860     moreendkeywords={Abs,Addr,ArcTan,Chr,Concat,Copy,Cos,CSeg,DiskFree,%
2861       DiskSize,DosExitCode,DosVersion,DSeg,EnvCount,EnvStr,Eof,Eoln,%
2862       Exp,FExpand,FilePos,FileSize,Frac,FSearch,GetBkColor,GetColor,%
2863       GetDefaultPalette,GetDriverName,GetEnv,GetGraphMode,GetMaxMode,%

```



```

2864     GetMaxX,GetMaxY,GetModeName,GetPaletteSize,GetPixel,GetX,GetY,%
2865     GraphErrorMsg,GraphResult,Hi,ImageSize,InstallUserDriver,%
2866     InstallUserFont,Int,IOResult,KeyPressed,Length,Lo,MaxAvail,%
2867     MemAvail,Msdos,Odd,Ofs,Ord,OvrGetBuf,OvrGetRetry,ParamCount,%
2868     ParamStr,Pi,Pos,Pred,Ptr,Random,ReadKey,Round,SeekEof,SeekEoln,%
2869     Seg,SetAspectRatio,Sin,SizeOf,Sound,SPtr,Sqr,Sqrt,SSeg,Succ,%
2870     Swap,TextHeight,TextWidth,Trunc,TypeOf,UpCase,WhereX,WhereY,%
2871     Append,Arc,Assign,AssignCrt,Bar,Bar3D,BlockRead,BlockWrite,ChDir,%
2872     Circle,ClearDevice,ClearViewPort,Close,CloseGraph,ClrEol,ClrScr,%
2873     Dec,Delay,Delete,DellLine,DetectGraph,Dispose,DrawPoly,Ellipse,%
2874     Erase,Exec,Exit,FillChar,FillEllipse,FillPoly,FindFirst,FindNext,%
2875     FloodFill,Flush,FreeMem,FSplit,GetArcCoords,GetAspectRatio,%
2876     GetDate,GetDefaultPalette,GetDir,GetCBreak,GetFAttr,%
2877     GetFillSettings,GetFTime,GetImage,GetIntVec,GetLineSettings,%
2878     GetMem,GetPalette,GetTextSettings,GetTime,GetVerify,%
2879     GetViewSettings,GoToXY,Halt,HighVideo,Inc,InitGraph,Insert,%
2880     InsLine,Intr,Keep,Line,LineRel,LineTo,LowVideo,Mark,MkDir,Move,%
2881     MoveRel,MoveTo,Msdos,New,NormVideo,NoSound,OutText,OutTextXY,%
2882     OvrClearBuf,OvrInit,OvrInitEMS,OvrSetBuf,PackTime,PieSlice,%
2883     PutImage,PutPixel,Randomize,Rectangle,Release,Rename,%
2884     RestoreCrtMode,Rmdir,RunError,Sector,Seek,SetActivePage,%
2885     SetAllPalette,SetBkColor,SetCBreak,SetColor,SetDate,SetFAttr,%
2886     SetFillPattern,SetFillStyle,SetFTime,SetGraphBufSize,%
2887     SetGraphMode,SetIntVec,SetLineStyle,SetPalette,SetRGBPalette,%
2888     SetTextBuf,SetTextJustify,SetTextStyle,SetTime,SetUserCharSize,%
2889     SetVerify,SetViewPort,SetVisualPage,SetWriteMode,Sound,Str,%
2890     SwapVectors,TextBackground,TextColor,TextMode,Truncate,%
2891     UnpackTime,Val,Window}%
2892 }%

2893 \lst@definlanguage[Standard]{Pascal}%
2894 {morekeywords={alfa,and,array,begin,boolean,byte,case,char,const,div,%
2895     do,downto,else,end,false,file,for,function,get,goto,if,in,%
2896     integer,label,maxint,mod,new,not,of,or,pack,packed,page,program,%
2897     put,procedure,read,readln,real,record,repeat,reset,rewrite,set,%
2898     text,then,to,true,type,unpack,until,var,while,with,write,%
2899     writeln},%
2900     sensitive=f,%
2901     morecomment=[s]{(*){(*)}},%
2902     morecomment=[s]{\{\}\{\}},%
2903     morestring=[d]'%
2904 }[keywords,comments,strings]%

2905 </lang1>

```

2.54 Perl

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

```

2906 <*lang1>

2907 \lst@definlanguage{Perl}%

```

```

2908 {morekeywords={abs,accept,alarm,atan2,bind,binmode,bless,caller,%
2909     chdir,chmod,chomp,chop,chown,chr,chroot,close,closedir,connect,%
2910     continue,cos,crypt,dbmclose,dbmopen,defined,delete,die,do,dump,%
2911     each,else,elsif,endgrent,endhostent,endnetent,endprotoent,%
2912     endpwent,endservent,eof,eval,exec,exists,exit,exp,fcntl,fileno,%
2913     flock,for,foreach,fork,format,formline,getc,getgrent,getgrgid,%
2914     getgrnam,gethostbyaddr,gethostbyname,gethostent,getlogin,%
2915     getnetbyaddr,getnetbyname,getnetent,getpeername,getpgrp,%
2916     getppid,getpriority,getprotobyname,getprotobynumber,getprotoent,%
2917     getpwent,getpwnam,getpwuid,getservbyname,getservbyport,%
2918     getservent,getsockname,getsockopt,glob,gmtime,goto,grep,hex,if,%
2919     import,index,int,iocctl,join,keys,kill,last,lc,lcfirst,length,%
2920     link,listen,local,localtime,log,lstat,m,map,mkdir,msgctl,msgget,%
2921     msgrcv,msgsnd,my,next,no,oct,open,opendir,ord,pack,package,pipe,%
2922     pop,pos,print,printf,prototype,push,q,qq,quotemeta,qw,qx,rand,%
2923     read,readdir,readlink,recv,redo,ref,rename,require,reset,return,%
2924     reverse,rewinddir,rindex,rmdir,s,scalar,seek,seekdir,select,%
2925     semctl,semget,semop,send,setgrent,sethostent,setnetent,setpgrp,%
2926     setpriority,setprotoent,setpwent,setservent,setsockopt,shift,%
2927     shmctl,shmget,shmread,shmwrite,shutdown,sin,sleep,socket,%
2928     socketpair,sort,splice,split,sprintf,sqrt,srand,stat,study,sub,%
2929     substr,symlink,syscall,sysopen,sysread,system,syswrite,tell,%
2930     telldir,tie,tied,time,times,tr,truncate,uc,ucfirst,umask,undef,%
2931     unless,unlink,unpack,unshift,untie,until,use,utime,values,vec,%
2932     wait,waitpid,wantarray,warn,while,write,y},%
2933     sensitive,%
2934     morecomment=[l]\#,%
2935     morestring=[b]",%
2936     morestring=[b]',%
2937     MoreSelectCharTable=%
2938     \lst@ReplaceInput{\$#\%}{\lst@ProcessOther\$ \lst@ProcessOther\#}%
2939 }[keywords,comments,strings]%
2940 </lang1>

```

2.55 PHP

Luca Balzerani sent me this language definition.

```

2941 <*lang2>
2942 %%
2943 %% PHP definition by Luca Balzerani
2944 %%
2945 \lst@definelanguage{PHP}%
2946 {morekeywords={%
2947     %--- core language
2948     <?,?>,:,:,break,case,continue,default,do,else,%
2949     elseif,for,foreach,if,include,require,phpinfo,%
2950     switch,while,false,FALSE,true,TRUE,%
2951     %--- apache functions

```

```

2952     apache_lookup_uri,apache_note,ascii2ebcdic,ebcdic2ascii,%
2953     virtual,apache_child_terminate,apache_setenv,%
2954 %--- array functions
2955     array,array_change_key_case,array_chunk,array_count_values,%
2956     array_filter,array_flip,array_fill,array_intersect,%
2957     array_keys,array_map,array_merge,array_merge_recursive,%
2958     array_pad,array_pop,array_push,array_rand,array_reverse,%
2959     array_shift,array_slice,array_splice,array_sum,array_unique,%
2960     array_values,array_walk,arsort,asort,compact,count,current,each,%
2961     extract,in_array,array_search,key,ksort,ksort,list,natsort,%
2962     next,pos,prev,range,reset,rsort,shuffle,sizeof,sort,uasort,%
2963     usort,%
2964 %--- aspell functions
2965     aspell_new,aspell_check,aspell_check_raw,aspell_suggest,%
2966 %--- bc functions
2967     bcadd,bccomp,bcddiv,bcmmod,bcmul,bcpow,bcscale,bcsqrt,bcsub,%
2968 %--- bzip2 functions
2969     bzclose,bzcompress,bzdecompress,bzerrno,bzerror,bzerrstr,%
2970     bzopen,bzread,bzwrite,%
2971 %--- calendar functions
2972     JDToGregorian,GregorianToJD,JDToJulian,JulianToJD,JDToJewish,%
2973     JDToFrench,FrenchToJD,JDMonthName,JDDayOfWeek,easter_date,%
2974     unixtojd,jdtounix,cal_days_in_month,cal_to_jd,cal_from_jd,%
2975 %--- ccvs functions
2976     ccvs_init,ccvs_done,ccvs_new,ccvs_add,ccvs_delete,ccvs_auth,%
2977     ccvs_reverse,ccvs_sale,ccvs_void,ccvs_status,ccvs_count,%
2978     ccvs_report,ccvs_command,ccvs_textvalue,%
2979 %--- classobj functions
2980     call_user_method,call_user_method_array,class_exists,get_class,%
2981     get_class_vars,get_declared_classes,get_object_vars,%
2982     is_a,is_subclass_of,method_exists,%
2983 %--- com functions
2984     COM,VARIANT,com_load,com_invoke,com_propget,com_get,com_propput,%
2985     com_set,com_addrf,com_release,com_isenum,com_load_typelib,%
2986 %--- cpdf functions
2987     cpdf_add_annotation,cpdf_add_outline,cpdf_arc,cpdf_begin_text,%
2988     cpdf_clip,cpdf_close,cpdf_closepath,cpdf_closepath_fill_stroke,%
2989     cpdf_continue_text,cpdf_curveto,cpdf_end_text,cpdf_fill,%
2990     cpdf_finalize,cpdf_finalize_page,%
2991     cpdf_import_jpeg,cpdf_lineto,cpdf_moveto,cpdf_newpath,cpdf_open,%
2992     cpdf_page_init,cpdf_place_inline_image,cpdf_rect,cpdf_restore,%
2993     cpdf_rmoveto,cpdf_rotate,cpdf_rotate_text,cpdf_save,%
2994     cpdf_scale,cpdf_set_char_spacing,cpdf_set_creator,%
2995     cpdf_set_font,cpdf_set_horiz_scaling,cpdf_set_keywords,%
2996     cpdf_set_page_animation,cpdf_set_subject,cpdf_set_text_matrix,%
2997     cpdf_set_text_rendering,cpdf_set_text_rise,cpdf_set_title,%
2998     cpdf_setdash,cpdf_setflat,cpdf_setgray,cpdf_setgray_fill,%
2999     cpdf_setlinecap,cpdf_setlinejoin,cpdf_setlinewidth,%
3000     cpdf_setrgbcolor,cpdf_setrgbcolor_fill,cpdf_setrgbcolor_stroke,%
3001     cpdf_show_xy,cpdf_stringwidth,cpdf_set_font_directories,%

```

```

3002     cpdf_set_viewer_preferences, cpdf_stroke, cpdf_text, %
3003     cpdf_set_action_url, %
3004 %--- crack functions
3005     crack_opendict, crack_closedict, crack_check, crack_getlastmessage, %
3006 %--- ctype functions
3007     ctype_alnum, ctype_alpha, ctype_cntrl, ctype_digit, ctype_lower, %
3008     ctype_print, ctype_punct, ctype_space, ctype_upper, ctype_xdigit, %
3009 %--- curl functions
3010     curl_init, curl_setopt, curl_exec, curl_close, curl_version, %
3011     curl_error, curl_getinfo, %
3012 %--- cybercash functions
3013     cybercash_encr, cybercash_decr, cybercash_base64_encode, %
3014 %--- cybermut functions
3015     cybermut_creerformulairecm, cybermut_testmac, %
3016 %--- cyrus functions
3017     cyrus_connect, cyrus_authenticate, cyrus_bind, cyrus_unbind, %
3018     cyrus_close, %
3019 %--- datetime functions
3020     checkdate, date, getdate, gettimeofday, gmdate, gmmktime, gmstrftime, %
3021     microtime, mktime, strftime, time, strtotime, %
3022 %--- dbase functions
3023     dbase_create, dbase_open, dbase_close, dbase_pack, dbase_add_record, %
3024     dbase_delete_record, dbase_get_record, %
3025     dbase_numfields, dbase_numrecords, %
3026 %--- dba functions
3027     dba_close, dba_delete, dba_exists, dba_fetch, dba_firstkey, %
3028     dba_nextkey, dba_popen, dba_open, dba_optimize, dba_replace, %
3029 %--- dbm functions
3030     dbmopen, dbmclose, dbmexists, dbmfetch, dbminsert, dbmreplace, %
3031     dbmfirstkey, dbmnextkey, dblist, %
3032 %--- dbx functions
3033     dbx_close, dbx_connect, dbx_error, dbx_query, dbx_sort, dbx_compare, %
3034 %--- dio functions
3035     dio_open, dio_read, dio_write, dio_truncate, dio_stat, dio_seek, %
3036     dio_close, %
3037 %--- dir functions
3038     chroot, chdir, dir, closedir, getcwd, opendir, readdir, rewinddir, %
3039 %--- dotnet functions
3040     dotnet_load, %
3041 %--- errorfunc functions
3042     error_log, error_reporting, restore_error_handler, %
3043     trigger_error, user_error, %
3044 %--- exec functions
3045     escapeshellarg, escapeshellcmd, exec, passthru, system, shell_exec, %
3046 %--- fbsql functions
3047     fbsql_affected_rows, fbsql_autocommit, fbsql_change_user, %
3048     fbsql_commit, fbsql_connect, fbsql_create_db, fbsql_create_blob, %
3049     fbsql_database_password, fbsql_data_seek, fbsql_db_query, %
3050     fbsql_drop_db, fbsql_errno, fbsql_error, fbsql_fetch_array, %
3051     fbsql_fetch_field, fbsql_fetch_lengths, fbsql_fetch_object, %

```

```

3052     fbsql_field_flags,fbsql_field_name,fbsql_field_len,%
3053     fbsql_field_table,fbsql_field_type,fbsql_free_result,%
3054     fbsql_list_dbs,fbsql_list_fields,fbsql_list_tables,%
3055     fbsql_num_fields,fbsql_num_rows,fbsql_pconnect,fbsql_query,%
3056     fbsql_read_clob,fbsql_result,fbsql_rollback,fbsql_set_lob_mode,%
3057     fbsql_start_db,fbsql_stop_db,fbsql_tablename,fbsql_warnings,%
3058     fbsql_get_autostart_info,fbsql_hostname,fbsql_password,%
3059     fbsql_username,%
3060 %--- fdf functions
3061     fdf_open,fdf_close,fdf_create,fdf_save,fdf_get_value,%
3062     fdf_next_field_name,fdf_set_ap,fdf_set_status,fdf_get_status,%
3063     fdf_get_file,fdf_set_flags,fdf_set_opt,%
3064     fdf_set_javascript_action,fdf_set_encoding,fdf_add_template,%
3065 %--- filepro functions
3066     filepro,filepro_fieldname,filepro_fieldtype,filepro_fieldwidth,%
3067     filepro_fieldcount,filepro_rowcount,%
3068 %--- filesystem functions
3069     basename,chgrp,chmod,chown,clearstatcache,copy,delete,dirname,%
3070     diskfreespace,disk_total_space,fclose,feof,fflush,fgetc,fgetcsv,%
3071     fgetss,file_get_contents,file,file_exists,fileatime,filectime,%
3072     fileinode,filemtime,fileowner,fileperms,filesize,filetype,flock,%
3073     fopen,fpassthru,fputs,fread,fscanf,fseek,fstat,ftell,ftruncate,%
3074     set_file_buffer,is_dir,is_executable,is_file,is_link,%
3075     is_writable,is_writeable,is_uploaded_file,link,linkinfo,mkdir,%
3076     parse_ini_file,pathinfo,pclose,popen,readfile,readlink,rename,%
3077     rmdir,stat,lstat,realpath,symlink,tempnam,tmpfile,touch,umask,%
3078 %--- fribidi functions
3079     fribidi_log2vis,%
3080 %--- ftp functions
3081     ftp_connect,ftp_login,ftp_pwd,ftp_cdup,ftp_chdir,ftp_mkdir,%
3082     ftp_nlist,ftp_rawlist,ftp_systype,ftp_pasv,ftp_get,ftp_fget,%
3083     ftp_fput,ftp_size,ftp_mdtm,ftp_rename,ftp_delete,ftp_site,%
3084     ftp_quit,ftp_exec,ftp_set_option,ftp_get_option,%
3085 %--- funchand functions
3086     call_user_func_array,call_user_func,create_function,%
3087     func_get_args,func_num_args,function_exists,%
3088     register_shutdown_function,register_tick_function,%
3089 %--- gettext functions
3090     bindtextdomain,bind_textdomain_codeset,dcgettext,dcngettext,%
3091     dngettext,gettext,ngettext,textdomain,%
3092 %--- gmp functions
3093     gmp_init,gmp_intval,gmp_strval,gmp_add,gmp_sub,gmp_mul,%
3094     gmp_div_r,gmp_div_qr,gmp_div,gmp_mod,gmp_divexact,gmp_cmp,%
3095     gmp_com,gmp_abs,gmp_sign,gmp_fact,gmp_sqrt,gmp_sqrtrem,%
3096     gmp_pow,gmp_powm,gmp_prob_prime,gmp_gcd,gmp_gcdext,gmp_invert,%
3097     gmp_jacobi,gmp_random,gmp_and,gmp_or,gmp_xor,gmp_setbit,%
3098     gmp_scan0,gmp_scan1,gmp_popcount,gmp_hamdist,%
3099 %--- http functions
3100     header,headers_sent,setcookie,%
3101 %--- hw functions

```

```

3102     hw_Array2Objrec,hw_Children,hw_ChildrenObj,hw_Close,hw_Connect,%
3103     hw_Deleteobject,hw_DocByAnchor,hw_DocByAnchorObj,%
3104     hw_Document_BodyTag,hw_Document_Content,hw_Document_SetContent,%
3105     hw_ErrorMsg,hw_EditText,hw_Error,hw_Free_Document,hw_GetParents,%
3106     hw_GetChildColl,hw_GetChildCollObj,hw_GetRemote,%
3107     hw_GetSrcByDestObj,hw_GetObject,hw_GetAndLock,hw_GetText,%
3108     hw_GetObjectByQueryObj,hw_GetObjectByQueryColl,%
3109     hw_GetChildDocColl,hw_GetChildDocCollObj,hw_GetAnchors,%
3110     hw_Mv,hw_Identify,hw_InCollections,hw_Info,hw_InsColl,hw_InsDoc,%
3111     hw_InsertObject,hw_mapid,hw_Modifyobject,hw_New_Document,%
3112     hw_Output_Document,hw_pConnect,hw_PipeDocument,hw_Root,%
3113     hw_Who,hw_getusername,hw_stat,hw_setlinkroot,hw_connection_info,%
3114     hw_insertanchors,hw_getrellink,hw_changeobject,%
3115     %--- ibase functions
3116         ibase_connect,ibase_pconnect,ibase_close,ibase_query,%
3117         ibase_fetch_row,ibase_fetch_object,ibase_field_info,%
3118         ibase_free_result,ibase_prepare,ibase_execute,ibase_trans,%
3119         ibase_rollback,ibase_timefmt,ibase_num_fields,ibase_blob_add,%
3120         ibase_blob_close,ibase_blob_create,ibase_blob_echo,%
3121         ibase_blob_import,ibase_blob_info,ibase_blob_open,%
3122     %--- icap functions
3123         icap_open,icap_close,icap_fetch_event,icap_list_events,%
3124         icap_delete_event,icap_snooze,icap_list_alarms,%
3125         icap_rename_calendar,icap_delete_calendar,icap_reopen,%
3126     %--- iconv functions
3127         iconv,iconv_get_encoding,iconv_set_encoding,ob_iconv_handler,%
3128     %--- ifx functions
3129         ifx_connect,ifx_pconnect,ifx_close,ifx_query,ifx_prepare,ifx_do,%
3130         ifx_errormsg,ifx_affected_rows,ifx_getsqlca,ifx_fetch_row,%
3131         ifx_fieldtypes,ifx_fieldproperties,ifx_num_fields,ifx_num_rows,%
3132         ifx_create_char,ifx_free_char,ifx_update_char,ifx_get_char,%
3133         ifx_copy_blob,ifx_free_blob,ifx_get_blob,ifx_update_blob,%
3134         ifx_textasvarchar,ifx_byteasvarchar,ifx_nullformat,%
3135         ifxus_free_slob,ifxus_close_slob,ifxus_open_slob,%
3136         ifxus_seek_slob,ifxus_read_slob,ifxus_write_slob,%
3137     %--- iisfunc functions
3138         iis_get_server_by_path,iis_get_server_by_comment,iis_add_server,%
3139         iis_set_dir_security,iis_get_dir_security,iis_set_server_rights,%
3140         iis_set_script_map,iis_get_script_map,iis_set_app_settings,%
3141         iis_stop_server,iis_stop_service,iis_start_service,%
3142     %--- image functions
3143         exif_imagetype,exif_read_data,exif_thumbnail,getimagesize,%
3144         imagealphablending,imagearc,imagefilledarc,imageellipse,%
3145         imagechar,imagecharup,imagecolorallocate,imagecolordeallocate,%
3146         imagecolorclosest,imagecolorclosestalpha,imagecolorclosestthwb,%
3147         imagecolorexactalpha,imagecolorresolve,imagecolorresolvealpha,%
3148         imagecolorset,imagecolorsforindex,imagecolorstotal,%
3149         imagecopy,imagecopymerge,imagecopymergegray,imagecopyresized,%
3150         imagecreate,imagecreatetruecolor,imagetruecolorpalette,%
3151         imagecreatefromgd2,imagecreatefromgd2part,imagecreatefromgif,%

