gnuplot 5.2

An Interactive Plotting Program

Thomas Williams & Colin Kelley

Version 5.2 organized by: Ethan A Merritt and many others

Major contributors (alphabetic order):
Christoph Bersch, Hans-Bernhard Bröker,
John Campbell, Robert Cunningham,
David Denholm, Gershon Elber,
Roger Fearick, Carsten Grammes,
Lucas Hart, Lars Hecking, Péter Juhász,
Thomas Koenig, David Kotz,
Ed Kubaitis, Russell Lang, Timothée Lecomte,
Alexander Lehmann, Jérôme Lodewyck,
Alexander Mai, Bastian Märkisch,
Ethan A Merritt, Petr Mikulík,
Daniel Sebald, Carsten Steger, Shigeharu Takeno,
Tom Tkacik, Jos Van der Woude,
James R. Van Zandt, Alex Woo, Johannes Zellner
Copyright © 1986 - 1993, 1998, 2004 Thomas Williams, Colin Kelley
Copyright © 2004 - 2017 various authors

Mailing list for comments: `gnuplot-info@lists.sourceforge.net`
Mailing list for bug reports: `gnuplot-bugs@lists.sourceforge.net`
Web access (preferred): `http://sourceforge.net/projects/gnuplot`

This manual was originally prepared by Dick Crawford.

Version 5.2.0 (September 2017)

Contents

I Gnuplot 18

Cx:n8" (Copyright) 18

O8aK (Introduction) 19

C5$7=P$9<j=u$1 (Seeking-assistance) 20

?7$7$$5!G= (New features) 21

%P!<%8%g%s 5.2 $GF3F~$5$1$?5!G= (Features introduced in version 5.2) . . . 21

?7$7$IA2h%9%?%$%k$H%*%W%7%g%s (New plot styles and style options) . . . 21

%G!<%?MQ$N?7$7$A0=hM}%U%#%k%? (New data pre-processing filters) . . . 21

6K:BI8%b!<%I$N2~NI$H3HD% (Polar mode improvements and extensions) . . . 21

Hs@~7A:BI87O (Nonlinear coordinates systems) . . . 21

?7$7$%3%^%s%I$d%*%W%7%g%s (New commands and command options) . . . 21

?7$7$$G[Ns%G!<%?7?"array" (New data type "array") . . . 22

?7$7$$=PNO7A<0H=$N%*%W%7%g%s (New terminals and terminal options) . . . 22

$=$NB>$N?7$7$$5!G= (Other new features) . . . 22

%P!<%8%g%s 5.0 $GF3F~$5$1$?5!G= (Features introduced in version 5.0) . . . 22

%P!<%8%g%s 4 HN0c$$ (Differences from version 4) 23

Hs?d>)$J=q<0 (Deprecated syntax) 24

%G%b!"%M%C%H>e$N%5%s%W%k (Demos and Online Examples) 24

%P%C%A/BPOC7?A':n (Batch/Interactive) 24

%-%c%s%P%9%5%$: (Canvas size) 25

%3%^%s%I%i%$%sJT=8 (Command-line-editing) 25

%3%a%s%H (Comments) 26

:BI87O (Coordinates) 26

J8;zNs%G!<%? (Datastrings) 27

3HD%J8;zNs=hM}%b!<%I (Enhanced text mode) 27

4D6-JQ?t (Environment) 29

<0 (Expressions) 29

Dj?t (Constants) . . . 30

4X?t (Functions) . . . 30

<o!9$NBJ1_@QJ, (elliptic integrals) . . . 32

Mp?t$N@8@. (random) . . . 32
Value . . . 33
C18l$N<h$j=P7HC18l?t (word, words) . . . 33
1i;;R (Operators) . . . 33
C19`1i;;R (Unary) . . . 33
Fs9`1i;;R (Binary) . . . 34
;09`1i;;R (Ternary) . . . 34
OB (Summation) . . . 35
Dj5A:Q$_JQ?t (Gnuplot-defined variables) . . . 35
%f!<%6Dj5A$NJQ?t$H4X?t (User-defined) . . . 36
G[Ns (Arrays) . . . 36

%U%)%s%H **37**
Cairo (pdfcairo, pngcairo, epscairo, wxt =PNO7A<0) . . . 37
Gd (png, gif, jpeg, sixel terminals) . . . 38
Postscript (%+%W%;%k2=postscript *.eps $b) . . . 38

%X%k%W$NMQ8l2r@b **(Glossary)** **39**

%$%s%i%$%s%G!<%?$H%G!<%?%V%m%C%/ **(inline data and datablocks)** **39**

7+jJV7 **(iteration)** **40**

@~<o!"?'!"%9%?%$%k **(linetypes)** **40**
?';XDj (colorspec) . . . 41
Background color . . . 42
Linecolor variable . . . 42
Rgbcolor variable . . . 42
E@@~/GK@~<o (dashtype) . . . 43
Linestyles $H linetypes . . . 43

%l%$%d!< **(layers)** **43**

%^%&%9F~NO **(mouse input)** **44**
Bind . . . 44
Bind space . . . 45
%^%&%9MQ$NJQ?t (Mouse variables) . . . 45

;DN1 **(Persist)** **46**

IA2h **(Plotting)** **46**

=i4|2= **(Startup (initialization))** **47**

J8;zNsDj?t$HJ8;zNsJQ?t **(Strings)** **47**

CV49$H%3%^%s%I%i%$%s%^%/%m **(Substitution)** **48**

5U0zMQIdKh$k%7%9%F% `%3%^%s%I$NCV49 (Substitution backquotes) . . . 48
J8;zNsJQ?t$N%^%/%mCV49 (Substitution macros) . . . 48
J8;zNsJQ?t!"%^%/%m!"%3%^%s%I%i%$%sCV49 (mixing_macros_backquotes) . . . 49

6h@Zjd&+%C%3$N;H$$J} **(Syntax)** **49**
0zMQId (Quotes) . . . 50

;~4V/F|IU%G!<%? **(Time/Date)** **50**

II IA2h%9%?%$%k (plotting styles) **52**

Boxerrorbars **52**

Boxes **52**

Boxplot **53**

Boxxyerror **54**

Candlesticks **55**

Circles **56**

Ellipses **56**

Dots **57**

Filledcurves **57**
EIjDY7$NB0@- (fill properties) . . . 58

Financebars **58**

Fsteps **59**

Fillsteps **59**

Histeps **59**

Histograms **59**
Newhistogram . . . 61
J#?tNNsKEC$k<+F0E*$J7+jJV7 (automated) . . . 62

Image **62**
F)L@2= (transparency) . . . 63
Image pixels . . . 63

Impulses **63**

Labels **64**

Lines **65**

Linespoints **65**

Parallelaxes **65**

Points **66**

Steps **66**

Rgbalpha **66**

Rgbimage **66**

Vectors **66**

Xerrorbars **67**

Xyerrorbars **67**

Yerrorbars **68**

Xerrorlines **68**

Xyerrorlines **69**

Yerrorlines **69**

Zerrorfill **69**

3 <!85IA2h (3D plots) **70**

6JLLIA2h (Surface plots) 70

2 <!85<M1F (set view map) 70

6K:BI8IA2h **(Polar plots)** **70**

%S!<%9%&%)!<%'IA2h **(Bee swarm plots)** **71**

:t%0%i%U **(Fence plots)** **71**

III %3%^%s%I (Commands) **72**

Break **72**

Cd **72**

Call **72**

Nc (Example) 73

Old-style 73

Clear **73**

Continue **74**

Do **74**

Evaluate **