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3152     imagecreatefrompng,imagecreatefromwbmp,imagecreatefromstring,%
3153     imagecreatefromxpm,imagedashedline,imagedestroy,imagefill,%
3154     imagefilledrectangle,imagefilltoborder,imagefontheight,%
3155     imagegd,imagegd2,imagegif,imagepng,imagejpeg,imagewbmp,%
3156     imageline,imageloadfont,imagepalettecopy,imagepolygon,%
3157     imagepsencodefont,imagepsfreefont,imagepsloadfont,%
3158     imagepslancfont,imagepstext,imagerectangle,imagesetpixel,%
3159     imagesetstyle,imagesettile,imagesetthickness,imagestring,%
3160     imagesx,imagesy,imageftbbox,imageftbbox,imagefttext,%
3161     imagetypes,jpeg2wbmp,png2wbmp,iptcembed,read_exif_data,%
3162 %--- imap functions
3163     imap_8bit,imap_alerts,imap_append,imap_base64,imap_binary,%
3164     imap_bodystruct,imap_check,imap_clearflag_full,imap_close,%
3165     imap_delete,imap_deletemailbox,imap_errors,imap_expunge,%
3166     imap_fetchbody,imap_fetchheader,imap_fetchstructure,%
3167     imap_getmailboxes,imap_getsubscribed,imap_header,%
3168     imap_headers,imap_last_error,imap_listmailbox,%
3169     imap_mail,imap_mail_compose,imap_mail_copy,imap_mail_move,%
3170     imap_mime_header_decode,imap_msgno,imap_num_msg,imap_num_recent,%
3171     imap_ping,imap_popen,imap_qprint,imap_renamemailbox,imap_reopen,%
3172     imap_rfc822_parse_headers,imap_rfc822_write_address,%
3173     imap_search,imap_setacl,imap_set_quota,imap_setflag_full,%
3174     imap_status,imap_subscribe,imap_uid,imap_undelete,%
3175     imap_utf7_decode,imap_utf7_encode,imap_utf8,imap_thread,%
3176 %--- info functions
3177     assert,assert_options,extension_loaded,dl,getenv,get_cfg_var,%
3178     get_defined_constants,get_extension_funcs,getmygid,%
3179     get_loaded_extensions,get_magic_quotes_gpc,%
3180     getlastmod,getmyinode,getmypid,getmyuid,get_required_files,%
3181     ini_alter,ini_get,ini_get_all,ini_restore,ini_set,phpcredits,%
3182     phpversion,php_logo_guid,php_sapi_name,php_uname,putenv,%
3183     set_time_limit,version_compare,zend_logo_guid,zend_version,%
3184 %--- ircg functions
3185     ircg_pconnect,ircg_fetch_error_msg,ircg_set_current,ircg_join,%
3186     ircg_msg,ircg_notice,ircg_nick,ircg_topic,ircg_channel_mode,%
3187     ircg_whois,ircg_kick,ircg_ignore_add,ircg_ignore_del,%
3188     ircg_is_conn_alive,ircg_lookup_format_messages,%
3189     ircg_set_on_die,ircg_set_file,ircg_get_username,%
3190     ircg_nickname_unescape,%
3191 %--- java functions
3192     java_last_exception_clear,java_last_exception_get,%
3193 %--- ldap functions
3194     ldap_add,ldap_bind,ldap_close,ldap_compare,ldap_connect,%
3195     ldap_delete,ldap_dn2ufn,ldap_err2str,ldap_errno,ldap_error,%
3196     ldap_first_attribute,ldap_first_entry,ldap_free_result,%
3197     ldap_get_dn,ldap_get_entries,ldap_get_option,ldap_get_values,%
3198     ldap_list,ldap_modify,ldap_mod_add,ldap_mod_del,%
3199     ldap_next_attribute,ldap_next_entry,ldap_read,ldap_rename,%
3200     ldap_set_option,ldap_unbind,ldap_8859_to_t61,%
3201     ldap_next_reference,ldap_parse_reference,ldap_parse_result,%

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3202     ldap_sort,ldap_start_tls,ldap_t61_to_8859,%
3203 %--- mail functions
3204     mail,ezmlm_hash,%
3205 %--- math functions
3206     abs,acos,acosh,asin,asinh,atan,atanh,atan2,base_convert,bincdec,%
3207     cos,cosh,decbin,dechex,decoct,deg2rad,exp,expm1,floor,%
3208     hexdec,hypot,is_finite,is_infinite,is_nan,lcg_value,log,log10,%
3209     max,min,mt_rand,mt_srand,mt_getrandmax,number_format,octdec,pi,%
3210     rad2deg,rand,round,sin,sinh,sqrt,srand,tan,tanh,%
3211 %--- mbstring functions
3212     mb_language,mb_parse_str,mb_internal_encoding,mb_http_input,%
3213     mb_detect_order,mb_substitute_character,mb_output_handler,%
3214     mb_strlen,mb_strpos,mb_strrpos,mb_substr,mb_strcut,mb_strwidth,%
3215     mb_convert_encoding,mb_detect_encoding,mb_convert_kana,%
3216     mb_decode_mimeheader,mb_convert_variables,%
3217     mb_decode_numericentity,mb_send_mail,mb_get_info,%
3218     mb_ereg,mb_eregi,mb_ereg_replace,mb_eregi_replace,mb_split,%
3219     mb_ereg_search,mb_ereg_search_pos,mb_ereg_search_regs,%
3220     mb_ereg_search_getregs,mb_ereg_search_getpos,%
3221 %--- mcal functions
3222     mcal_open,mcal_popen,mcal_reopen,mcal_close,%
3223     mcal_rename_calendar,mcal_delete_calendar,mcal_fetch_event,%
3224     mcal_append_event,mcal_store_event,mcal_delete_event,%
3225     mcal_list_alarms,mcal_event_init,mcal_event_set_category,%
3226     mcal_event_set_description,mcal_event_set_start,%
3227     mcal_event_set_alarm,mcal_event_set_class,mcal_is_leap_year,%
3228     mcal_date_valid,mcal_time_valid,mcal_day_of_week,%
3229     mcal_date_compare,mcal_next_recurrence,%
3230     mcal_event_set_recur_daily,mcal_event_set_recur_weekly,%
3231     mcal_event_set_recur_monthly_wday,mcal_event_set_recur_yearly,%
3232     mcal_event_add_attribute,mcal_expunge,mcal_week_of_year,%
3233 %--- mcrypt functions
3234     mcrypt_get_cipher_name,mcrypt_get_block_size,%
3235     mcrypt_create_iv,mcrypt_cbc,mcrypt_cfb,mcrypt_ecb,mcrypt_ofb,%
3236     mcrypt_list_modes,mcrypt_get_iv_size,mcrypt_encrypt,%
3237     mcrypt_module_open,mcrypt_module_close,mcrypt_generic_deinit,%
3238     mcrypt_generic,mdecrypt_generic,mcrypt_generic_end,%
3239     mcrypt_enc_is_block_algorithm_mode,%
3240     mcrypt_enc_is_block_mode,mcrypt_enc_get_block_size,%
3241     mcrypt_enc_get_supported_key_sizes,mcrypt_enc_get_iv_size,%
3242     mcrypt_enc_get_modes_name,mcrypt_module_self_test,%
3243     mcrypt_module_is_block_algorithm,mcrypt_module_is_block_mode,%
3244     mcrypt_module_get_algo_key_size,%
3245 %--- mhash functions
3246     mhash_get_hash_name,mhash_get_block_size,mhash_count,mhash,%
3247 %--- misc functions
3248     connection_aborted,connection_status,connection_timeout,%
3249     define,defined,die,eval,exit,get_browser,highlight_file,%
3250     ignore_user_abort,iptcp_parse,leak,pack,show_source,sleep,uniqid,%
3251     usleep,%

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3252 %--- mnogosearch functions
3253     udm_add_search_limit,udm_alloc_agent,udm_api_version,%
3254     udm_cat_list,udm_clear_search_limits,udm_errno,udm_error,%
3255     udm_free_agent,udm_free_ispell_data,udm_free_res,%
3256     udm_get_res_field,udm_get_res_param,udm_load_ispell_data,%
3257     udm_check_charset,udm_check_stored,udm_close_stored,udm_crc32,%
3258 %--- msession functions
3259     msession_connect,msession_disconnect,msession_count,%
3260     msession_destroy,msession_lock,msession_unlock,msession_set,%
3261     msession_uniq,msession_randstr,msession_find,msession_list,%
3262     msession_set_array,msession_listvar,msession_timeout,%
3263     msession_getdata,msession_setdata,msession_plugin,%
3264 %--- msqldb functions
3265     msqldb,msqldb_affected_rows,msqldb_close,msqldb_connect,msqldb_create_db,%
3266     msqldb_data_seek,msqldb_dbname,msqldb_drop_db,msqldb_dropdb,msqldb_error,%
3267     msqldb_fetch_field,msqldb_fetch_object,msqldb_fetch_row,%
3268     msqldb_field_seek,msqldb_fieldtable,msqldb_fieldtype,msqldb_fieldflags,%
3269     msqldb_free_result,msqldb_freeresult,msqldb_list_fields,%
3270     msqldb_list_dbs,msqldb_listdbs,msqldb_list_tables,msqldb_listtables,%
3271     msqldb_num_rows,msqldb_numfields,msqldb_numrows,msqldb_pconnect,%
3272     msqldb_regrcase,msqldb_result,msqldb_select_db,msqldb_selectdb,%
3273 %--- mssql functions
3274     mssql_close,mssql_connect,mssql_data_seek,mssql_fetch_array,%
3275     mssql_fetch_object,mssql_fetch_row,mssql_field_length,%
3276     mssql_field_seek,mssql_field_type,mssql_free_result,%
3277     mssql_min_error_severity,mssql_min_message_severity,%
3278     mssql_num_fields,mssql_num_rows,mssql_pconnect,mssql_query,%
3279     mssql_select_db,mssql_bind,mssql_execute,mssql_fetch_assoc,%
3280     mssql_guid_string,mssql_init,mssql_rows_affected,%
3281 %--- muscat functions
3282     muscat_setup,muscat_setup_net,muscat_give,muscat_get,%
3283 %--- mysql functions
3284     mysql_affected_rows,mysql_change_user,mysql_character_set_name,%
3285     mysql_connect,mysql_create_db,mysql_data_seek,mysql_db_name,%
3286     mysql_drop_db,mysql_errno,mysql_error,mysql_escape_string,%
3287     mysql_fetch_assoc,mysql_fetch_field,mysql_fetch_lengths,%
3288     mysql_fetch_row,mysql_field_flags,mysql_field_name,%
3289     mysql_field_seek,mysql_field_table,mysql_field_type,%
3290     mysql_info,mysql_insert_id,mysql_list_dbs,mysql_list_fields,%
3291     mysql_list_tables,mysql_num_fields,mysql_num_rows,%
3292     mysql_ping,mysql_query,mysql_unbuffered_query,%
3293     mysql_result,mysql_select_db,mysql_tablename,mysql_thread_id,%
3294     mysql_get_host_info,mysql_get_proto_info,mysql_get_server_info,%
3295 %--- network functions
3296     checkdnsrr,closelog,debugger_off,debugger_on,%
3297     fsockopen,gethostbyaddr,gethostbyname,gethostbyname1,getmxrr,%
3298     getprotobyname,getservbyname,getservbyport,ip2long,long2ip,%
3299     pfsockopen,socket_get_status,socket_set_blocking,%
3300     syslog,%
3301 %--- nis functions

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3302     yp_get_default_domain,yp_order,yp_master,yp_match,yp_first,%
3303     yp_errno,yp_err_string,yp_all,yp_cat,%
3304 %--- oci8 functions
3305     OCIDefineByName,OCIBindByName,OCILogon,OCIPLogon,OCINLogon,%
3306     OCIExecute,OCICommit,OCIRollback,OCINewDescriptor,OCIRowCount,%
3307     OCIResult,OCIFetch,OCIFetchInto,OCIFetchStatement,%
3308     OCIColumnName,OCIColumnSize,OCIColumnType,OCIServerVersion,%
3309     OCINewCursor,OCIFreeStatement,OCIFreeCursor,OCIFreeDesc,%
3310     OCIError,OCIInternalDebug,OCICancel,OCISetPrefetch,%
3311     OCISaveLobFile,OCISaveLob,OCILoadLob,OCIColumnScale,%
3312     OCIColumnTypeRaw,OCINewCollection,OCIFreeCollection,%
3313     OCICollAppend,OCICollAssignElem,OCICollGetElem,OCICollMax,%
3314     OCICollTrim,%
3315 %--- oracle functions
3316     Ora_Bind,Ora_Close,Ora_ColumnName,Ora_ColumnSize,Ora_ColumnType,%
3317     Ora_CommitOff,Ora_CommitOn,Ora_Do,Ora_Error,Ora_ErrorCode,%
3318     Ora_Fetch,Ora_Fetch_Into,Ora_GetColumn,Ora_Logoff,Ora_Logon,%
3319     Ora_Numcols,Ora_Numrows,Ora_Open,Ora_Parse,Ora_Rollback,%
3320 %--- outcontrol functions
3321     flush,ob_start,ob_get_contents,ob_get_length,ob_get_level,%
3322     ob_flush,ob_clean,ob_end_flush,ob_end_clean,ob_implicit_flush,%
3323 %--- ovrimos functions
3324     ovrimos_connect,ovrimos_close,ovrimos_longreadlen,%
3325     ovrimos_execute,ovrimos_cursor,ovrimos_exec,ovrimos_fetch_into,%
3326     ovrimos_result,ovrimos_result_all,ovrimos_num_rows,%
3327     ovrimos_field_name,ovrimos_field_type,ovrimos_field_len,%
3328     ovrimos_free_result,ovrimos_commit,ovrimos_rollback,%
3329 %--- pcntl functions
3330     pcntl_fork,pcntl_signal,pcntl_waitpid,pcntl_wexitstatus,%
3331     pcntl_wifsignaled,pcntl_wifstopped,pcntl_wstopsig,%
3332     pcntl_exec,%
3333 %--- pcre functions
3334     preg_match,preg_match_all,preg_replace,preg_replace_callback,%
3335     preg_quote,preg_grep,Pattern Modifiers,Pattern Syntax,%
3336 %--- pdf functions
3337     pdf_add_annotation,pdf_add_bookmark,pdf_add_launchlink,%
3338     pdf_add_note,pdf_add_outline,pdf_add_pdflink,pdf_add_thumbnail,%
3339     pdf_arc,pdf_arcn,pdf_attach_file,pdf_begin_page,%
3340     pdf_begin_template,pdf_circle,pdf_clip,pdf_close,pdf_closepath,%
3341     pdf_closepath_stroke,pdf_close_image,pdf_close_pdi,%
3342     pdf_concat,pdf_continue_text,pdf_curveto,pdf_delete,%
3343     pdf_endpath,pdf_end_pattern,pdf_end_template,pdf_fill,%
3344     pdf_findfont,pdf_get_buffer,pdf_get_font,pdf_get_fontname,%
3345     pdf_get_image_height,pdf_get_image_width,pdf_get_parameter,%
3346     pdf_get_pdi_value,pdf_get_majorversion,pdf_get_minorversion,%
3347     pdf_initgraphics,pdf_lineto,pdf_makespotcolor,pdf_moveto,%
3348     pdf_open,pdf_open_CCITT,pdf_open_file,pdf_open_gif,%
3349     pdf_open_image_file,pdf_open_jpeg,pdf_open_memory_image,%
3350     pdf_open_pdi_page,pdf_open_png,pdf_open_tiff,pdf_place_image,%
3351     pdf_rect,pdf_restore,pdf_rotate,pdf_save,pdf_scale,pdf_setcolor,%

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3352 pdf_setflat,pdf_setfont,pdf_setgray,pdf_setgray_fill,%
3353 pdf_setlinecap,pdf_setlinejoin,pdf_setlinewidth,pdf_setmatrix,%
3354 pdf_setpolydash,pdf_setrgbcolor,pdf_setrgbcolor_fill,%
3355 pdf_set_border_color,pdf_set_border_dash,pdf_set_border_style,%
3356 pdf_set_duration,pdf_set_font,pdf_set_horiz_scaling,%
3357 pdf_set_info_author,pdf_set_info_creator,pdf_set_info_keywords,%
3358 pdf_set_info_title,pdf_set_leading,pdf_set_parameter,%
3359 pdf_set_text_rendering,pdf_set_text_rise,pdf_set_text_matrix,%
3360 pdf_set_word_spacing,pdf_show,pdf_show_boxed,pdf_show_xy,%
3361 pdf_stringwidth,pdf_stroke,pdf_translate,%
3362 %--- pfp functions
3363 pfp_init,pfp_cleanup,pfp_process,pfp_process_raw,%
3364 %--- pgsql functions
3365 pg_close,pg_affected_rows,pg_connect,pg_dbname,pg_end_copy,%
3366 pg_query,pg_fetch_array,pg_fetch_object,pg_fetch_row,%
3367 pg_field_name,pg_field_num,pg_field_prtlen,pg_field_size,%
3368 pg_free_result,pg_last_oid,pg_host,pg_last_notice,pg_lo_close,%
3369 pg_lo_export,pg_lo_import,pg_lo_open,pg_lo_read,pg_lo_seek,%
3370 pg_lo_read_all,pg_lo_unlink,pg_lo_write,pg_num_fields,%
3371 pg_options,pg_pconnect,pg_port,pg_put_line,pg_fetch_result,%
3372 pg_client_encoding,pg_trace,pg_tty,pg_untrace,pg_get_result,%
3373 pg_send_query,pg_cancel_query,pg_connection_busy,%
3374 pg_connection_status,pg_copy_from,pg_copy_to,pg_escape_bytea,%
3375 pg_result_error,%
3376 %--- posix functions
3377 posix_kill,posix_getpid,posix_getppid,posix_getuid,%
3378 posix_getgid,posix_getegid,posix_setuid,posix_seteuid,%
3379 posix_setegid,posix_getgroups,posix_getlogin,posix_getpgrp,%
3380 posix_setpgid,posix_getpgid,posix_getsid,posix_uname,%
3381 posix_ctermid,posix_ttyname,posix_isatty,posix_getcwd,%
3382 posix_getgrnam,posix_getgrgid,posix_getpwnam,posix_getpwuid,%
3383 %--- printer functions
3384 printer_open,printer_abort,printer_close,printer_write,%
3385 printer_set_option,printer_get_option,printer_create_dc,%
3386 printer_start_doc,printer_end_doc,printer_start_page,%
3387 printer_create_pen,printer_delete_pen,printer_select_pen,%
3388 printer_delete_brush,printer_select_brush,printer_create_font,%
3389 printer_select_font,printer_logical_fontheight,%
3390 printer_draw_rectangle,printer_draw_ellipse,printer_draw_text,%
3391 printer_draw_chord,printer_draw_pie,printer_draw_bmp,%
3392 %--- pspell functions
3393 pspell_add_to_personal,pspell_add_to_session,pspell_check,%
3394 pspell_config_create,pspell_config_ignore,pspell_config_mode,%
3395 pspell_config_repl,pspell_config_runtogether,%
3396 pspell_new,pspell_new_config,pspell_new_personal,%
3397 pspell_store_replacement,pspell_suggest,%
3398 %--- qtdom functions
3399 qdom_tree,qdom_error,%
3400 %--- readline functions
3401 readline,readline_add_history,readline_clear_history,%

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3402     readline_info,readline_list_history,readline_read_history,%
3403 %--- recode functions
3404     recode_string,recode,recode_file,%
3405 %--- regex functions
3406     ereg,ereg_replace,eregi,eregi_replace,split,spliti,sql_regcase,%
3407 %--- sem functions
3408     sem_get,sem_acquire,sem_release,sem_remove,shm_attach,%
3409     shm_remove,shm_put_var,shm_get_var,shm_remove_var,ftok,%
3410 %--- sesam functions
3411     sesam_connect,sesam_disconnect,sesam_settransaction,%
3412     sesam_rollback,sesam_execimm,sesam_query,sesam_num_fields,%
3413     sesam_diagnostic,sesam_fetch_result,sesam_affected_rows,%
3414     sesam_field_array,sesam_fetch_row,sesam_fetch_array,%
3415     sesam_free_result,%
3416 %--- session functions
3417     session_start,session_destroy,session_name,session_module_name,%
3418     session_id,session_register,session_unregister,session_unset,%
3419     session_get_cookie_params,session_set_cookie_params,%
3420     session_encode,session_set_save_handler,session_cache_limiter,%
3421     session_write_close,%
3422 %--- shmop functions
3423     shmop_open,shmop_read,shmop_write,shmop_size,shmop_delete,%
3424 %--- snmp functions
3425     snmpget,snmpset,snmpwalk,snmpwalkoid,snmp_get_quick_print,%
3426     snmprealwalk,%
3427 %--- strings functions
3428     addcslashes,addslashes,bin2hex,chop,chr,chunk_split,%
3429     count_chars,crc32,crypt,echo,explode,get_html_translation_table,%
3430     hebrew,hebrewc,htmlentities,htmlspecialchars,implode,join,%
3431     localeconv,ltrim,md5,md5_file,metaphone,nl_langinfo,nl2br,ord,%
3432     print,printf,quoted_printable_decode,quotemeta,str_rot13,rtrim,%
3433     setlocale,similar_text,soundex,sprintf,strcasecmp,strcmp,%
3434     strcmp,strcmp,strcmp,strip_tags,stripclashes,stripslashes,%
3435     strlen,strnatcmp,strnatcasecmp,strncmp,str_pad,strpos,strrchr,%
3436     strrev,strrpos,stripc,strstr,strtok,strtolower,strtoupper,%
3437     strstr,substr,substr_count,substr_replace,trim,ucfirst,ucwords,%
3438     vsprintf,wordwrap,%
3439 %--- swf functions
3440     swf_openfile,swf_closefile,swf_labelframe,swf_showframe,%
3441     swf_getframe,swf_mulcolor,swf_addcolor,swf_placeobject,%
3442     swf_removeobject,swf_nextid,swf_startdoaction,%
3443     swf_actiongeturl,swf_actionnextframe,swf_actionprevframe,%
3444     swf_actionstop,swf_actiontogglequality,swf_actionwaitforframe,%
3445     swf_actiongotolabel,swf_enddoaction,swf_defineline,%
3446     swf_definepoly,swf_startshape,swf_shapelinesolid,%
3447     swf_shapefillsolid,swf_shapefillbitmapclip,%
3448     swf_shapemoveto,swf_shapelineto,swf_shapecurveto,%
3449     swf_shapearc,swf_endshape,swf_definefont,swf_setfont,%
3450     swf_fontslant,swf_fonttracking,swf_getfontinfo,swf_definetext,%
3451     swf_definebitmap,swf_getbitmapinfo,swf_startsymbol,%

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3452     swf_startbutton,swf_addbuttonrecord,swf_oncondition,%
3453     swf_viewport,swf_ortho,swf_ortho2,swf_perspective,swf_polarview,%
3454     swf_pushmatrix,swf_popmatrix,swf_scale,swf_translate,swf_rotate,%
3455 %--- sybase functions
3456     sybase_affected_rows,sybase_close,sybase_connect,%
3457     sybase_fetch_array,sybase_fetch_field,sybase_fetch_object,%
3458     sybase_field_seek,sybase_free_result,sybase_get_last_message,%
3459     sybase_min_error_severity,sybase_min_message_severity,%
3460     sybase_num_fields,sybase_num_rows,sybase_pconnect,sybase_query,%
3461     sybase_select_db,%
3462 %--- uodbc functions
3463     odbc_autocommit,odbc_binmode,odbc_close,odbc_close_all,%
3464     odbc_connect,odbc_cursor,odbc_do,odbc_error,odbc_errormsg,%
3465     odbc_execute,odbc_fetch_into,odbc_fetch_row,odbc_fetch_array,%
3466     odbc_fetch_object,odbc_field_name,odbc_field_num,%
3467     odbc_field_len,odbc_field_precision,odbc_field_scale,%
3468     odbc_longreadlen,odbc_num_fields,odbc_pconnect,odbc_prepare,%
3469     odbc_result,odbc_result_all,odbc_rollback,odbc_setoption,%
3470     odbc_tableprivileges,odbc_columns,odbc_columnprivileges,%
3471     odbc_primarykeys,odbc_foreignkeys,odbc_procedures,%
3472     odbc_specialcolumns,odbc_statistics,%
3473 %--- url functions
3474     base64_decode,base64_encode,parse_url,rawurldecode,rawurlencode,%
3475     urlencode,%
3476 %--- var functions
3477     doubleval,empty,floatval,gettype,get_defined_vars,%
3478     import_request_variables,intval,is_array,is_bool,is_double,%
3479     is_int,is_integer,is_long,is_null,is_numeric,is_object,is_real,%
3480     is_scalar,is_string,isset,print_r,serialize,settype,strval,%
3481     unset,var_dump,var_export,is_callable,%
3482 %--- vpopmail functions
3483     vpopmail_add_domain,vpopmail_del_domain,%
3484     vpopmail_add_domain_ex,vpopmail_del_domain_ex,%
3485     vpopmail_add_user,vpopmail_del_user,vpopmail_passwd,%
3486     vpopmail_auth_user,vpopmail_alias_add,vpopmail_alias_del,%
3487     vpopmail_alias_get,vpopmail_alias_get_all,vpopmail_error,%
3488 %--- w32api functions
3489     w32api_set_call_method,w32api_register_function,%
3490     w32api_deftype,w32api_init_dtype,%
3491 %--- wddx functions
3492     wddx_serialize_value,wddx_serialize_vars,wddx_packet_start,%
3493     wddx_add_vars,wddx_deserialize,%
3494 %--- xml functions
3495     xml_parser_create,xml_set_object,xml_set_element_handler,%
3496     xml_set_processing_instruction_handler,xml_set_default_handler,%
3497     xml_set_notation_decl_handler,%
3498     xml_parse,xml_get_error_code,xml_error_string,%
3499     xml_get_current_column_number,xml_get_current_byte_index,%
3500     xml_parser_free,xml_parser_set_option,xml_parser_get_option,%
3501     utf8_encode,xml_parser_create_ns,%

```

```

3502     xml_set_start_namespace_decl_handler,%
3503 %--- xslt functions
3504     xslt_set_log,xslt_create,xslt_errno,xslt_error,xslt_free,%
3505     xslt_set_sax_handler,xslt_set_scheme_handler,%
3506     xslt_set_base,xslt_set_encoding,xslt_set_sax_handlers,%
3507 %--- yaz functions
3508     yaz_addinfo,yaz_close,yaz_connect,yaz_errno,yaz_error,yaz_hits,%
3509     yaz_database,yaz_range,yaz_record,yaz_search,yaz_present,%
3510     yaz_scan,yaz_scan_result,yaz_ccl_conf,yaz_ccl_parse,%
3511     yaz_wait,yaz_sort,%
3512 %--- zip functions
3513     zip_close,zip_entry_close,zip_entry_compressedsize,%
3514     zip_entry_filesize,zip_entry_name,zip_entry_open,zip_entry_read,%
3515     zip_read,%
3516 %--- zlib functions
3517     gzclose,gzEOF,gzFile,gzgetc,gzgets,gzgetss,gzopen,gzpassthru,%
3518     gzread,gzrewind,gzseek,gztell,gzwrite,readgzfile,gzcompress,%
3519     gzdeflate,gzinflate,gzencode,},%
3520     sensitive,%
3521     morecomment=[l]\#,%
3522     morecomment=[l]//,%
3523     morecomment=[s]{/*}{*/},%
3524     morestring=[b]" ,%
3525     morestring=[b]' %
3526 }[keywords,comments,strings]%
3527 </lang2>

```

2.56 Plasm

Alessio Pace provided the following definition.

```

3528 <*lang3>
3529 \lst@definlanguage{Plasm}%
3530 {sensitive=false,%
3531     morekeywords={aa,abs,ac,acolor,acos,actor,al,alias,align,and,%
3532         animation,animation,appearance,apply,ar,arc,as,asin,assoc,atan,%
3533         axialcamera,axialcameras,basehermite,bbox,bbox,bernstein,%
3534         bernsteinbasis,bezier,beziercurve,beziermanifold,bezierstripe,%
3535         beziersurface,bigger,biggest,bilinearsurface,binormal,%
3536         biquadraticsurface,black,blend,blue,bottom,box,brown,bspize,%
3537         bspline,bsplinebasis,c,cabinet,camera,card,cart,case,cats,catch,ceil,%
3538         centeredcameras,centralcavalier,char,charseq,choose,circle,%
3539         circumference,class,cmap,color,comp,computecoords,cone,%
3540         conicalsurface,cons,control,convexcoords,convexhull,coonspatch,%
3541         copy,cos,cosh,crease,crosspolytope,cube,cubiccardinal,%
3542         cubiccardinalbasis,cubichermite,cubicbspline,cubicbsplinebasis,%
3543         cuboid,curl,curvature,curve2cspath,curve2mapvect,cyan,cylinder,%
3544         cylindricalsurface,d,deboor,def,depol,depth_sort,depth_test,%
3545         derbernstein,derbernsteinbase,derbezier,determinant,difference,%

```

```

3546 differencepr,dim,dimetric,dirproject,displaygraph,displaynubspline,%
3547 displaynurb spline,distl,distr,div,divergence,dodecahedron,dot,down,%
3548 dp,drawedges,drawforks,drawtree,ds,dsphere,dump,dumprep,ellipse,%
3549 embed,end,eq,ex,exp,explode,export,extract_bodies,extract_polygons,%
3550 extract_wires,extrude,extrusion,fact,false,feature,ff,fillcolor,%
3551 filter,finitecone,first,flash,flashani,floor,fontcolor,fontheight,%
3552 fontspacing,fontwidth,fractalsimplex,frame,frame,frameflash,fromto,%
3553 gausscurvature,ge,grad,gradient,gradmap,gray,green,gt,help,hermite,%
3554 hermitebasis,hermitessurface,hexahedron,icosahedron,id,idnt,if,in,%
3555 inarcs,innerprod,inset,insl,insr,intersection,intersectionpr,%
3556 intervals,intmax,intmin,intsto,inv,isa,isanimpol,isbool,ischar,%
3557 isclosedshape,iscloseto,isempty,iseven,isfun,isfunvect,isge,isgt,%
3558 isint,isintneg,isinto,isintpos,isle,isl,ismat,ismatof,isnat,%
3559 isnull,isnum,isnumneg,isnumpos,isodd,isometric,isorthoshape,ispair,%
3560 ispoint,ispointseq,ispol,ispoldim,ispolytope,ispurepol,isreal,%
3561 isrealneg,isrealpos,isrealvect,isseq,isseqof,issshape,issimplex,%
3562 issqrmat,isstring,isvect,iszero,jacobian,join,joints,k,last,le,%
3563 left,leftcavalier,len,less,lesseq,lex,lift,light,linecolor,%
3564 linesize,list,ln,load,loadlib,loop,lt,lxmy,magenta,map,mapshapes,%
3565 markersize,mat,matdotprod,material,mathom,max,mean,meanpoint,med,%
3566 merge,mesh,min,minkowski,mirror,mixedprod,mk,mkframe,mkpol,%
3567 mkvector,mkversork,mod,model,move,mul,multextrude,mxby,mxmy,mxty,%
3568 myfont,n,nat2string,neq,ngon,norm2,normalmap,not,nu_grid,nubspline,%
3569 nubsplineknots,nurb spline,nurb splineknots,octahedron,offset,%
3570 onepoint,open,optimize,or,orange,ord,ortho,orthoproject,orthox,%
3571 orthoy,orthoz,outarcs,outerloop,outerwarp,pairediff,parallel,%
3572 pascaltriangle,pdiff,pdifference,permutahedron,permutations,%
3573 perspective,perspective,pi,pivotop,plane,planemapping,pmap,%
3574 points2shape,polar,polyline,polymer,polypoint,power,powerset,%
3575 presort,principalnormal,print,prism,profileprodsurface,%
3576 progressivesum,project,projection,purple,pyramid,q,quadarray,%
3577 quadmesh,quote,r,raise,range,rationalbezier,rationalblend,%
3578 rationalbspline,rationalize,red,rev,reverse,rgbacolor,right,%
3579 rightcavalier,ring,rn,rotatedtext,rotationalsurface,rotn,rtail,%
3580 ruledsurface,rxmy,s,save,scalarmatprod,scalarvectprod,schlegel2d,%
3581 schlegel3d,sdifference,sdifferencepr,segment,sel,setand,setdiff,%
3582 setfontcolor,setor,setxor,sex,shape_0,shape_1,shape2points,%
3583 shape2pol,shapeclosed,shapecomb,shapediff,shapedist,%
3584 shapeinbetweening,shapeinf,shapejoin,shapelen,shapenorm,%
3585 shapenormal,shapeprod,shaperot,shapsum,shapsum,shapezero,shift,%
3586 showprop,sign,signal,simplex,simplexpile,sin,sinh,size,skeleton,%
3587 skew,smaller,smallest,solidifier,solidify,sort,sphere,spline,%
3588 splinesampling,splitcells,splitpols,sqr,sqrt,star,string,%
3589 stringtokens,struct,sub,svg,sweep,t,tail,tan,tangent,tanh,%
3590 tensorprodsurface,tetrahedron,text,texture,textwithattributes,%
3591 thinsolid,threepoints,time,tmax,tmin,top,torus,torusmap,trace,%
3592 trans,tree,trianglefan,trianglestripe,trimetric,true,trunccone,tt,%
3593 tube,twopoints,uk,ukpol,ukpolf,union,unionpr,unitvect,unprune,up,%
3594 vect2dtoangle,vect2mat,vectdiff,vectnorm,vectprod,vectsum,view,%
3595 viewmodel,viewmodel,vrml,warp,warp,where,white,with,xcavalier,xor,%

```

```

3596     xquadarray,xx,ycavalier,yellow},%
3597     moredirectives={loadlib},%
3598     otherkeywords={-,+,*,**,/ ,~,|,...,^,\&,\&\&,\#,\#\#},%
3599     morecomment=[s]{\%}{\%},%
3600     morestring=[b]' ,%
3601     literate={~}{{\sim$}}{1} {~}{{\wedge$}}{1},%
3602 }[keywords,directives,comments,strings]%
3603 </lang3>

```

2.57 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

```

3604 <*lang3>
3605 \lst@definlanguage{PL/I}%
3606 {morekeywords={ABS,ATAN,AUTOMATIC,AUTO,ATAND,BEGIN,BINARY,BIN,BIT,%
3607     BUILTIN,BY,CALL,CHARACTER,CHAR,CHECK,COLUMN,COL,COMPLEX,CPLX,%
3608     COPY,COS,COSD,COSH,DATA,DATE,DECIMAL,DEC,DECLARE,DCL,DO,EDIT,%
3609     ELSE,END,ENDFILE,ENDPAGE,ENTRY,EXP,EXTERNAL,EXT,FINISH,FIXED,%
3610     FIXEDOVERFLOW,FOFL,FLOAT,FORMAT,GET,GO,GOTO,IF,IMAG,INDEX,%
3611     INITIAL,INIT,INTERNAL,INT,LABEL,LENGTH,LIKE,LINE,LIST,LOG,LOG2,%
3612     LOG10,MAIN,MAX,MIN,MOD,NOCHECK,NOFIXEDOVERFLOW,NOFOFL,NOOVERFLOW,%
3613     NOOFL,NOSIZE,NOUNDERFLOW,NOUFL,NOZERODIVIDE,NOZDIV,ON,OPTIONS,%
3614     OVERFLOW,OFL,PAGE,PICTURE,PROCEDURE,PROC,PUT,READ,REPEAT,RETURN,%
3615     RETURNS,ROUND,SIN,SIND,SINH,SIZE,SKIP,SQRT,STATIC,STOP,STRING,%
3616     SUBSTR,SUM,SYSIN,SYSPRINT,TAN,TAND,TANH,THEN,TO,UNDERFLOW,UFL,%
3617     VARYING,WHILE,WRITE,ZERODIVIDE,ZDIV},%
3618     sensitive=f,%
3619     morecomment=[s]{/*}{*/},%
3620     morestring=[d] '%
3621 }[keywords,comments,strings]%
3622 </lang3>

```

2.58 PostScript

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

```

3623 <*lang3>
3624 %%
3625 %% PostScript language definition (c) 2005 Christophe Jorssen.
3626 %%
3627 \lst@definlanguage{PostScript}{%
3628     morekeywords={abs,add,aload,anchorsearch,and,arc,arcn,arct,arcto,array,ashow,
3629         astore,atan,awidthshow,begin,bind,bitshift,bytesavailable,cachestatus,

```



```

3630 ceiling, charpath, clear, cleartomark, cleardictstack, clip, clippath, closefile,
3631 closepath, colorimage, concat, concatmatrix, condition, copy, copypage, cos, count,
3632 countdictstack, countexecstack, counttomark, cshow, currentblackgeneration,
3633 currentcacheparams, currentcmykcolor, currentcolor, currentcolorrendering,
3634 currentcolorscreen, currentcolorspace, currentcolortransfer, currentcontext,
3635 currentdash, currentdevparams, currentdict, currentfile, currentflat, currentfont,
3636 currentglobal, currentgray, currentgstate, currenthalftone, currenthalftonephase,
3637 currenthsbcolor, currentlinecap, currentlinejoin, currentlinewidth, currentmatrix,
3638 currentmiterlimit, currentobjectformat, currentpacking, currentpagedevice,
3639 currentpoint, currentrgbcolor, currentscreen, currentshared, currentstrokeadjust,
3640 currentsystemparams, currenttransfer, currentundercolorremoval, currentuserparams,
3641 curveto, cvi, cvlit, cvn, cvr, cvrs, cvs, cvx, def, defaultmatrix, definefont,
3642 defineresource, defineusername, defineuserobject, deletefile, detach, deviceinfo,
3643 dict, dictstack, div, dtransform, dup,
3644 echo, eexec, end, eoclip, eofill, eoviewclip, eq, erasepage, errordict, exch, exec,
3645 execform, execstack, execuserobject, executeonly, executive, exit,
3646 exp, false, file, filenameforall, fileposition, fill, filter, findencoding, findfont,
3647 findresource, flattenpath, floor, flush, flushfile, FontDirectory, for, forall, fork, ge,
3648 get, getinterval, globaldict, GlobalFontDirectory, glyphshow, grestore, grestoreall,
3649 gsave, gstate, gt, identmatrix, idiv, idtransform, if, ifelse, image,
3650 imagemask, index, ineofill, infill, initclip, initgraphics, initmatrix, initviewclip,
3651 instroke, internaldict, inueofill, inuffill, inustroke,
3652 invertmatrix, ISOLatin1Encoding, itransform, join, kshow,
3653 known, languagelevel, le, length, lineto, ln, load, lock, log, loop, lt,
3654 makefont, makepattern, mark, matrix, maxlength, mod, monitor, moveto, mul, ne, neg,
3655 newpath, noaccess, not, notify, null, nulldevice, or, packedarray,
3656 pathbbox, pathforall, pop, print, printobject, product, prompt, pstack, put, putinterval,
3657 quit, rand, rcurveto, read, readhexstring, readline, readonly, readstring,
3658 realtime, rectclip, rectfill, rectstroke, rectviewclip, renamefile, repeat, resetfile,
3659 resourceforall, resourcestatus, restore, reversepath, revision, rlineto, rmoveto, roll,
3660 rootfont, rotate, round, rrand, run, save, scale, scalefont, scheck, search, selectfont,
3661 serialnumber, setbbox, setblackgeneration, setcachedevice, setcachedevice2,
3662 setcachelimit, setcacheparams, setcharwidth, setcmykcolor, setcolor,
3663 setcolorrendering, setcolorscreen, setcolorspace, setcolortransfer, setdash,
3664 setdevparams, setfileposition, setflat, setfont, setglobal, setgray, setgstate,
3665 sethalftone, sethalftonephase, sethsbcolor, setlinecap, setlinejoin, setlinewidth,
3666 setmatrix, setmiterlimit, setobjectformat, setoverprint, setpacking, setpagedevice,
3667 setpattern, setrgbcolor, setscreen, setshared, setstrokeadjust, setsystemparams,
3668 settransfer, setucacheparams, setundercolorremoval, setuserparams, setvmthreshold,
3669 shareddict, show, showpage, sin, sqrt, srand, stack,
3670 StandardEncoding, start, startjob, status, statusdict, stop, stopped, store, string,
3671 stringwidth, stroke, strokepath, sub, systemdict, transform,
3672 translate, true, truncate, type, token, uappend, ucache, ucachestatus,
3673 ueofill, ufill, undef,
3674 upath, userdict, UserObjects,
3675 usertime, ustroke, ustrokepath, version, viewclip, viewclippath, vmreclaim,
3676 vmstatus, wait, wcheck, where, widthshow, write, writehexstring, writeobject,
3677 writestring, wtranslation, xcheck, xor, xshow, xyshow, yield, yshow},
3678 sensitive,
3679 morecomment=[1]\%}[keywords, comments]

```

3680 \langle /lang3 \rangle

2.59 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.

3681 \langle *lang1 \rangle

```
3682 %%
3683 %% POV definition (c) 1999 Berthold H\"ollmann
3684 %%
3685 \lst@definlanguage{POV}%
3686 {morekeywords={abs,absorption,acos,acosh,adaptive,adc_bailout,agate,%
3687     agate_turb,all,alpha,ambient,ambient_light,angle,aperture,append,%
3688     arc_angle,area_light,array,asc,asin,asinh,assumed_gamma,atan,%
3689     atan2,atanh,average,background,bezier_spline,bicubic_patch,%
3690     black_hole,blob,blue,blur_samples,bounded_by,box,boxed,bozo,%
3691     break,brick,brick_size,brightness,brilliance,bumps,bump_map,%
3692     bump_size,camera,case,caustics,ceil,checker,chr,clipped_by,clock,%
3693     clock_delta,color,color_map,colour,colour_map,component,%
3694     composite,concat,cone,confidence,conic_sweep,control0,control1,%
3695     cos,cosh,count,crackle,crand,cube,cubic,cubic_spline,cubic_wave,%
3696     cylinder,cylindrical,debug,declare,default,defined,degrees,%
3697     density,density_file,density_map,dents,difference,diffuse,%
3698     dimensions,dimension_size,direction,disc,distance,%
3699     distance_maximum,div,eccentricity,else,emission,end,error,%
3700     error_bound,exp,extinction,fade_distance,fade_power,falloff,%
3701     falloff_angle,false,fclose,file_exists,filter,finish,fisheye,%
3702     flatness,flip,floor,focal_point,fog,fog_alt,fog_offset,fog_type,%
3703     fopen,frequency,gif,global_settings,gradient,granite,%
3704     gray_threshold,green,height_field,hexagon,hf_gray_16,hierarchy,%
3705     hollow,hypercomplex,if,ifdef,iff,ifndef,image_map,include,int,%
3706     interior,interpolate,intersection,intervals,inverse,iir,irid,%
3707     irid_wavelength,jitter,julia_fractal,lambda,lathe,leopard,%
3708     light_source,linear_spline,linear_sweep,local,location,log,%
3709     looks_like,look_at,low_error_factor,macro,mandel,map_type,marble,%
3710     material,material_map,matrix,max,max_intersections,max_iteration,%
3711     max_trace_level,media,media_attenuation,media_interaction,merge,%
3712     mesh,metallic,min,minimum_reuse,mod,mortar,nearest_count,no,%
3713     normal,normal_map,no_shadow,number_of_waves,object,octaves,off,%
3714     offset,omega,omnimax,on,once,onion,open,orthographic,panoramic,%
3715     perspective,pgm,phase,phong,phong_size,pi,pigment,pigment_map,%
3716     planar,plane,png,point_at,poly,polygon,poly_wave,pot,pow,ppm,%
3717     precision,prism,pwr,quadratic_spline,quadric,quartic,quaternion,%
3718     quick_color,quick_colour,quilted,radial,radians,radiosity,radius,%
3719     rainbow,ramp_wave,rand,range,ratio,read,reciprocal,%
3720     recursion_limit,red,reflection,reflection_exponent,refraction,%
3721     render,repeat,rgb,rgbf,rgbft,rgbt,right,ripples,rotate,roughness,%
3722     samples,scale,scallop_wave,scattering,seed,shadowless,sin,%
```

```

3723     sine_wave,sinh,sky,sky_sphere,slice,slope_map,smooth,%
3724     smooth_triangle,sor,specular,sphere,spherical,spiral1,spiral2,%
3725     spotlight,spotted,sqr,sqrt,statistics,str,strcmp,strength,strlen,%
3726     strlwr,strupr,sturm,substr,superellipsoid,switch,sys,t,tan,tanh,%
3727     text,texture,texture_map,tga,thickness,threshold,tightness,tile2,%
3728     tiles,torus,track,transform,translate,transmit,triangle,%
3729     triangle_wave,true,ttf,turbulence,turb_depth,type,u,%
3730     ultra_wide_angle,undef,union,up,use_color,use_colour,use_index,%
3731     u_steps,v,val,variance,vaxis_rotate,vcross,vdot,version,vlength,%
3732     vnormalize,vrotate,v_steps,warning,warp,water_level,waves,while,%
3733     width,wood,wrinkles,write,x,y,yes,z},%
3734     moredirectives={break,case,debug,declare,default,else,end,fclose,%
3735         fopen,local,macro,read,render,statistics,switch,undef,version,%
3736         warning,write},%
3737     moredelim=[directive]\#,%
3738     sensitive,%
3739     morecomment=[l]//,%
3740     morecomment=[s]{/*}{*/},%
3741     morestring=[d]" ,%
3742 }[keywords,directives,comments,strings]%
3743 </lang1>

```

2.60 Prolog

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

```

3744 <(*lang2>
3745 %%
3746 %% Prolog definition (c) 1997 Dominique de Waleffe
3747 %%
3748 \lst@definlanguage{Prolog}%
3749 {morekeywords={op,mod,abort,ancestors,arg,ascii,ask,assert,asserta,%
3750     assertz,atom,atomic,char,clause,close,concat,consult,ed,ef,em,%
3751     eof,fail,file,findall,write,functor,getc,integer,is,length,%
3752     listing,load,name,nl,nonvar,not,numbervars,op,or,pp,prin,print,%
3753     private,prompt,putc,ratom,read,read_from_this_file,rename,repeat,%
3754     retract,retractall,save,see,seeing,seen,sh,skip,statistics,%
3755     subgoal_of,system,tab,tell,telling,time,told,trace,true,unload,%
3756     untrace,var,write},%
3757     sensitive=f,%
3758     morecomment=[l]\%,%
3759     morecomment=[s]{/*}{*/},%
3760     morestring=[bd]" ,%
3761     morestring=[bd]'%
3762 }[keywords,comments,strings]%
3763 </lang2>

```

2.61 Promela

Thanks to William ThimblebyPromela for this language definition.

```
3764 ⟨*lang3⟩
3765 %%
3766 %% Promela definition (c) 2004 William Thimbleby
3767 %%
3768 \lst@definlanguage{Promela}
3769 {morekeywords={active,assert,atomic,bit,bool,break,byte,chan,d_step,%
3770     Dproctype,do,else,empty,enabled,fi,full,goto,hidden,if,init,int,%
3771     len,mtype,nempty,never,nfull,od,of,pcvalue,printf,priority,%
3772     proctype,provided,run,short,skip,timeout,typedef,unless,unsigned,%
3773     xr,xs,true,false,inline,eval},%
3774     moredirectives={define,ifdef,ifndef,if,if,else,endif,undef,include},%
3775     moredelim=[directive]\#,%
3776     morecomment=[s]{/*}{*/},%
3777     morestring=[b]"%
3778 }[keywords,comments,strings,directives]%
3779 ⟨/lang3⟩
```

2.62 PSTricks

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

```
3780 ⟨*lang3⟩
3781 %%
3782 %% PSTricks definition (c) 2006 Herbert Voss
3783 %%
3784 \lst@definlanguage{PSTricks}%
3785 {morekeywords={%
3786     begin,end,definecolor,multido,%
3787     KillGlue,DontKillGlue,pslbrace,bsrbrace,psscalebox,psset,pstVerb,pstverb,%
3788     pst@def,,psframebox,psclip,endclip,endpspicture,psframe,%
3789     pspicture,%
3790     multirput,multips,Rput,rput,uput,cput,lput,%
3791     newrgbcolor,newgray,newcmykcolor,%
3792     %
3793     pstricks-add
3794     psStep,psgraph,psbrace,psPrintValue,%
3795     %
3796     pst-plot
3797     psvlabel,pslabel,psplot,psline,pscustom,pscurve,psccurve,%
3798     readdata,savedata,fileplot,dataplot,listplot,%
3799     psecurve,psgraph,parametricplot,%
3800     psellipse,psaxes,ncline,nccurve,psbezier,parabola,%
3801     qdisk,qline,clipbox,endpsclip,%
3802     psgrid,pscircle,pscirclebox,psdiabox,pstribox,%
3803     newpsfontdot,psdot,psdots,%
```

```

3804     pspolygon,psdiamond,psoval,pstriangle,%
3805     psarc,psarcn,psellipticarc,psellipticarcn,pswedge,psellipticwedge,
3806     pcline,pcdiag,pcdiagg,pccurve,pccurve,pcecurve,%
3807     scalebox,scaleboxto,psmathboxtrue,everypsbox,psverbboxtrue,overlaybox,%
3808     psoverlay,putoverlaybox,%
3809     newpsstyle,newpsobject,%
3810     moveto,newpath,closepath,stroke,fill,gsave,grestore,msave,mrestore,translate,scale,%
3811     swapaxes,rotate,openshadow,closedshadow,movetopath,lineto,rlineto,curveto,rcurveto,%
3812     code,dim,coor,rcoor,file,arrows,setcolor,%
3813     rotateleft,rotateright,rotatedown,%
3814 %%
3815 %% pst-node
3816     nput,naput,nbput,ncput,%
3817     ncarc,ncbox,ncangle,ncangles,ncloop,ncdiag,ncdiag,ncarcbox,ncbar,%
3818     cnodeput,nccircle,%
3819     pnode,rnode,Rnode,Cnode,cnode,fnode,%
3820     circledenode,ovalnode,trinode,dianode,%
3821     psmatrix,endpsmatrix,psspan,%
3822 %%
3823 %% pst-tree
3824     pstree,Tcircle,TCircle,Ttri,Tn,TC,Tc,Tfan,TR,Tr,Tdia,Toval,Tdot,Tp,Tf,%
3825     skiplevel,skiplevels,endskiplevels,tSPACE,tlput,%
3826 %%
3827 %% pst-text
3828     pscharpath,pstextpath,
3829 %%
3830 %% pst-barcode
3831     psbarcode,
3832 %%
3833 %% pst-coil
3834     psboxfill,pscoil,psCoil,pszigzag,nccoil,
3835     psshadow,pstilt,psTilt,ThreeDput,
3836 %%
3837 %% pst-gr3d
3838     PstGridThreeDNodeProcessor,%
3839 %%
3840 %% pst-vue3d
3841     PstGridThreeD,
3842     AxesThreeD,LineThreeD,DieThreeD,FrameThreeD,SphereCircleThreeD,SphereMeridienThreeD,
3843     QuadrillageThreeD,TetraedreThreeD,PyramideThreeD,ConeThreeD,CylindreThreeD,
3844     DodecahedronThreeD,ConeThreeD,SphereThreeD,SphereInverseThreeD,DemiSphereThreeD,
3845     SphereCreuseThreeD,SphereCircledThreeD,PortionSphereThreeD,pNodeThreeD,CubeThreeD,%
3846 %%
3847 %% pst-3dplot
3848     pstThreeDCoor,pstThreeDDot,pstThreeDTriangle,pstThreeDCircle,pstPlanePut,%
3849     pstThreeDBox,pstThreeDEllipse,pstThreeDLine,pstThreeDput,%
3850     pstThreeDNode,pstThreeDSquare,psplotThreeD,parametricplotThreeD,fileplotThreeD,%
3851     dataplotThreeD,pstScalePoints,%
3852 %%
3853 %% pst-circ

```

```

3854     resistor,battery,Ucc,Icc,capacitor,coil,diode,Zener,LED,lamp,switch,wire,tension,
3855     circledipole,multidipole,OA,transistor,Tswitch,potentiometer,transformer,
3856     optoCoupler,logic,
3857 %%
3858 %% pst-eucl
3859     pstTriangle,pstMediatorAB,pstInterLL,pstMiddleAB,pstProjection,pstCircleOA,pstLineAB,%
3860 %%
3861 %% pst-func
3862     psBessel,psPolynomial,psFourier,psGaussI,psGauss,psSi,pssi,psCi,psci,%
3863 %%
3864 %% pst-infixplot
3865     psPlot,
3866 %%
3867 %% pst-ob3d
3868     PstDie,PstCube,
3869 %%
3870 %% pst-poly
3871     PstPolygon,pspolygonbox,
3872 %%
3873 %% pst-bar
3874     psbarchart,readpsbardata,psbarscale,newpsbarstyle,%
3875 %%
3876 %% pst-lens
3877     PstLens,%
3878 %%
3879 %% pst-geo
3880     WorldMap,WorldMapII,WorldMapThreeD,WorldMapThreeDII,pnodeMap,MapPut,%
3881 %%
3882 %% pst-autoseg
3883     asr,firstnode,merge,assoc,labelmerge,%
3884 %%
3885 %% gastex
3886     node,imark,fmark,rmark,drawqbpedge,drawedge,drawloop,%
3887 %%
3888 %% pst-labo
3889     Distillation,Ballon,
3890 %%
3891 %% pst-optic
3892     lens,Transform,%
3893 %%
3894 %% pst-light3d
3895     PstLightThreeDText,%
3896 %%
3897 %% calendrier
3898     Calendrier,%
3899 %%
3900 %% pst-osci
3901     Oscillo%
3902 },%
3903     sensitive,%

```

```

3904     alsoother={0123456789$_},%
3905     morecomment=[1]\% %
3906   }[keywords,comments]%
3907 </lang3>

```

2.63 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.

```

3908 <*lang1>
3909 %%
3910 %% Python definition (c) 1998 Michael Weber
3911 %% Additional definitions (2013) Alexis Dimitriadis
3912 %%
3913 \lst@definlanguage{Python}%
3914 {morekeywords={access,and,break,class,continue,def,del,elif,else,%
3915     except,exec,finally,for,from,global,if,import,in,is,lambda,not,%
3916     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

```

3917 % Built-ins
3918 morekeywords=[2]{abs,all,any,basestring,bin,bool,bytearray,callable,chr,
3919     classmethod,cmp,compile,complex,delattr,dict,dir,divmod,enumerate,eval,
3920     execfile,file,filter,float,format,frozenset,getattr,globals,hasattr,hash,
3921     help,hex,id,input,int,isinstance,issubclass,iter,len,list,locals,long,map,
3922     max,memoryview,min,next,object,oct,open,ord,pow,property,range,raw_input,
3923     reduce,reload,repr,reversed,round,set,setattr,slice,sorted,staticmethod,str,
3924     sum,super,tuple,type,unichr,unicode,vars,xrange,zip,apply,buffer,coerce,
3925     intern},
3926 sensitive=true,%
3927 morecomment=[1]\#,%
3928 morestring=[b]',%
3929 morestring=[b]",%

```

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

```

3930 morestring=[s]{'''}{'''},% used for documentation text (multiline strings)
3931 morestring=[s]{"""}{"""},% added by Philipp Matthias Hahn

```

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

```

3932 morestring=[s]{r'}{'},% 'raw' strings
3933 morestring=[s]{r"}{"},%

```

```

3934   morestring=[s]{r'''}{'''},%
3935   morestring=[s]{r"""}{"""},%
3936   morestring=[s]{u'}{''},% unicode strings
3937   morestring=[s]{u"}{"},%
3938   morestring=[s]{u'''}{'''},%
3939   morestring=[s]{u"""}{"""},%
3940 }%

```

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.

```

3941 </lang>

```

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

```

3942 <*python-prf>
3943 \usepackage{xcolor}
3944 \usepackage{textcomp}
3945
3946 %% Actual colors from idlelib/config-highlight.def --> corrected to ‘web-safe’
3947 %% strings = #00aa00 / 0,170,0      (a darker green)
3948 %% builtins = #900090 / 144,0,144    (purple-ish)
3949 %% keywords = #FF7700 / 255,119,0    (quite close to plain ‘orange’)
3950 %\definecolor{IDLEorange}{RGB}{255,119,0} % pretty close to real orange
3951 %\definecolor{IDLEpurple}{RGB}{144,0,144}
3952 %\definecolor{IDLEgreen}{RGB}{0,170,0}
3953 %\definecolor{IDLERed}{RGB}{221,0,0}
3954 %% Corrected to ‘web-safe’
3955 %\definecolor{orange2}{RGB}{255,102,0}
3956 \definecolor{purple2}{RGB}{153,0,153} % there’s actually no standard purple
3957 \definecolor{green2}{RGB}{0,153,0} % a darker green
3958 %\definecolor{red2}{RGB}{221,0,0}
3959
3960 % Except for green and purple, the other colors are pretty good in standard
3961 % hue
3962 \lstdefinestyle{python-idle-code}{%
3963   language=Python, % the language
3964   basicstyle=\normalsize\ttfamily, % size of the fonts for the code
3965   % Color settings to match IDLE style
3966   keywordstyle=\color{orange}, % core keywords
3967   keywordstyle={2}\color{purple2}, % built-ins
3968   stringstyle=\color{green2},
3969   commentstyle=\color{red},
3970   upquote=true, % requires textcomp
3971 }
3972 % Unimplemented IDLE syntax: function/class names being defined should be
3973 % blue

```

This code is provided in the file `listings-python.prf`, see section 2.4.1 (Prefer-

ences) of the listings documentation.

3974 `</python-prf>`

2.64 Rexx

Patrick TJ McPhee provided this definition.

3975 `<*lang2>`

```
3976 %%
3977 %% classic rexx listings definition
3978 %% by Patrick TJ McPhee <ptjm@interlog.com>
3979 %%
3980 \lst@definlanguage{Rexx}
3981 {morekeywords={address,arg,call,do,drop,else,end,exit,if,iterate,%
3982             interpret,leave,nop,numeric,options,otherwise,parse,%
3983             procedure,pull,push,queue,return,say,signal,then,to,%
3984             trace,when},%
3985     sensitive=false,%
3986     morecomment=[n]{/*}{*/},%
3987     morestring=[d]{'},%
3988     morestring=[d]{"},%
3989 }[keywords,comments,strings]%
3990 </lang2>
```

2.65 Reduce

was provided by Geraint Paul Bevan.

3991 `<*lang3>`

```
3992 %%
3993 %% Reduce definition (c) 2002 Geraint Paul Bevan
3994 %%
3995 \lst@definlanguage{Reduce}%
3996 {morekeywords={%
3997 %% reserved identifiers
3998 abs,acos,acosh,acot,acoth,acsc,acsch,%
3999 adjprec,algebraic,algint,allbranch,allfac,and,%
4000 antisymmetric,append,arglength,array,asec,asech,%
4001 asin,asinh,atan,atan2,atanh,begin,bfspace,bye,%
4002 card_no,ceiling,clear,clearrules,coeff,coeffn,%
4003 cofactor,combineexpt,combinelogs,comment,comp,%
4004 complex,conj,cons,cont,cos,cosh,cot,coth,cramer,%
4005 cref,csc,csch,decompose,define,defn,deg,demo,den,%
4006 depend,det,df,difference,dilog,display,div,do,e,%
4007 echo,ed,editdef,ei,end,eps,eq,equal,erf,errcont,%
4008 evallhseqp,eval_mode,even,evenp,exp,expandlogs,%
4009 expr,expt,ezgcd,factor,factorial,factorize,fexpr,%
4010 first,fix,fixp,floor,for,forall,foreach,fort,%
4011 fort_width,freeof,fullroots,g,gcd,geq,go,goto,%
```

```

4012 greaterp,high_pow,hypot,i,if,ifactor,impart,in,%
4013 index,infinity,infix,input,int,integer,interpol,%
4014 intstr,k,korder,lamba,lcm,lcof,length,leq,lessp,%
4015 let,lhs,linear,linelength,lisp,list,listargp,%
4016 listargs,ln,load,load_package,log,log10,logb,%
4017 low_pow,lterm,macro,mainvar,mass,mat,match,%
4018 mateigen,matrix,max,mcd,member,memq,min,minus,mkid,%
4019 modular,msg,mshell,multiplicities,nat,neq,nero,%
4020 nextprime,nil,nodepend,noncom,nonzero,nosplit,%
4021 nospur,nullspace,num,numberp,odd,off,on,operator,%
4022 or,order,ordp,out,output,part,pause,period,pf,pi,%
4023 plus,precedence,precise,precision,pret,pri,primep,%
4024 print_precision,procedure,product,quit,quotient,%
4025 random,random_new_seed,rank,rat,ratarg,rational,%
4026 rationalize,ratpri,real,rederr,reduct,remainder,%
4027 remfac,remind,repert,repeat,rest,resultant,retry,%
4028 return,reverse,revpri,rhs,rlisp88,%
4029 root_multiplicity,round,roundall,roundbf,rounded,%
4030 saveas,savestructr,scalar,sec,sech,second,set,%
4031 setmod,setq,share,showrules,showtime,shut,sign,sin,%
4032 sinh,smacro,solve,solvesingular,spur,sqrt,structr,%
4033 sub,sum,symbolic,symmetric,t,tan,tanh,third,time,%
4034 times,tp,tra,trace,trfac,trigform,trint,until,%
4035 varname,vecdim,vector,weight,when,where,while,%
4036 write,ws,wlevel,%
4037 %% identifiers with spaces
4038 %% for all,for each,go to,such that,%
4039 },%
4040 sensitive=false,%
4041 morecomment=[1]\%,%
4042 morecomment=[s]{COMMENT}{;},%
4043 morecomment=[s]{COMMENT}{$},%
4044 morestring="%
4045 }[keywords,comments,strings]%
4046 </lang3>

```

2.66 RSL

Thanks go to Brian Christensen.

```

4047 <*lang3>
4048 %%
4049 %% RSL definition (c) 2004 Brian Christensen
4050 %%
4051 \lst@definlanguage{RSL}%
4052 {morekeywords={Bool,Char,devt_relation,Int,Nat,Real,Text,Unit,abs,any,%
4053 as,axiom,card,case,channel,chaos,class,do,dom,elems,else,elsif,end,%
4054 extend,false,for,hd,hide,if,in,inds,initialise,int,len,let,local,%
4055 object,of,out,post,pre,read,real,rng,scheme,skip,stop,swap,%

```

```

4056      test_case,theory,then,tl,true,type,until,use,value,variable,while,%
4057      with,write},%
4058 literate=%
4059 {<}{<$}{1}%
4060 {>}{>$}{1}%
4061 {[ ]}{[$]{1}%
4062 {[]}{[]}{1}%
4063 {^}{\mbox{$\widehat{\;}$}}{1}%
4064 {'}{\raisebox{1ex}[1ex][0ex]{\protect\scriptsize$\prime$}}{1}%
4065 {||}{\mbox{$\parallel$}}{2}%
4066 {|-}{\vdash}{1}%
4067 {|=|}{\mbox{$\lceil\!\!\rceil\!\!\lfloor\!\!\rfloor$}}{1}%
4068 {**}{\uparrow}{1}%
4069 {/\!}{\wedge}{1}%
4070 {inter}{\cap}{1}%
4071 {-\!}{\lambda}{1}%
4072 {->}{\rightarrow}{1}%
4073 {-m->}{\mbox{$\rightarrow$ \hspace{-2.5\lst@width} _{m}\;}}{1}%
4074 {-~m->}{\mbox{$\stackrel{\sim}{\rightarrow}$ \hspace{-2.5\lst@width} _{m}\;}}{1}%
4075 {-~>}{\mbox{$\stackrel{\sim}{\rightarrow}$}}{1}%
4076 {-set}{\bf{-set}}{4}%
4077 {-list}{\ast}{1}%
4078 {-inflist}{\omega}{1}%
4079 {-infset}{\mbox{\bf{-infset}}}{7}%
4080 {\#}{\circ}{1}%
4081 {-}{\raisebox{.4ex}{\tiny $\bullet$}}{1}%
4082 {=}{=$}{1}%
4083 {==}{==$}{2}%
4084 {=>}{\Rightarrow}{1}%
4085 {\ is\protect\^M}{\;\equiv}{2}%
4086 {\ is\ }{\equiv}{3}%
4087 {\ isin\protect\^M}{\;\in}{2}%
4088 {~}{\sim}{1}%
4089 {~=}{\neq}{1}%
4090 {~isin}{\notin}{1}%
4091 {+>}{\mapsto}{1}%
4092 {++}{\;}{1}%
4093 {|\^|}{\mbox{$\lceil\!\!\rceil$}}{1}%
4094 {\!/}{\vee}{1}%
4095 {exists}{\exists}{1}%
4096 {union}{\cup}{1}%
4097 {>=}{\geq}{1}%
4098 {><}{\times}{1}%
4099 {>>}{\supset}{1}%
4100 {>>=}{\supseteq}{1}%
4101 {<=}{\leq}{1}%
4102 {<<}{\subset}{1}%
4103 {<.\!}{\langle}{1}%
4104 {<<=}{\subseteq}{1}%
4105 {<->}{\leftrightarrow}{1}%

```

```

4106 {[=]{\sqsubseteq}{1}%
4107 {\={}\preceq}{1}%
4108 {\ all\protect\^M}{\forall}{2}%
4109 {\ all\ }{\forall}{3}%
4110 {!!}{\dagger}{1}%
4111 {always}{\Box}{1}%
4112 {.>}{\rangle}{1}%
4113 {'alpha'}{\alpha}{1}%
4114 {'beta'}{\beta}{1}%
4115 {'gamma'}{\gamma}{1}%
4116 {'delta'}{\delta}{1}%
4117 {'epsilon'}{\epsilon}{1}%
4118 {'zeta'}{\zeta}{1}%
4119 {'eta'}{\eta}{1}%
4120 {'theta'}{\theta}{1}%
4121 {'iota'}{\iota}{1}%
4122 {'kappa'}{\kappa}{1}%
4123 {'mu'}{\mu}{1}%
4124 {'nu'}{\nu}{1}%
4125 {'xi'}{\xi}{1}%
4126 {'pi'}{\pi}{1}%
4127 {'rho'}{\rho}{1}%
4128 {'sigma'}{\sigma}{1}%
4129 {'tau'}{\tau}{1}%
4130 {'upsilon'}{\upsilon}{1}%
4131 {'phi'}{\phi}{1}%
4132 {'chi'}{\chi}{1}%
4133 {'psi'}{\psi}{1}%
4134 {'omega'}{\omega}{1}%
4135 {'Gamma'}{\Gamma}{1}%
4136 {'Delta'}{\Delta}{1}%
4137 {'Theta'}{\Theta}{1}%
4138 {'Lambda'}{\Lambda}{1}%
4139 {'Xi'}{\Xi}{1}%
4140 {'Pi'}{\Pi}{1}%
4141 {'Sigma'}{\Sigma}{1}%
4142 {'Upsilon'}{\Upsilon}{1}%
4143 {'Phi'}{\Phi}{1}%
4144 {'Psi'}{\Psi}{1}%
4145 {'Omega'}{\Omega}{1},%
4146     sensitive=true,%
4147     morecomment=[l]{--},%
4148     morecomment=[s]{/*}{*/}%
4149 }[keywords,comments]%
4150 </lang3>

```

2.67 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.

```

4151 <*lang2>
4152 \lst@definlanguage{Ruby}%
4153 {morekeywords={__FILE__,__LINE__,BEGIN,END,alias,and,begin,break,%
4154     case,class,def,defined?,do,else,elsif,end,ensure,false,for,%
4155     if,in,module,next,nil,not,or,redo,rescue,retry,return,self,%
4156     super,then,true,undef,unless,until,when,while,yield},%
4157     sensitive=true,%
4158     morecomment=[l]\#,%
4159     morecomment=[l]\#\#,%
4160     morecomment=[s]{=BEGIN}{=END},%
4161     morestring=[b]',%
4162     morestring=[b]",%
4163     morestring=[s]{\%q/}{/},%
4164     morestring=[s]{\%q!}{!},%
4165     morestring=[s]{\%q\}{\}},%
4166     morestring=[s]{\%q(}{)},%
4167     morestring=[s]{\%q[}{]},%
4168     morestring=[s]{\%q-}{-},%
4169     morestring=[s]{\%Q/}{/},%
4170     morestring=[s]{\%Q!}{!},%
4171     morestring=[s]{\%Q\}{\}},%
4172     morestring=[s]{\%Q(}{)},%
4173     morestring=[s]{\%Q[}{]},%
4174     morestring=[s]{\%Q-}{-}%
4175 }[keywords,comments,strings]%
4176 % \begin{macrocode}
4177 </lang2>

```

2.68 Scilab

Thanks go to Jean-Philippe Grivet.

```

4178 <*lang1>
4179 %%
4180 %% Scilab definition (c) 2002,2003 Jean-Philippe Grivet
4181 %%
4182 \lst@definlanguage{Scilab}%
4183 {morekeywords={abcd,abinv,abort,abs,acoshm,acosh,acosm,acos,addcolor,%
4184     addf,addinter,addmenu,add_edge,add_node,adj2sp,adj_lists,aff2ab,%

```

```

4185 amell, analpf, analyze, ans, apropos, arc_graph, arc_number, argn, arhmk, %
4186 arl2, arma2p, armac, armx1, armx, arma, arsimul, artest, articul, ascii, %
4187 asinhm, asinh, asinm, asin, atanhm, atanh, atanm, atan, augment, auread, %
4188 auwrite, balanc, balreal, bandwr, basename, bdiag, besseli, besselj, %
4189 besselk, bessely, best_match, bezout, bifish, bilin, binomial, black, %
4190 bloc2exp, bloc2ss, bode, bool2s, boolean, boucle, break, bstap, buttmag, %
4191 bvode, cainv, calerf, calfrq, call, canon, casc, case, ccontrg, cdfbet, %
4192 cdfbin, cdfchi, cdfchn, cdffnc, cdff, cdfgam, cdfnbn, cdfnor, cdfpoi, %
4193 cdft, ceil, center, cepstrum, chaintest, chain_struct, champ1, champ, %
4194 chart, chdir, cheb1mag, cheb2mag, check_graph, check_io, chepol, chfact, %
4195 chol, chsolve, circuit, classmarkov, clean, clearfun, clearglobal, %
4196 clear, close, cls2dls, cmb_lin, cmdred, cmoment, code2str, coeff, coffg, %
4197 coff, colcompr, colcomp, colinout, colormap, colregul, companion, comp, %
4198 cond, conj, connex, contour2di, contour2d, contourf, contour, %
4199 contract_edge, contrss, contr, cont_frm, cont_mat, convex_hull, convol, %
4200 convstr, con_nodes, copfac, copy, correl, corr, coshm, cosh, cosm, cos, %
4201 cotg, cothm, coth, covar, csim, cspect, ctr_gram, cumprod, cumsum, %
4202 curblock, cycle_basis, czt, c_link, dasrt, dassl, datafit, date, dbphi, %
4203 dcf, ddp, debug, dec2hex, deff, definedfields, degree, delbpt, %
4204 delete_arcs, delete_nodes, delete, delip, delmenu, demos, denom, %
4205 derivative, derivat, des2ss, des2tf, determ, detr, det, dft, dhinf, %
4206 dhnorm, diag, diary, diff, diophant, dirname, dispbpt, dispfiles, disp, %
4207 dlgamma, double, dragrect, drawaxis, drawlater, drawnow, draw, driver, %
4208 dscr, dsearch, dsimul, dtsi, dt_ility, duplicate, edge_number, %
4209 edit_curv, edit_graph_menus, edit_graph, edit, eigenmarkov, ell1mag, %
4210 elseif, else, emptystr, endfunction, end, eqfir, eqiir, equil1, equil, %
4211 ereduc, erfcx, erfc, erf, errbar, errcatch, errclear, error, eval3dp, %
4212 eval3d, eval, evans, evstr, excel2sci, execstr, exec, exists, exit, expm, %
4213 exp, external, eye, fac3d, factors, faurre, fchamp, fcontour2d, fcontour, %
4214 fec, feedback, feval, ffilt, fftshift, fft, fgrayplot, figure, fileinfo, %
4215 file, filter, findm, findobj, findx0BD, find_freq, find_path, find, %
4216 findABCD, findAC, findBD, findBDK, findR, fit_dat, fix, floor, flts, foo, %
4217 formatman, format, fort, for, fourplan, fplot2d, fplot3d1, fplot3d, %
4218 fprintf, fprintfMat, frep2tf, freq, freson, frexp, frfit, frmag, fscanf, %
4219 fscanfMat, fsfirlin, fsolve, fspecg, fstabst, fstair, ftest, ftuneq, %
4220 fullrfk, fullrf, full, fun2string, funcprot, functions, function, %
4221 funptr, fusee, gainplot, gamitg, gammaln, gamma, gcare, gcd, gcf, %
4222 genfac3d, genlib, genmarkov, gen_net, geom3d, geomean, getblocklabel, %
4223 getcolor, getcurblock, getcwd, getdate, getd, getenv, getfield, getfont, %
4224 getf, getio, getlinestyle, getmark, getpid, getscicosvars, getsymbol, %
4225 getvalue, getversion, get_function_path, get, gfare, gfrancis, girth, %
4226 givens, glever, glist, global, glue, gpeche, graduate, grand, %
4227 graphics_entities, graph_2_mat, graph_center, graph_complement, %
4228 graph_diameter, graph_power, graph_simp, graph_sum, graph_union, %
4229 graph-list, graycolormap, grayplot, graypolarplot, grep, group, %
4230 gr_menu, gschur, gsort, gspect, gstacksize, gtild, g_margin, h2norm, halt, %
4231 hamilton, hankelsv, hank, harmean, havewindow, help, hermit, hess, %
4232 hex2dec, hilb, hinf, hist3d, histplot, horner, host, hotcolormap, %
4233 householder, hrmt, htianr, hypermat, h_cl, h_inf_st, h_inf, h_norm, %
4234 iconvert, icon_edit, ieee, if, iirgroup, iirlp, iir, ilib_build, %

```

```

4235 ilib_compile,ilib_for_link,ilib_gen_gateway,ilib_gen_loader,%
4236 ilib_gen_Make,imag,impl,imrep2ss,imult,im_inv,inistate,input,%
4237 int16,int2d,int32,int3d,int8,intc,intdec,integrate,interp1n,%
4238 interp,intersci,intersect,intg,intl,intppty,intsplin,inttrap,%
4239 inttype,int,invr,invsyslin,inv_coeff,inv,iqr,isdef,isdir,isequal,%
4240 iserror,isglobal,isinf,isnan,isoview,isreal,is_connex,jmat,%
4241 justify,kalm,karmarkar,kernel,keyboard,knapsack,kpure,krac2,%
4242 kroneck,kron,lasterror,lattn,lattp,lcf,lcmdiag,lcm,ldivf,ldiv,%
4243 leastsq,legends,length,leqr,levin,lev,lex_sort,lft,lgfft,library,%
4244 lib,lin2mu,lincos,lindquist,lines,line_graph,linfn,linf,link,%
4245 linmeq,linpro,linsolve,linspace,lin,listfiles,list,lmisolver,%
4246 lmitool,loadmatfile,loadplots,loadwave,load_graph,load,locate,%
4247 log10,log1p,log2,logm,logspace,log,lotest,lqe,lqg2stan,lqg_ltr,%
4248 lqg,lqr,lsq,lsslist,lstcat,lstsize,ltitr,ludel,lufact,luget,%
4249 lusolve,lu,lyap,macglov,macr2lst,macrovar,macro,mad,make_graph,%
4250 make_index,manedit,man,mapsound,markp2ss,matfile2sci,matrix,%
4251 mat_2_graph,maxi,max_cap_path,max_clique,max_flow,max,mclearerr,%
4252 mclose,meanf,mean,median,meof,mese,mesh2d,mfft,mfile2sci,mgeti,%
4253 mgetl,mgetstr,mget,milk_drop,mine,mini,minreal,minss,%
4254 min_lcost_cflow,min_lcost_flow1,min_lcost_flow2,min_qcost_flow,%
4255 min_weight_tree,min,mlist,mode,modulo,moment,mopen,mov,%
4256 mps2linpro,mputl,mputstr,mput,mrfit,msd,mseek,mtell,mtlb_load,%
4257 mtlb_mode,mtlb_save,mtlb_sparse,mu2lin,mulf,mvvacov,m_circle,%
4258 names,nand2mean,nanmax,nanmeanf,nanmean,nanmedian,nanmin,%
4259 nanstdev,nansum,narsimul,ndims,nearfloat,nehari,neighbors,%
4260 netclose,netwindows,netwindow,newest,newfun,nextpow2,nf3d,nfreq,%
4261 nlev,nnz,nodes_2_path,nodes_degrees,node_number,noisege,norm,%
4262 null,numdiff,numer,nyquist,obscont1,obscont,observer,obsvss,%
4263 obsv_mat,obs_gram,odedc,odedi,odeoptions,ode_discrete,ode_root,%
4264 ode,oldload,oldsave,ones,optim,orth,param3d1,param3d,%
4265 paramfplot2d,parrot,part,pathconvert,path_2_nodes,pause,pbig,%
4266 pdiv,pen2ea,pencan,penlaur,perctl,perfect_match,pertrans,pfss,%
4267 phasemag,phc,pinv,pipe_network,playsnd,plot2d1,plot2d2,plot2d3,%
4268 plot2d4,plot2d,plot3d1,plot3d2,plot3d3,plot3d,plotframe,%
4269 plotprofile,plot_graph,plot,plzr,pmodulo,pol2des,pol2str,pol2tex,%
4270 polarplot,polar,polfact,poly,portr3d,portrait,power,ppol,prbs_a,%
4271 predecessors,predef,printf,printing,print,prod,profile,projsl,%
4272 projspec,proj,psmall,pspect,pvm_addhosts,pvm_barrier,pvm_bcast,%
4273 pvm_bufinfo,pvm_config,pvm_delhosts,pvm_error,pvm_exit,%
4274 pvm_f772sci,pvm_getinst,pvm_gettid,pvm_get_timer,pvm_gsize,%
4275 pvm_halt,pvm_joygroup,pvm_kill,pvm_lvgroup,pvm_mytid,pvm_parent,%
4276 pvm_probe,pvm_recv,pvm_reduce,pvm_sci2f77,pvm_send,pvm_set_timer,%
4277 pvm_spawn_independent,pvm_spawn,pvm_start,pvm_tasks,%
4278 pvm_tidtohost,pvm,pwd,p_margin,qassign,qr,quapro,quart,quaskro,%
4279 quit,randpencil,rand,range,rankqr,rank,rat,rcond,rdivf,read4b,%
4280 readb,readc_,readmps,read,real,recur,reglin,regress,remezb,remez,%
4281 repfreq,replot,residu,resume,return,riccati,riccsl,ricc,ric_desc,%
4282 rlist,roots,rotate,round,routh_t,rowcompr,rowcomp,rowinout,%
4283 rowregul,rowshuff,rpem,rref,rtitr,rubberbox,salesman,savewave,%
4284 save_graph,save,scaling,scanf,schur,sci2exp,sci2for,sci2map,%

```

```

4285 sciargs,scicosim,scicos,scifunc_block,sd2sci,secto3d,select,%
4286 semidef,sensi,setbpt,seventhandler,setfield,setmenu,%
4287 setscicosvars,set,sfact,sgrid,shortest_path,showprofile,%
4288 show_arcs,show_graph,show_nodes,sident,signm,sign,simp_mode,simp,%
4289 sincd,sinc,sinc,sinhm,sinh,sinm,sin,size,sm2des,sm2ss,smooth,%
4290 solve,sorder,sort,sound,sp2adj,spaninter,spanplus,spantwo,sparse,%
4291 spchol,spcompact,specfact,spec,speye,spget,splin,split_edge,%
4292 spones,sprand,sprintf,spzeros,sqroot,sqrtm,sqrt,squarewave,%
4293 square,srfaur,srkf,ss2des,ss2ss,ss2tf,sscanf,sskf,ssprint,ssrand,%
4294 stabil,stacksize,standard_define,standard_draw,standard_input,%
4295 standard_origin,standard_output,startup,stdevf,stdev,steadycos,%
4296 str2code,strange,strcmp,strcmpindex,strings,string,striplanks,%
4297 strong_connex,strong_con_nodes,strcmpsubst,st_deviation,st_ility,%
4298 subf,subgraph,subplot,successors,sum,supernode,sva,svd,svplot,%
4299 systmat,tambul,tangent,tanhm,tanh,tanm,tan,tdinit,testmatrix,%
4300 texprint,tf2des,tf2ss,then,thrownan,timer,time_id,titlepage,%
4301 tk_getdir,tk_getfile,tlist,toeplitz,tokenpos,tokens,trace,%
4302 translatepaths,trans_closure,trans,trfmod,transfml,tril,trimmean,%
4303 trisolve,triw,trzeros,typename,typeof,type,uicontrol,uimenu,%
4304 uint16,uint32,uint8,ui_observer,ulink,unglue,union,unique,unix_g,%
4305 unix_s,unix_w,unix_x,unix,unobs,unsetmenu,user,varargin,%
4306 varargout,variancef,variance,varn,warning,wavread,wavwrite,%
4307 wcenter,wfir,what,whereami,whereis,where,while,whos,who_user,who,%
4308 wiener,wigner>window,winsid,with_gtk,with_pvm,with_texmacs,%
4309 with_tk,writb,write4b,write,xarcs,xarc,xarrows,xaxis,xbase,%
4310 xbasimp,xbasr,xchange,xclear,xclea,xclick,xclip,xdel,xend,xfarcs,%
4311 xfarc,xfpolys,xfpoly,xfrect,xgetech,xgetfile,xgetmouse,xget,%
4312 xgraduate,xgrid,xinfo,xinit,xlfont,xload,xname,xnumb,xpause,%
4313 xpolys,xpoly,xrects,xrect,xrpoly,xs2fig,xs2gif,xs2ppm,xs2ps,%
4314 xsave,xsegs,select,xsetech,xsetm,xset,xstringb,xstringl,xstring,%
4315 xtape,xtitle,x_choices,x_choose,x_dialog,x_matrix,x_mdialog,%
4316 x_message_modeless,x_message,yulewalk,zeropen,zeros,zgrid,zpbutt,%
4317 zpch1,zpch2,zpell,mfprintf,mfscanf,mprintf,mscanf,msprintf,%
4318 msscanf,mucomp,%
4319 ABSBLK_f,AFFICH_f,ANDLOG_f,ANIMXY_f,BIGSOM_f,CLINDUMMY_f,CLKIN_f,%
4320 CLKINV_f,CLKOUT_f,CLKOUTV_f,CLKSOM_f,CLKSOMV_f,CLKSPLIT_f,%
4321 CLOCK_f,CLR_f,CLSS_f,CONST_f,COSBLK_f,CURV_f,DELAY_f,DELAYV_f,%
4322 DEMUX_f,DLR_f,DLRADAPT_f,DLSS_f,EVENTSCOPE_f,EVTDLY_f,EVTGEN_f,%
4323 EXPBLK_f,G_make,GAIN_f,GAINBLK_f,GENERAL_f,GENERIC_f,GENSIN_f,%
4324 GENSQR_f,HALT_f,IFTHEL_f,IN_f,INTEGRAL_f,INTRP2BLK_f,INTRPLBLK_f,%
4325 INVBLK_f,LOGBLK_f,LOOKUP_f,Matplot1,Matplot,MAX_f,MCLOCK_f,%
4326 MFCLK_f,MIN_f,MUX_f,NDcost,NEGTOPOS_f,OUT_f,POSTONEG_f,POWBLK_f,%
4327 PROD_f,QUANT_f,RAND_f,READC_f,REGISTER_f,RELAY_f,RFILE_f,%
4328 ScilabEval,Sfgrayplot,Sgrayplot,SAMPLEHOLD_f,SAT_f,SAWTOOTH_f,%
4329 SCOPE_f,SCOPY_f,SELECT_f,SINBLK_f,SOM_f,SPLIT_f,STOP_f,SUPER_f,%
4330 TANBLK_f,TCLSS_f,TEXT_f,TIME_f,TK_EvalFile,TK_EvalStr,TK_GetVar,%
4331 TK_SetVar,TRASH_f,WFILE_f,WRITEC_f,ZCROSS_f,%
4332 \%,asn,\%,helps,\%,k,\%,sn\%,%
4333 alsoletter=\%,% chmod

```



```

4335     sensitive,%
4336     morecomment=[l]//,%
4337     morestring=[b]" ,%
4338     morestring=[m]' %
4339 }[keywords,comments,strings]%
4340 </lang1>

```

2.69 SHELXL

Thanks to Aidan Philip Heerdegen for mailing this definition.

```

4341 <*lang2>
4342 %%
4343 %% SHELXL definition (c) 1999 Aidan Philip Heerdegen
4344 %%
4345 \lst@definlanguage{SHELXL}%
4346 {morekeywords={TITL,CELL,ZERR,LATT,SYMM,SFAC,DISP,UNIT,LAUE,%
4347     REM,MORE,TIME,END,HKLF,OMIT,SHEL,BASF,TWIN,EXTI,SWAT,%
4348     MERG,SPEC,RESI,MOVE,ANIS,AFIX,HFIX,FRAG,FEND,EXYZ,EADP,%
4349     EQIV,OMIT,CONN,PART,BIND,FREE,DFIX,BUMP,SAME,SADI,CHIV,%
4350     FLAT,DELU,SIMU,DEFS,ISOR,SUMP,L.S.,CGLS,SLIM,BLOC,DAMP,%
4351     WGHT,FVAR,BOND,CONF,MPLA,RTAB,LIST,ACTA,SIZE,TEMP,WPDB,%
4352     FMAP,GRID,PLAN,MOLE},%
4353     sensitive=false,%
4354     alsoother=_,% Makes the syntax highlighting ignore the underscores
4355     morecomment=[l]{! } ,%
4356 }%
4357 </lang2>

```

2.70 Simula

Took data from

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

```

4358 <*lang3>
4359 \lst@definlanguage[IBM]{Simula}[DEC]{Simula}{}%
4360 \lst@definlanguage[DEC]{Simula}[67]{Simula}%
4361 {morekeywords={and,eq,eqv,ge,gt,hidden,imp,le,long,lt,ne,not,%
4362     options,or,protected,short}%
4363 }%
4364 \lst@definlanguage[CII]{Simula}[67]{Simula}%
4365 {morekeywords={and,equiv,exit,impl,not,or,stop}}%
4366 \lst@definlanguage[67]{Simula}%
4367 {morekeywords={activate,after,array,at,before,begin,boolean,%
4368     character,class,comment,delay,detach,do,else,end,external,false,%

```

```

4369         for,go,goto,if,in,inner,inspect,integer,is,label,name,new,none,%
4370         notext,otherwise,prior,procedure,qua,reactivate,real,ref,resume,%
4371         simset,simulation,step,switch,text,then,this,to,true,until,value,%
4372         virtual,when,while},%
4373     sensitive=f,%
4374     keywordcommentsemicolon={end}{else,end,otherwise,when}{comment},%
4375     morestring=[d] ",%
4376     morestring=[d] '%
4377 }[keywords,keywordcomments,strings]%
4378 </lang3>

```

2.71 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.

```

4379 <*lang3>
4380 %%
4381 %% SPARQL definition (c) 2006 Christoph Kiefer
4382 %%
4383 \lst@definlanguage{SPARQL}%
4384 {morekeywords={BASE,PREFIX,SELECT,DISTINCT,CONSTRUCT,DESCRIBE,ASK,%
4385         FROM,NAMED,WHERE,ORDER,BY,ASC,DESC,LIMIT,OFFSET,OPTIONAL,%
4386         GRAPH,UNION,FILTER,a,STR,LANG,LANGMATCHES,DATATYPE,BOUND,%
4387         isIRI,isURI,isBLANK,isLITERAL,REGEX,true,false},%
4388     sensitive=false,%
4389     morecomment=[l]\#,%
4390     morestring=[d] ',%
4391     morestring=[d] "%
4392 }[keywords,comments,strings]%
4393 </lang3>

```

2.72 SQL

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

```

4394 <*lang1>
4395 %%
4396 %% SQL definition (c) 1998 Christian Haul
4397 %%             (c) 2002 Neil Conway
4398 %%             (c) 2002 Robert Frank
4399 %%             (c) 2003 Dirk Jesko
4400 %%
4401 \lst@definlanguage{SQL}%
4402 {morekeywords={ABSOLUTE,ACTION,ADD,ALLOCATE,ALTER,ARE,AS,ASSERTION,%
4403         AT,BETWEEN,BIT_LENGTH,BOTH,BY,CASCADE,CASCADED,CASE,CAST,%
4404         CATALOG,CHAR_LENGTH,CHARACTER_LENGTH,CLUSTER,COALESCE,%

```

```

4405      COLLATE, COLLATION, COLUMN, CONNECT, CONNECTION, CONSTRAINT, %
4406      CONSTRAINTS, CONVERT, CORRESPONDING, CREATE, CROSS, CURRENT_DATE, %
4407      CURRENT_TIME, CURRENT_TIMESTAMP, CURRENT_USER, DAY, DEALLOCATE, %
4408      DEC, DEFERRABLE, DEFERED, DESCRIBE, DESCRIPTOR, DIAGNOSTICS, %
4409      DISCONNECT, DOMAIN, DROP, ELSE, END, EXEC, EXCEPT, EXCEPTION, EXECUTE, %
4410      EXTERNAL, EXTRACT, FALSE, FIRST, FOREIGN, FROM, FULL, GET, GLOBAL, %
4411      GRAPHIC, HAVING, HOUR, IDENTITY, IMMEDIATE, INDEX, INITIALLY, INNER, %
4412      INPUT, INSENSITIVE, INSERT, INTO, INTERSECT, INTERVAL, %
4413      ISOLATION, JOIN, KEY, LAST, LEADING, LEFT, LEVEL, LIMIT, LOCAL, LOWER, %
4414      MATCH, MINUTE, MONTH, NAMES, NATIONAL, NATURAL, NCHAR, NEXT, NO, NOT, NULL, %
4415      NULLIF, OCTET_LENGTH, ON, ONLY, ORDER, ORDERED, OUTER, OUTPUT, OVERLAPS, %
4416      PAD, PARTIAL, POSITION, PREPARE, PRESERVE, PRIMARY, PRIOR, READ, %
4417      RELATIVE, RESTRICT, REVOKE, RIGHT, ROWS, SCROLL, SECOND, SELECT, SESSION, %
4418      SESSION_USER, SIZE, SPACE, SQLSTATE, SUBSTRING, SYSTEM_USER, %
4419      TABLE, TEMPORARY, THEN, TIMEZONE_HOUR, %
4420      TIMEZONE_MINUTE, TRAILING, TRANSACTION, TRANSLATE, TRANSLATION, TRIM, %
4421      TRUE, UNIQUE, UNKNOWN, UPPER, USAGE, USING, VALUE, VALUES, %
4422      VARGRAPHIC, VARYING, WHEN, WHERE, WRITE, YEAR, ZONE, %
4423      AND, ASC, avg, CHECK, COMMIT, count, DECODE, DESC, DISTINCT, GROUP, IN, % FF
4424      LIKE, NUMBER, ROLLBACK, SUBSTR, sum, VARCHAR2, % FF
4425      MIN, MAX, UNION, UPDATE, % RF
4426      ALL, ANY, CUBE, CUBE, DEFAULT, DELETE, EXISTS, GRANT, OR, RECURSIVE, % DJ
4427      ROLE, ROLLUP, SET, SOME, TRIGGER, VIEW}, % DJ
4428      moreendkeywords={BIT, BLOB, CHAR, CHARACTER, CLOB, DATE, DECIMAL, FLOAT, % DJ
4429      INT, INTEGER, NUMERIC, SMALLINT, TIME, TIMESTAMP, VARCHAR}, % moved here
4430      sensitive=false, % DJ
4431      morecomment=[l]--, %
4432      morecomment=[s]{/*}{*/, %
4433      morestring=[d]', %
4434      morestring=[d]"%
4435      }[keywords, comments, strings]%
4436 </lang1>

```

2.73 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.

```

4437 <*lang2>

```

```

4438 %%
4439 %% Tcl/Tk definition (c) Gerd Neugebauer
4440 %%
4441 \lst@definlanguage[tk]{tcl}[] {tcl}%
4442 {morekeywords={activate,add,separator,radiobutton,checkboxbutton,%
4443     command,cascade,all,bell,bind,bindtags,button,canvas,canvasx,%
4444     canvasy,cascade,cget,checkboxbutton,config,configu,configur,%
4445     configure,clipboard,create,arc,bitmap,image,line,oval,polygon,%
4446     rectangle,text,textwindow,curselection,delete,destroy,end,entry,%
4447     entrycget,event,focus,font,actual,families,measure,metrics,names,%
4448     frame,get,grab,current,release,status,grid,columnconfigure,%
4449     rowconfigure,image,image,create,bitmap,photo,delete,height,types,%
4450     widt,names,index,insert,invoke,itemconfigure,label,listbox,lower,%
4451     menu,menubutton,message,move,option,add,clear,get,readfile,pack,%
4452     photo,place,radiobutton,raise,scale,scroll,scrollbar,search,see,%
4453     selection,send,stdin,stdout,stderr,tag,bind,text,tk,tkerror,%
4454     tkwait>window,variable,visibility,toplevel,unknown,update,winfo,%
4455     class,exists,ismapped,parent,reqwidth,reqheight,rootx,rooty,%
4456     width,height,wm,aspect,client,command,deiconify,focusmodel,frame,%
4457     geometry,group,iconbitmap,iconify,iconmask,iconname,iconposition,%
4458     iconwindow,maxsize,minsize,overrideredirect,positionfrom,%
4459     protocol,sizefrom,state,title,transient,withdraw,xview,yview,%
4460     yposition,%
4461     -accelerator,-activebackground,-activeborderwidth,%
4462     -activeforeground,-after,-anchor,-arrow,-arrowshape,-aspect,%
4463     -async,-background,-before,-bg,-bigincrement,-bitmap,-bordermode,%
4464     -borderwidth,-button,-capstyle,-channel,-class,-closeenough,%
4465     -colormap,-column,-columnspan,-command,-confine,-container,%
4466     -count,-cursor,-data,-default,-detail,-digits,-direction,%
4467     -displayof,-disableforeground,-elementborderwidth,-expand,%
4468     -exportselection,-extend,-family,-fg,-file,-fill,-focus,-font,%
4469     -fontmap,-foreground,-format,-from,-gamma,-global,-height,%
4470     -highlightbackground,-highlightcolor,-highlightthickness,-icon,%
4471     -image,-in,-insertbackground,-insertborderwidth,-insertofftime,%
4472     -insertontime,-insertwidth,-ipadx,-ipady,-joinstyle,-jump,%
4473     -justify,-keycode,-keysym,-label,-lastfor,-length,-maskdata,%
4474     -maskfile,-menu,-message,-mode,-offvalue,-onvalue,-orient,%
4475     -outlien,-outlinestipple,-overstrike,-override,-padx,-pady,%
4476     -pageanchor,-pageheight,-pagewidth,-pagey,-pagey,-palette,%
4477     -parent,-place,-postcommand,-relheight,-relief,-relwidth,-relx,%
4478     -rely,-repeatdelay,-repeatinterval,-resolution,-root,-rootx,%
4479     -rooty,-rotate,-row,-rowspan,-screen,-selectcolor,-selectimage,%
4480     -sendevent,-serial,-setgrid,-showvalue,-shrink,-side,-size,%
4481     -slant,-sliderlength,-sliderrelief,-smooth,-splinesteps,-state,%
4482     -sticky,-stipple,-style,-subsample,-subwindow,-tags,-takefocus,%
4483     -tearoff,-tearoffcommand,-text,-textvariable,-tickinterval,-time,%
4484     -title,-to,-troughcolor,-type,-underline,-use,-value,-variable,%
4485     -visual,-width,-wrap,-wraplength,-x,-xscrollcommand,-y,%
4486     -bgstipple,-fgstipple,-lmargin1,-lmargin2,-rmargin,-spacing1,%
4487     -spacing2,-spacing3,-tabs,-yscrollcommand,-zoom,%

```

```

4488     activate,add,addtag,bbox,cget,clone,configure,coords,%
4489     curselection,debug,delete,delta,deselect,dlineinfo,dtag,dump,%
4490     entrycget,entryconfigure,find,flash,fraction,get,gettext,handle,%
4491     icursor,identify,index,insert,invoke,itemcget,itemconfigure,mark,%
4492     moveto,own,post,postcascade,postscript,put,redither,ranges,%
4493     scale,select,show,tag,type,unpost,xscrollcommand,xview,%
4494     yscrollcommand,yview,yposition}%
4495 }%

4496 \lst@definelanguage[] {tcl}%
4497 {alsoletter={.:,*=&-},%
4498   morekeywords={after,append,array,names,exists,anymore,donesearch,%
4499     get,nextelement,set,size,startsearch,auto_mkindex,binary,break,%
4500     case,catch,cd,clock,close,concat,console,continue,default,else,%
4501     elseif,eof,error,eval,exec,-keepnewline,exit,expr,fblocked,%
4502     fconfigure,fcopy,file,atime,dirname,executable,exists,extension,%
4503     isdirectory,isfile,join,lstat,mtime,owned,readable,readlink,%
4504     rootname,size,stat,tail,type,writable,-permissions,-group,-owner,%
4505     -archive,-hidden,-readonly,-system,-creator,-type,-force,%
4506     fileevent,flush,for,foreach,format,gets,glob,global,history,if,%
4507     incr,info,argsbody,cmdcount,commands,complete,default,exists,%
4508     globals,level,library,locals,patchlevel,procs,script,tclversion,%
4509     vars,interp,join,lappend,lindex,linsert,list,llength,lrange,%
4510     lreplace,lsearch,-exact,-regexp,-glob,lsort,-ascii,-integer,%
4511     -real,-dictionary,-increasing,-decreasing,-index,-command,load,%
4512     namespace,open,package,forget,ifneeded,provide,require,unknown,%
4513     vcompare,versions,vsatisfies,pid,proc,puts,-nonewline,pwd,read,%
4514     regexp,-indices,regsub,-all,-nocasereaname,return,scan,seek,set,%
4515     socket,source,split,string,compare,first,index,last,length,match,%
4516     range,tolower,toupper,trim,trimleft,trimright,subst,switch,tell,%
4517     time,trace,variable,vdelete,vinfo,unknown,unset,uplevel,upvar,%
4518     vwait,while,acos,asin,atan,atan2,ceil,cos,cosh,exp,floor,fmod,%
4519     hypot,log,log10,pow,sin,sinh,sqrt,tan,tanh,abs,double,int,round%
4520   },%
4521   morestring=[d]",%
4522   morecomment=[f]\#,%
4523   morecomment=[l]{;\#},%
4524   morecomment=[l]{\[\#},%
4525   morecomment=[l]{\{\#}%
4526 }[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.

4527 </lang2>

2.74 Statistical languages

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

4528 <*lang3>

```

4529 \lst@definlanguage{S}[] {R}{-}
4530 \lst@definlanguage[PLUS]{S}[] {R}{-}
4531 \lst@definlanguage{R}%
4532 {keywords={abbreviate,abline,abs,acos,acosh,action,add1,add,%
4533 aggregate,alias,Alias,alist,all,anova,any,aov,aperm,append,apply,%
4534 approx,approxfun,apropos,Arg,args,array,arrows,as,asin,asinh,%
4535 atan,atan2,atanh,attach,attr,attributes,autoload,autoloader,ave,%
4536 axis,backsolve,barplot,basename,besselI,besselJ,besselK,besselY,%
4537 beta,binomial,body,box,boxplot,break,browser,bug,builtins,bxp,by,%
4538 c,C,call,Call,case,cat,category,cbind,ceiling,character,char,%
4539 charmatch,check,chol,chol2inv,choose,chull,class,close,cm,codes,%
4540 coef,coefficients,co,col,colnames,colors,colours,commandArgs,%
4541 comment,complete,complex,conflicts,Conj,contents,contour,%
4542 contrasts,contr,control,helmert,contrib,convolve,cooks,coords,%
4543 distance,coplot,cor,cos,cosh,count,fields,cov,covratio,wt,CRAN,%
4544 create,crossprod,cummax,cummin,cumprod,cumsum,curve,cycle,D,%
4545 data,dataentry,date,dbeta,dbinom,dcauchy,dchisq,de,debug,%
4546 debugger,Defunct,default,delay,delete,deltat,demo,de,density,%
4547 deparse,dependencies,Deprecated,deriv,description,detach,%
4548 dev2bitmap,dev,cur,deviance,off,prev,,dexp,df,dfbetas,dffits,%
4549 dgamma,dgeom,dget,dhyper,diag,diff,digamma,dim,dimnames,dir,%
4550 dirname,dlnorm,dlogis,dnbinom,dnchisq,dnorm,do,dotplot,double,%
4551 download,dpois,dput,drop,drop1,dsignrank,dt,dummy,dump,dunif,%
4552 duplicated,dweibull,dwilcox,dyn,edit,eff,effects,eigen,else,%
4553 emacs,end,environment,env,erase,eval,equal,evalq,example,exists,%
4554 exit,exp,expand,expression,External,extract,extractAIC,factor,%
4555 fail,family,fft,file,filled,find,fitted,fivenum,fix,floor,for,%
4556 For,formals,format,formatC,formula,Fortran,forwardsolve,frame,%
4557 frequency,ftable,ftable2table,function,gamma,Gamma,gammaCody,%
4558 gaussian,gc,gcinfo,gctorture,get,getenv,geterrmessage,getOption,%
4559 getwd,gl,glm,globalenv,gnome,GNOME,graphics,gray,grep,grey,grid,%
4560 gsub,hasTsp,hat,heat,help,hist,home,hsv,httpclient,I,identify,if,%
4561 ifelse,Im,image,\%in%,index,influence,measures,inherits,install,%
4562 installed,integer,interaction,interactive,Internal,intersect,%
4563 inverse,invisible,IQR,is,jitter,kappa,kronecker,labels,lapply,%
4564 layout,lbeta,lchoose,lcm,legend,length,levels,lgamma,library,%
4565 licence,license,lines,list,lm,load,local,locator,log,log10,log1p,%
4566 log2,logical,loglin,lower,lowess,ls,lsfit,lsf,ls,machine,Machine,%
4567 mad,mahalanobis,make,link,margin,match,Math,matlines,mat,matplot,%
4568 matpoints,matrix,max,mean,median,memory,menu,merge,methods,min,%
4569 missing,Mod,mode,model,response,mosaicplot,mtext,mvfft,na,nan,%
4570 names,omit,nargs,nchar,ncol,NCOL,new,next,NextMethod,nextn,%
4571 nlevels,nlm,noquote,NotYetImplemented,NotYetUsed,nrow,NROW,null,%
4572 numeric,\%o%,objects,offset,old,on,Ops,optim,optimise,optimize,%
4573 options,or,order,ordered,outer,package,packages,page,pairlist,%
4574 pairs,palette,panel,par,parent,parse,paste,path,pbeta,pbinom,%
4575 pcauchy,pchisq,pentagamma,persp,pexp,pf,pgamma,pgeom,phyper,pico,%
4576 pictex,piechart,Platform,plnorm,plogis,plot,pmatch,pmax,pmin,%
4577 pnbinom,pnchisq,pnorm,points,poisson,poly,polygon,polyroot,pos,%
4578 postscript,power,ppoints,ppois,predict,preplot,pretty,Primitive,%

```

```

4579 print,prmatrix,proc,prod,profile,proj,prompt,prop,provide,%
4580 psignrank,ps,pt,ptukey,punif,pweibull,pwilcox,q,qbeta,qbinom,%
4581 qcauchy,qchisq,qexp,qf,qgamma,qgeom,qhyper,qlnorm,qlogis,qnbinom,%
4582 qnchisq,qnorm,qpois,qqline,qqnrm,qqplot,qz,Q,qty,qy,qsigrank,%
4583 qt,qtukey,quantile,quasi,quit,qunif,quote,qweibull,qwilcox,%
4584 rainbow,range,rank,rbeta,rbind,rbinom,rcauchy,rchisq,Re,read,csv,%
4585 csv2,fwf,readline,socket,real,Recall,rect,reformulate,regexpr,%
4586 relevel,remove,rep,repeat,replace,replications,report,require,%
4587 resid,residuals,restart,return,rev,rexpr,rf,rgamma,rgb,rgeom,R,%
4588 rhyper,rle,rlnorm,rlogis,rm,rnbinom,RNGkind,rnorm,round,row,%
4589 rownames,rowsum,rpois,rsignrank,rstandard,rstudent,rt,rug,runif,%
4590 rweibull,rwilcox,sample,sapply,save,scale,scan,scan,screen,sd,se,%
4591 search,searchpaths,segments,seq,sequence,setdiff,setequal,set,%
4592 setwd,show,sign,signif,sin,single,sinh,sink,solve,sort,source,%
4593 spline,splinefun,split,sqrt,stars,start,stat,stem,step,stop,%
4594 storage,strings,stripplot,stringsplit,structure,sub,%
4595 subset,substitute,substr,substring,sum,summary,sunflowerplot,svd,%
4596 sweep,switch,symbol,symbols,symnum,sys,status,system,t,table,%
4597 tabulate,tan,tanh,tapply,tempfile,terms,terrain,tetragamma,text,%
4598 time,title,topo,trace,traceback,transform,tri,trigamma,trunc,try,%
4599 ts,tsp,typeof,unclass,undebug,undoc,union,unique,unroot,unix,%
4600 unlink,unlist,unname,untrace,update,upper,url,UseMethod,var,%
4601 variable,vector,Version,vi,warning,warnings,weighted,weights,%
4602 which,while>window,write,\\x\\%,x11,X11,xedit,xemacs,xinch,xor,%
4603 xpdrows,xy,xyinch,yinch,zapsmall,zip},%
4604 otherkeywords={!,!=,~, $,*,\\&,\\%/\\%,\\%*\\%,\\%\\%,<-,<<-,_,/},%
4605 alsoother={._$},%
4606 sensitive,%
4607 morecomment=[1]\\#,%
4608 morestring=[d]",%
4609 morestring=[d]'% 2001 Robert Denham
4610 }%

```

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

```

4611 \lst@definlanguage{SAS}%
4612 {procnamekeys={proc},%
4613   morekeywords={DATA,AND,OR,NOT,EQ,GT,LT,GE,LE,NE,INFILE,INPUT,DO,BY,%
4614     TO,SIN,COS,OUTPUT,END,PLOT,RUN,LIBNAME,VAR,TITLE,FIRSTOBS,OBS,%
4615     DELIMITER,DLM,EOF,ABS,DIM,HBOUND,LBOUND,MAX,MIN,MOD,SIGN,SQRT,%
4616     CEIL,FLOOR,FUZZ,INT,ROUND,TRUNC,DIGAMMA,ERF,ERFC,EXP,GAMMA,%
4617     LGAMMA,LOG,LOG2,LOG10,ARCS,ARSIN,ATAN,COSH,SINH,TANH,TAN,%
4618     POISSON,PROBBETA,PROBNML,PROBCHI,PROBF,PROBGAM,PROBHYPR,%
4619     PROBNGB,PROBNORM,PROBT,BETAINV,CINV,FINV,GAMINV,PROBIT,TINV,CSS,%
4620     CV,KURTOSIS,MEAN,NMISS,RANGE,SKEWNESS,STD,STDERR,SUM,USS,NORMAL,%
4621     RANBIN,RANCAU,RANEXP,RANGAM,RANNOR,RANPOI,RANTBL,RANTRI,RANUNI,%
4622     UNIFORM,IF,THEN,ELSE,WHILE,UNTIL,DROP,KEEP,LABEL,DEFAULT,ARRAY,%
4623     MERGE,CARDS,CARDS4,PUT,SET,UPDATE,ABORT,DELETE,DISPLAY,LIST,%
4624     LOSTCARD,MISSING,STOP,WHERE,ARRAY,DROP,KEEP,WINDOW,LENGTH,RENAME,%
4625     RETAIN,MEANS,UNIVARIATE,SUMMARY,TABULATE,CORR,FREQ,FOOTNOTE,NOTE,%

```

```

4626     SHOW},%
4627     otherkeywords={!,!=,~,,$,*,\&,\_ ,/,<,>,<=>},%
4628     morestring=[d]'%
4629     }[keywords,comments,strings,procnames]%
4630 </lang3>

```

2.75 \TeX

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

```

4631 <*lang3>
4632 \lst@definlanguage[AlLaTeX]{TeX}[LaTeX]{TeX}%
4633 {moretexcs={AtBeginDocument,AtBeginDvi,AtEndDocument,AtEndOfClass,%
4634     AtEndOfPackage,ClassError,ClassInfo,ClassWarning,%
4635     ClassWarningNoLine,CurrentOption,DeclareErrorFont,%
4636     DeclareFixedFont,DeclareFontEncoding,DeclareFontEncodingDefaults,%
4637     DeclareFontFamily,DeclareFontShape,DeclareFontSubstitution,%
4638     DeclareMathAccent,DeclareMathAlphabet,DeclareMathAlphabet,%
4639     DeclareMathDelimiter,DeclareMathRadical,DeclareMathSizes,%
4640     DeclareMathSymbol,DeclareMathVersion,DeclareOldFontCommand,%
4641     DeclareOption,DeclarePreloadSizes,DeclareRobustCommand,%
4642     DeclareSizeFunction,DeclareSymbolFont,DeclareSymbolFontAlphabet,%
4643     DeclareTextAccent,DeclareTextAccentDefault,DeclareTextCommand,%
4644     DeclareTextCommandDefault,DeclareTextComposite,%
4645     DeclareTextCompositeCommand,DeclareTextFontCommand,%
4646     DeclareTextSymbol,DeclareTextSymbolDefault,ExecuteOptions,%
4647     GenericError,GenericInfo,GenericWarning,IfFileExists,%
4648     InputIfFileExists,LoadClass,LoadClassWithOptions,MessageBreak,%
4649     OptionNotUsed,PackageError,PackageInfo,PackageWarning,%
4650     PackageWarningNoLine,PassOptionsToClass,PassOptionsToPackage,%
4651     ProcessOptionsProvidesClass,ProvidesFile,ProvidesFile,%
4652     ProvidesPackage,ProvideTextCommand,RequirePackage,%
4653     RequirePackageWithOptions,SetMathAlphabet,SetSymbolFont,%
4654     TextSymbolUnavailable,UseTextAccent,UseTextSymbol},%
4655     morekeywords={array,center,displaymath,document,enumerate,eqnarray,%
4656     equation,flushleft,flushright,itemize,list,lrbox,math,minipage,%
4657     picture,sloppypar,tabbing,tabular,trivlist,verbatim}%
4658 }%
4659 \lst@definlanguage[LaTeX]{TeX}[common]{TeX}%
4660 {moretexcs={a,AA,aa,addcontentsline,addpenalty,addtocontents,%
4661     addtocounter,addtolength,addtoversion,addvspace,alpha,Alpha,and,%
4662     arabic,array,arraycolsep,arrayrulewidth,arraystretch,author,%
4663     baselinestretch,begin,bezier,bfseries,bibcite,bibdata,bibitem,%
4664     bibliography,bibliographystyle,bibstyle,bigskip,boldmath,%
4665     botfigrule,bottomfraction,Box,caption,center,CheckCommand,circle,%
4666     citation,cite,cleardoublepage,clearpage,cline,columnsep,%
4667     columnseprule,columnwidth,contentsline,dashbox,date,dblfigrule,%
4668     dblfloatpagefraction,dblfloatsep,dbltextfloatsep,dbltopfraction,%

```


4669 defaultscriptratio, defaultscriptscriptratio, depth, Diamond, %
 4670 displaymath, document, documentclass, documentstyle, doublerulesep, %
 4671 em, emph, endarray, endcenter, enddisplaymath, enddocument, %
 4672 endenumerate, endeqnarray, endequation, endflushleft, endflushright, %
 4673 enditemize, endlist, endlrbox, endmath, endminipage, endpicture, %
 4674 endsloppypar, endtabbing, endtabular, endtrivlist, endverbatim, %
 4675 enlargethispage, ensuremath, enumerate, eqnarray, equation, %
 4676 evensidemargin, extracolsep, fbox, fboxrule, fboxsep, filecontents, %
 4677 fill, floatpagefraction, floatsep, flushbottom, flushleft, flushright, %
 4678 fnsymbol, fontencoding, fontfamily, fontseries, fontshape, fontsize, %
 4679 fontsubfuzz, footnotemark, footnotesep, footnotetext, footskip, frac, %
 4680 frame, framebox, fussy, glossary, headheight, headsep, height, hline, %
 4681 hspace, I, include, includeonly, index, inputlineno, intextsep, %
 4682 itemindent, itemize, itemsep, iterate, itshape, Join, kill, label, %
 4683 labelsep, labelwidth, LaTeX, LaTeX, leadsto, lefteqn, leftmargin, %
 4684 leftmargini, leftmarginii, leftmarginiii, leftmarginiv, leftmarginv, %
 4685 leftmarginvi, leftmark, lhd, lim, linebreak, linespread, linethickness, %
 4686 linewidth, list, listfiles, listfiles, listparindent, lrbox, %
 4687 makeatletter, makeatother, makebox, makeglossary, makeindex, %
 4688 makelabel, MakeLowercase, MakeUppercase, marginpar, marginparpush, %
 4689 marginparsep, marginparwidth, markboth, markright, math, mathbf, %
 4690 mathellipsis, mathgroup, mathit, mathrm, mathsf, mathsterling, mathtt, %
 4691 mathunderscore, mathversion, mbox, mdseries, mho, minipage, %
 4692 multicolumn, multiput, NeedsTeXFormat, newcommand, newcounter, %
 4693 newenvironment, newfont, newhelp, newlabel, newlength, newline, %
 4694 newmathalphabet, newpage, newsavebox, newtheorem, nobreakspace, %
 4695 nobreakspace, nocite, nocorr, nocorrlist, nofiles, nolinebreak, %
 4696 nonumber, nopagebreak, normalcolor, normalfont, normalmarginpar, %
 4697 numberline, obeycr, oddsidemargin, oldstylenums, onecolumn, oval, %
 4698 pagebreak, pagenumbers, pageref, pagestyle, paperheight, paperwidth, %
 4699 paragraphmark, parbox, parsep, partopsep, picture, poptabs, pounds, %
 4700 protect, pushtabs, put, qbezier, qbeziermax, r, raggedleft, raisebox, %
 4701 ref, refstepcounter, renewcommand, renewenvironment, restorecr, %
 4702 reversemarginpar, rhd, rightmargin, rightmark, rmfamily, roman, Roman, %
 4703 rootbox, rule, samepage, sbbox, scshape, secdef, section, sectionmark, %
 4704 selectfont, setcounter, settodepth, settowidth, sffamily, %
 4705 shortstack, showoutput, showoverfull, sloppy, sloppypar, slshape, %
 4706 smallskip, sqsubset, sqsupset, SS, stackrel, stepcounter, stop, stretch, %
 4707 subparagraphmark, subsectionmark, subsubsectionmark, sum, %
 4708 suppressfloats, symbol, tabbing, tabbingsep, tabcolsep, tabular, %
 4709 tabularnewline, textasciicircum, textasciitilde, textbackslash, %
 4710 textbar, textbf, textbraceleft, textbraceright, textbullet, %
 4711 textcircled, textcompwordmark, textdagger, textdaggerdbl, textdollar, %
 4712 textellipsis, textemdash, textendash, textexclamdown, textfloatsep, %
 4713 textfraction, textgreater, textheight, textit, textless, textmd, %
 4714 textnormal, textparagraph, textperiodcentered, textquestiondown, %
 4715 textquotedblleft, textquotedblright, textquoteleft, textquoteright, %
 4716 textregistered, textrm, textsc, textsection, textsf, textsl, %
 4717 textsterling, textsuperscript, texttrademark, texttt, textunderscore, %
 4718 textup, textvisiblespace, textwidth, thanks, thefootnote, thempfn, %

```

4719 thempfn,thempfootnote,thepage,thepage,thicklines,thinlines,%
4720 thispagestyle,title,today,topfigrule,topfraction,topmargin,%
4721 topsep,totalheight,tracingfonts,trivlist,ttfamily,twocolumn,%
4722 typein,typeout,unboldmath,unitlength,unlhd,unrhd,upshape,usebox,%
4723 usecounter,usefont,usepackage,value,vector,verb,verbatim,vline,%
4724 vspace,width,%
4725 normalsize,small,footnotesize,scriptsize,tiny,large,Large,LARGE,%
4726 huge,Huge}%
4727 }%

4728 \lst@definelanguage[plain]{TeX}[common]{TeX}%
4729 {moretexcs={advancepageno,beginsection,bf,bffam,bye,cal,cleartabs,%
4730 columns,dosupereject,endinsert,equalign,equalignno,fiverm,fivebf,%
4731 fivei,fivesy,folio,footline,hang,headline,it,itemitem,itfam,%
4732 lequalignno,magnification,makefootline,makeheadline,midinsert,mit,%
4733 mscount,nopagenumbers,normalbottom,of,oldstyle,pagebody,%
4734 pagecontents,pageinsert,pageno,plainoutput,preloaded,proclaim,rm,%
4735 settabs,sevenbf,seveni,sevensy,sevenrm,sl,slfam,supereject,%
4736 tabalign,tabs,tabsdone,tabsyet,tenbf,tenex,teni,tenit,tenrm,%
4737 tensl,tensy,tentt,textindent,topglue,topins,topinsert,tt,ttfam,%
4738 ttraggedright,vfootnote}%
4739 }%

```

The following language is only a helper.

```

4740 \lst@definelanguage[common]{TeX}[primitive]{TeX}
4741 {moretexcs={active,acute,ae,AE,aleph,allocationnumber,allowbreak,%
4742 alpha,amalg,angle,approx,arccos,arcsin,arctan,arg,arrowvert,%
4743 Arrowvert,ast,asympt,b,backslash,bar,beta,bgroup,big,Big,bigbreak,%
4744 bigcap,bigcirc,bigcup,bigg,Bigg,biggl,Biggl,biggm,Biggm,biggr,%
4745 Biggr,bigl,Bigl,bigm,Bigm,bigodot,bigoplus,bigotimes,bigr,Bigr,%
4746 bigskip,bigskipamount,bigsqcup,bigtriangledown,bigtriangleup,%
4747 biguplus,bigvee,bigwedge,bmod,bordermatrix,bot,bowtie,brace,%
4748 braced,bracelu,bracerd,braceru,bracevert,brack,break,breve,%
4749 buildrel,bullet,c,cap,cases,cdot,cdotp,cdots,centering,%
4750 centerline,check,chi,choose,circ,clubsuit,colon,cong,coprod,%
4751 copyright,cos,cosh,cot,coth,csc,cup,d,dag,dagger,dashv,ddag,%
4752 ddagger,ddot,ddots,deg,delta,Delta,det,diamond,diamondsuit,dim,%
4753 displaylines,div,do,dospecials,dot,doteq,dotfill,dots,downarrow,%
4754 Downarrow,downbracefill,egroup,eject,ell,empty,emptyset,endgraf,%
4755 endline,enskip,enspace,epsilon,equiv,eta,exists,exp,filbreak,%
4756 flat,fmtname,fmtversion,footins,footnote,footnoterule,forall,%
4757 frenchspacing,frown,gamma,Gamma,gcd,ge,geq,gets,gg,goodbreak,%
4758 grave,H,hat,hbar,heartsuit,hglue,hideskip,hidewidth,hom,%
4759 hookleftarrow,hookrightarrow,hphantom,hrulefill,i,ialign,iff,Im,%
4760 imath,in,inf,infty,int,interdisplaylinepenalty,%
4761 interfootnotelinepenalty,intop,iota,item,j,jmath,joinrel,jot,%
4762 kappa,ker,l,L,lambda,Lambda,land,langle,lbrace,lbrack,lceil,%
4763 ldotp,ldots,le,leavevmode,leftarrow,Leftarrow,leftarrowfill,%
4764 leftharpoonup,leftharpoonup,leftline,leftrightharpoon,%
4765 Leftrightarrow,leq,lfloor,lg,lgroup,lhook,lim,liminf,limsup,line,%
4766 ll,llap,lmoustache,ln,lnot,log,longleftarrow,Longleftarrow,%

```

```

4767     longlefttrightharrow,Longlefttrightharrow,longmapsto,longtrightharrow,%
4768     Longtrightharrow,loop,lor,lq,magstep,magstep,magstephalf,mapsto,%
4769     mapstochar,mathhexbox,mathpalette,mathstrut,matrix,max,maxdimen,%
4770     medbreak,medskip,medskipamount,mid,min,models,mp,mu,multispan,%
4771     nabla,narrower,natural,ne,nearrow,neg,negthinspace,neq,newbox,%
4772     newcount,newdimen,newfam,newif,newinsert,newlanguage,newmuskip,%
4773     newread,newskip,newtoks,newwrite,next,ni,nobreak,nointerlineskip,%
4774     nonfrenchspacing,normalbaselines,normalbaselineskip,%
4775     normallineskip,normallineskiplimit,not,notin,nu,null,nwarrow,o,0,%
4776     oalign,obeylines,obeyspaces,odot,oe,OE,offinterlineskip,oint,%
4777     ointop,omega,Omega,ominus,ooalign,openup,oplus,oslash,otimes,%
4778     overbrace,overleftarrow,overrightarrow,owns,P,parallel,partial,%
4779     perp,phantom,phi,Phi,pi,Pi,pm,pmatrix,pmod,Pr,prec,preceq,prime,%
4780     prod,propto,psi,Psi,qquad,quad,raggedbottom,raggedright,range,%
4781     rbrace,rbrack,rceil,Re,relbar,Relbar,removelastskip,repeat,%
4782     rfloor,rgroup,rho,rhook,rightharrow,Rightarrow,rightharrowfill,%
4783     rightharpoonup,rightharpoonleft,rightharpoonright,rightharpoonleft,%
4784     rmoustache,root,rq,S,sb,searrow,sec,setminus,sharp,showhyphens,%
4785     sigma,Sigma,sim,simeq,sin,sinh,skew,slash,smallbreak,smallint,%
4786     smallskip,smallskipamount,smash,smile,sp,space,spadesuit,sqcap,%
4787     sqcup,sqrt,sqsubseteq,sqsupseteq,ss,star,strut,strutbox,subset,%
4788     subseteq,succ,succeq,sum,sup,supset,supseteq,surd,swarrow,t,tan,%
4789     tanh,tau,TeX,theta,Theta,thinspace,tilde,times,to,top,tracingall,%
4790     triangle,triangleleft,triangleright,u,underbar,underbrace,%
4791     uparrow,Uparrow,upbracefill,updownarrow,Updownarrow,uplus,%
4792     upsilon,Upsilon,v,varepsilon,varphi,varpi,varrho,varsigma,%
4793     vartheta,vdash,vdots,vec,vee,vert,Vert,vglue,vphantom,wedge,%
4794     widehat,widetilde,wlog,wp,wr,xi,Xi,zeta}%
4795 }%

4796 \lst@definlanguage[primitive]{TeX}%
4797 {moretexcs={above,abovedisplayshortskip,abovedisplayskip,aftergroup,%
4798     abovewithdelims,accent,adjdemerits,advance,afterassignment,atop,%
4799     atopwithdelims,badness,baselineskip,batchmode,begingroup,%
4800     belowdisplayshortskip,belowdisplayskip,binoppenalty,botmark,box,%
4801     boxmaxdepth,brokenpenalty,catcode,char,chardef,cleaders,closein,%
4802     closeout,clubpenalty,copy,count,countdef,cr,crcr,csname,day,%
4803     deadcycles,def,defaultthyphenchar,defaultskewchar,delcode,%
4804     delimiter,delimiterfactor,delimitershortfall,dimen,dimendef,%
4805     discretionary,displayindent,displaylimits,displaystyle,%
4806     displaywidowpenalty,displaywidth,divide,doublehyphendemerits,dp,%
4807     edef,else,emergencystretch,end,endcsname,endgroup,endinginput,%
4808     endlinedchar,eqno,errhelp,errmessage,errorcontextlines,%
4809     errorstopmode,escapechar,everycr,everydisplay,everybox,everyjob,%
4810     everymath,everypar,everyvbox,exhyphenpenalty,expandafter,fam,fi,%
4811     finalhyphendemerits,firstmark,floatingpenalty,font,fontdimen,%
4812     fontname,futurelet,gdef,global,globaldefs,halign,hangafter,%
4813     hangindent,hbadness,hbox,hfil,hfill,hfilneg,hfuzz,hoffset,%
4814     holdinginserts,hrule,hsize,hskip,hss,ht,hyphenation,hyphenchar,%
4815     hyphenpenalty,if,ifcase,ifcat,ifdim,ifeof,iffalse,ifhbox,ifhmode,%

```

```

4816     ifinner,ifmmode,ifnum,ifodd,iftrue,ifvbox,ifvmode,ifvoid,ifx,%
4817     ignorespaces,immediate,indent,input,insert,insertpenalties,%
4818     interlinepenalty,jobname,kern,language,lastbox,lastkern,%
4819     lastpenalty,lastskip,lccode,leaders,left,lefthyphenmin,leftskip,%
4820     leqno,let,limits,linepenalty,lineskip,lineskiplimits,long,%
4821     looseness,lower,lowercase,mag,mark,mathaccent,mathbin,mathchar,%
4822     mathchardef,mathchoice,mathclose,mathcode,mathinner,mathop,%
4823     mathopen,mathord,mathpunct,mathrel,mathsurround,maxdeadcycles,%
4824     maxdepth,meaning,medmuskip,message,mkern,month,movelft,%
4825     moveright,mskip,multiply,muskip,muskipdef,newlinechar,noalign,%
4826     noboundary,noexpand,noindent,nolimits,nonscript,nonstopmode,%
4827     nulldelimiterspace,nullfont,number,omit,openin,openout,or,outer,%
4828     output,outputpenalty,over,overfullrule,overline,overwithdelims,%
4829     pagedepth,pagefilllstretch,pagefillstretch,pagefilstretch,%
4830     pagegoal,pageshrink,pagewidth,pagestretch,pagestotal,par,parfillskip,%
4831     parindent,parshape,parskip,patterns,pausing,penalty,%
4832     postdisplaypenalty,predisdisplaypenalty,predisplaysize,pretolerance,%
4833     prevdepth,prevgraf,radical,raise,read,relax,relpenalty,right,%
4834     righthyphenmin,rightskip,romannumeral,scriptfont,%
4835     scriptscriptfont,scriptscriptstyle,scriptspace,scriptstyle,%
4836     scrollmode,setbox,setlanguage,sfcode,shipout,show,showbox,%
4837     showboxbreadth,showboxdepth,showlists,showthe,skewchar,skip,%
4838     skipdef,spacefactor,spaceskip,span,special,splitbotmark,%
4839     splitfirstmark,splitmaxdepth,splittopskip,string,tabskip,%
4840     textfont,textstyle,the,thickmuskip,thinmuskip,time,toks,toksdef,%
4841     tolerance,topmark,topskip,tracingcommands,tracinglostchars,%
4842     tracingmacros,tracingonline,tracingoutput,tracingpages,%
4843     tracingparagraphs,tracingrestores,tracingstats,uccode,uchyph,%
4844     underline,unhbox,unhcopy,unkern,unpenalty,unskip,unvbox,unvcopy,%
4845     uppercase,vadjust,valign,vbadness,vbox,vcenter,vfil,vfill,%
4846     vfilneg,vfuzz,voffset,vrule,vsize,vskip,vsplit,vss,vtop,wd,%
4847     widowpenalty,write,xdef,xleaders,xspaceskip,year},%
4848     sensitive,%
4849     alsoother={0123456789$_},%
4850     morecomment=[1]\%%
4851 }[keywords,tex,comments]%
4852 </lang3>

```

2.76 VBScript

Sonja Weidmann VBScript sent me this language definition.

```

4853 <*lang2>
4854 %%
4855 %% VBScript definition (c) 2000 Sonja Weidmann
4856 %%
4857 \lst@definlanguage{VBScript}%
4858 {morekeywords={Call,Case,Const,Dim,Do,Each,Else,End,Erase>Error,Exit,%
4859     Explicit,For,Function,If,Loop,Next,On,Option,Private,Public,%

```

```

4860 Randomize,ReDim,Rem,Select,Set,Sub,Then,Wend,While,Abs,Array,Asc,%
4861 Atn,CBool,CByte,CCur,CDate,CDBl,Chr,CInt,CLng,Cos,CreateObject,%
4862 CSng,CStr,Date,DateAdd,DateDiff,DatePart,DateSerial,DateValue,%
4863 Day,Exp,Filter,Fix,FormatCurrency,FormatDateTime,FormatNumber,%
4864 FormatPercent,GetObject,Hex,Hour,InputBox,InStr,InStrRev,Int,%
4865 IsArray,IsDate,IsEmpty,IsNull,IsNumeric,IsObject,Join,LBound,%
4866 LCase,Left,Len,LoadPicture,Log,LTrim,Mid,Minute,Month,MonthName,%
4867 MsgBox,Now,Oct,Replace,RGB,Right,Rnd,Round,RTrim,ScriptEngine,%
4868 ScriptEngineBuildVersion,ScriptEngineMajorVersion,%
4869 ScriptEngineMinorVersion,Second,Sign,Sin,Space,Split,Sqr,StrComp,%
4870 StrReverse,String,Tan,Time,TimeSerial,TimeValue,Trim,TypeName,%
4871 UBound,UCase,VarType,Weekday,WeekdayName,Year, And,Eqv,Imp,Is,%
4872 Mod,Not,Or,Xor,Add,BuildPath,Clear,Close,Copy,CopyFile,%
4873 CopyFolder,CreateFolder,CreateTextFile,Delete,DeleteFile,%
4874 DeleteFolder,Dictionary,Drive,DriveExists,Drives,Err,Exists,File,%
4875 FileExists,FileSystemObject,Files,Folder,FolderExists,Folders,%
4876 GetAbsolutePathName,GetBaseName,GetDrive,GetDriveName,%
4877 GetExtensionName,GetFile,GetFileName,GetFolder,%
4878 GetParentFolderName,GetSpecialFolder,GetTempName,Items,Keys,Move,%
4879 MoveFile,MoveFolder,OpenAsTextStream,OpenTextFile,Raise,Read,%
4880 ReadAll,ReadLine,Remove,RemoveAll,Skip,SkipLine,TextStream,Write,%
4881 WriteBlankLines,WriteLine,Alias,Archive,CDROM,Compressed,%
4882 Directory,Fixed,ForAppending,ForReading,ForWriting,Hidden,Normal,%
4883 RAMDisk,ReadOnly,Remote,Removable,System,SystemFolder,%
4884 TemporaryFolder,TristateFalse,TristateTrue,TristateUseDefault,%
4885 Unknown,Volume,WindowsFolder,vbAbortRetryIgnore,%
4886 vbApplicationModal,vbArray,vbBinaryCompare,vbBlack,vbBlue,%
4887 vbBoolean,vbByte,vbCr,vbCrLf,vbCritical,vbCurrency,vbCyan,%
4888 vbDataObject,vbDate,vbDecimal,vbDefaultButton1,vbDefaultButton2,%
4889 vbDefaultButton3,vbDefaultButton4,vbDouble,vbEmpty,vbError,%
4890 vbExclamation,vbFirstFourDays,vbFirstFullWeek,vbFirstJan1,%
4891 vbFormFeed,vbFriday,vbGeneralDate,vbGreen,vbInformation,%
4892 vbInteger,vbLf,vbLong,vbLongDate,vbLongTime,vbMagenta,vbMonday,%
4893 vbNewLine,vbNull,vbNullChar,vbNullString,vbOKC,ancel,vbOKOnly,%
4894 vbObject,vbObjectError,vbQuestion,vbRed,vbRetryCancel,vbSaturday,%
4895 vbShortDate,vbShortTime,vbSingle,vbString,vbSunday,vbSystemModal,%
4896 vbTab,vbTextCompare,vbThursday,vbTuesday,vbUseSystem,%
4897 vbUseSystemDayOfWeek,vbVariant,vbVerticalTab,vbWednesday,vbWhite,%
4898 vbYellow,vbYesNo,vbYesNoCancel},%
4899 sensitive=f,%
4900 morecomment=[l]',%
4901 morestring=[d]"%
4902 }[keywords,comments,strings]%
4903 </lang2>

```

2.77 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.
4904 <*lang3>
4905 %%
4906 %% Verilog definition (c) 2003 Cameron H. G. Wright <c.h.g.wright@ieee.org>
4907 %% Based on the IEEE 1364-2001 Verilog HDL standard
4908 %% Ref: S. Palnitkar, "Verilog HDL: A Guide to Digital Design and Synthesis,"
4909 %% Prentice Hall, 2003. ISBN: 0-13-044911-3
4910 %%
4911 \lst@definlanguage{Verilog}%
4912 {morekeywords={% reserved keywords
4913     always,and,assign,automatic,begin,buf,bufif0,bufif1,case,casex,%
4914     casez,cell,cmos,config,deassign,default,defparam,design,disable,%
4915     edge,else,end,endcase,endconfig,endfunction,endgenerate,%
4916     endmodule,endprimitive,endspecify,endtable,endtask,event,for,%
4917     force,forever,fork,function,generate,genvar,highz0,highz1,if,%
4918     ifnone,incl_dir,include,initial,inout,input,instance,integer,join,%
4919     large,liblist,library,localparam,macromodule,medium,module,nand,%
4920     negedge,nmos,nor,noshowcancelled,not,notif0,notif1,or,output,%
4921     parameter,pmos,posedge,primitive,pull0,pull1,pulldown,pullup,%
4922     pulsestyle_oneevent,pulsestyle_ondetect,rcmos,real,realtime,reg,%
4923     release,repeat,rnmos,rpmos,rtran,rtranif0,rtranif1,scalared,%
4924     showcancelled,signed,small,specify,specparam,strong0,strong1,%
4925     supply0,supply1,table,task,time,tran,tranif0,tranif1,tri,tri0,%
4926     tri1,triand,trior,triereg,unsigned,use,vectored,wait,wand,weak0,%
4927     weak1,while,wire,wor,xnor,xor},%
4928     morekeywords=[2]{% system tasks and functions
4929         $bitstoreal,$countdrivers,$display,$fclose,$fdisplay,$fmonitor,%
4930         $fopen,$fstrobe,$fwrite,$finish,$getpattern,$history,$incsave,%
4931         $input,$itor,$key,$list,$log,$monitor,$monitoroff,$monitoron,%
4932         $nokey},%
4933     morekeywords=[3]{% compiler directives
4934         'accelerate','autoexpand_vectornets','celldefine','default_nettype,%
4935         'define','else','elsif','endcelldefine','endif','endprotect,%
4936         'endprotected','expand_vectornets','ifdef','ifndef','include,%
4937         'no_accelerate','noexpand_vectornets','noremove_gatenames,%
4938         'nounconnected_drive','protect','protected','remove_gatenames,%
4939         'remove_netnames','resetall','timescale','unconnected_drive'},%
4940     alsoletter='\',%
4941     sensitive,%
4942     morecomment=[s]{/*}{*/},%
4943     morecomment=[l]//,% nonstandard
4944     morestring=[b]"%
4945 }[keywords,comments,strings]%
4946 </lang3>

```

2.78 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 Ar-

naud Tisserand added three keywords.

```
4947 <*lang1>
4948 %%
4949 %% VHDL definition (c) 1997 Kai Wollenweber
4950 %%
4951 \lst@definlanguage{VHDL}%
4952 {morekeywords={ALL,ARCHITECTURE,ABS,AND,ASSERT,ARRAY,AFTER,ALIAS,%
4953     ACCESS,ATTRIBUTE,BEGIN,BODY,BUS,BLOCK,BUFFER,CONSTANT,CASE,%
4954     COMPONENT,CONFIGURATION,DOWNTO,ELSE,ELSIF,END,ENTITY,EXIT,%
4955     FUNCTION,FOR,FILE,GENERIC,GENERATE,GUARDED,GROUP,IF,IN,INOUT,IS,%
4956     INERTIAL,IMPURE,LIBRARY,LOOP,LABEL,LITERAL,LINKAGE,MAP,MOD,NOT,%
4957     NOR,NAND,NULL,NEXT,NEW,OUT,OF,OR,OTHERS,ON,OPEN,PROCESS,PORT,%
4958     PACKAGE,PURE,PROCEDURE,POSTPONED,RANGE,REM,ROL,ROR,REPORT,RECORD,%
4959     RETURN,REGISTER,REJECT,SIGNAL,SUBTYPE,SLL,SRL,SLA,SRA,SEVERITY,%
4960     SELECT,THEN,TYPE,TRANSPORT,TO,USE,UNITS,UNTIL,VARIABLE,WHEN,WAIT,%
4961     WHILE,XOR,XNOR,%
4962     DISCONNECT,ELIF,WITH},% Arnaud Tisserand
4963     sensitive=f,% 1998 Gaurav Aggarwal
4964     morecomment=[l]--, %
4965     morestring=[d]{"}%
4966 }[keywords,comments,strings]%
```

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

```
4967 %%
4968 %% VHDL-AMS definition (c) Steffen Klupsch
4969 %%
4970 \lst@definlanguage[AMS]{VHDL}[] {VHDL}%
4971 {morekeywords={ACROSS,ARRAY,BREAK,DISCONNECT,NATURE,NOISE,PORT,%
4972     PROCEDURAL,QUANTITY,SHARED,SPECTRUM,SUBNATURE,TERMINAL,THROUGH,%
4973     TOLERANCE,UNAFFECTED,UNITS}}
4974 </lang1>
```

2.79 VRML

This language is due to Oliver Baum VRML.

```
4975 <*lang2>
4976 %%
4977 %% VRML definition (c) 2001 Oliver Baum
4978 %%
4979 \lst@definlanguage[97]{VRML}
4980 {morekeywords={DEF,EXTERNPROTO,FALSE,IS,NULL,PROTO,ROUTE,TO,TRUE,USE,%
4981     eventIn,eventOut,exposedField,field,Introduction,Anchor,%
4982     Appearance,AudioClip,Background,Billboard,Box,Collision,Color,%
4983     ColorInterpolator,Cone,Coordinate,CoordinateInterpolator,%
4984     Cylinder,CylinderSensor,DirectionalLight,ElevationGrid,Extrusion,%
4985     Fog,FontStyle,Group,ImageTexture,IndexedFaceSet,IndexedLineSet,%
4986     Inline,LOD,Material,MovieTexture,NavigationInfo,Normal,%
4987     NormalInterpolator,OrientationInterpolator,PixelTexture,%
```

```

4988     PlaneSensor,PointLight,PointSet,PositionInterpolator,%
4989     ProximitySensor,ScalarInterpolator,Script,Shape,Sound,Sphere,%
4990     SphereSensor,SpotLight,Switch,Text,TextureCoordinate,%
4991     TextureTransform,TimeSensor,TouchSensor,Transform,Viewpoint,%
4992     VisibilitySensor,WorldInfo},%
4993     morecomment=[l]\#,% bug: starts comment in the first column
4994     morestring=[b]"%
4995 }[keywords,comments,strings]
4996 </lang2>

```

2.80 XML et al

Bernhard Walle provided the following two definitions.

```

4997 <*lang1>

```

```

4998 \lst@definlanguage{XSLT}[] {XML}%
4999 {morekeywords={%
5000     % main elements
5001     xsl:stylesheet,xsl:transform,%
5002     % childs of the main element
5003     xsl:apply-imports,xsl:attribute-set,xsl:decimal-format,xsl:import,%
5004     xsl:include,xsl:key,xsl:namespace-alias,xsl:output,xsl:param,%
5005     xsl:preserve-space,xsl:strip-space,xsl:template,xsl:variable,%
5006     % 21 directives
5007     xsl:apply-imports,xsl:apply-templates,xsl:attribute,%
5008     xsl:call-template,xsl:choose,xsl:comment,xsl:copy,xsl:copy-of,%
5009     xsl:element,xsl:fallback,xsl:for-each,xsl:if,xsl:message,%
5010     xsl:number,xsl:otherwise,xsl:processing-instruction,xsl:text,%
5011     xsl:value-of,xsl:variable,xsl:when,xsl:with-param},%
5012     alsodigit={-},%
5013 }%
5014 \lst@definlanguage{Ant}[] {XML}%
5015 {morekeywords={%
5016     project,target,patternset,include,exclude,excludesfile,includesfile,filterset,%
5017     filter,filtersfile,libfileset,custom,classpath,fileset,none,depend,mapper,%
5018     filename,not,date,contains,selector,depth,or,and,present,majority,size,dirset,%
5019     filelist,pathelement,path,param,filterreader,extension,filterchain,linecontainsregexp,%
5020     regexp,classconstants,headfilter,tabstospaces,striplinebreaks,tailfilter,stripjavacomments
5021     expandproperties,linecontains,replacetokens,token,striplinecomments,comment,prefixlines,%
5022     classfileset,rootfileset,root,description,xmlcatalog,entity,dtd,substitution,%
5023     extensionSet,propertyfile,entry,vsscheckin,sql,transaction,cvspass,csc,%
5024     dirname,wlrun,wlclasspath,p4label,replaceregexp,get,jjtree,sleep,jarlib,%
5025     dependset,targetfileset,srcfileset,srcfilelist,targetfilelist,zip,zipgroupfileset,zipfiles
5026     patch,jspc,webapp,style,test,arg,jvmarg,sysproperty,testlet,env,tstamp,%
5027     format,unwar,vsshhistory,icontract,cvschangelog,user,p4submit,ccmcheckin,%
5028     p4change,bzip2,vssadd,javadoc,bottom,source,doctitle,header,excludepackage,bootclasspath,%
5029     doclet,taglet,packageset,sourcepath,link,footer,package,group,title>tag,%
5030     translate,signjar,vajload,vajproject,jarlib,extensionset,WsdlToDotnet,buildnumber,%
5031     jpcovmerge,tomcat,ejbjar,weblogictoplink,jboss,borland,weblogic,iplanet,jonas,%

```



```

5032 support,websphere,wasclasspath,war,manifest,attribute,section,metainf,lib,%
5033 classes,webinf,rename,sequential,serverdeploy,generic,property,move,%
5034 copydir,cccheckin,wljspc,fixcrlf,sosget,pathconvert,map,record,p4sync,exec,%
5035 p4edit,maudit,rulespath,searchpath,antlr,netrexxc,jpcovreport,reference,filters,%
5036 coveragepath,execon,targetfile,srcfile,ccmcheckout,ant,xmlvalidate,xslt,%
5037 iplanet,ccmcheckintask,gzip,native2ascii,starteam,ear,archives,input,%
5038 rmic,extdirs,compilerarg,checksum,mail,bcc,message,cc,to,from,loadfile,vsscheckout,%
5039 stylebook,soscheckin,mimemail,stlabel,gunzip,concat,cab,touch,parallel,splash,%
5040 antcall,cccheckout,typedef,p4have,xmlproperty,copy,tomcat,antstructure,ccmcreatetask,%
5041 rpm,delete,replace,replacefilter,replacetoken,replacevalue,mmetrics,waitfor,isfalse,%
5042 equals,available,filepath,os,filesmatch,istrue,isset,socket,http,uptodate,srcfiles,%
5043 untar,loadproperties,echoproperties,vajexport,stcheckout,bunzip2,copyfile,vsscreate,%
5044 ejbc,unjar,tomcat,wsdltodotnet,mkdir,condition,cvs,commandline,marker,argument,%
5045 tempfile,junitreport,report,taskdef,echo,ccupdate,java,renameext,vsslabel,basename,%
5046 javadoc2,vsscp,tar,tarfileset,tomcat,vajimport,setproxy,wlstop,p4counter,ilasm,%
5047 soscheckout,apply,ccuncheckout,jarlib,location,url,cvstagdiff,jlink,mergefiles,%
5048 addfiles,javacc,pvcs,pvcsproject,jarlib,options,depends,chmod,jar,sound,fail,%
5049 success,mparse,blgenclient,genkey,dname,javah,class,ccmreconfigure,unzip,javac,%
5050 src,p4add,soslabel,jpcovreport,triggers,method,vssget,deltree,ddcreator},
5051 deletekeywords={default},%
5052 }
5053 </lang1>

```

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

```

5054 <*lang1>
5055 \lst@definelanguage{XML}%
5056 {keywords={,CDATA,DOCTYPE,ATTLIST,termdef,ELEMENT,EMPTY,ANY,ID,%
5057 IDREF,IDREFS,ENTITY,ENTITIES,NMTOKEN,NMTOKENS,NOTATION,%
5058 INCLUDE,IGNORE,SYSTEM,PUBLIC,NDATA,PUBLIC,%
5059 PCDATA,REQUIRED,IMPLIED,FIXED,%%% preceded by #
5060 xml,xml:space,xml:lang,version,standalone,default,preserve},%
5061 alsoother=$,%
5062 alsoletter=:,%
5063 tag=**[s]<>,%
5064 morestring=[d]" ,% ??? doubled
5065 morestring=[d]' ,% ??? doubled
5066 MoreSelectCharTable=%
5067 \lst@CArgX--\relax\lst@DefDelimB{}{}%
5068 {\ifnum\lst@mode=\lst@tagmode\else
5069 \expandafter\@gobblethree
5070 \fi}%
5071 \lst@BeginComment\lst@commentmode{{\lst@commentstyle}}%
5072 \lst@CArgX--\relax\lst@DefDelimE{}{}%
5073 \lst@EndComment\lst@commentmode
5074 \lst@CArgX[CDATA[\relax\lst@CDef{}%
5075 {\ifnum\lst@mode=\lst@tagmode
5076 \expandafter\lst@BeginCDATA
5077 \else \expandafter\lst@CArgEmpty
5078 \fi}%

```

```

5079         \@empty
5080     \lst@CArgX]]\relax\lst@CDef{}}%
5081         {\ifnum\lst@mode=\lst@GPmode
5082             \expandafter\lst@EndComment
5083             \else \expandafter\lst@CArgEmpty
5084             \fi}%
5085         \@empty
5086     }[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.

```

5087 </lang1>

```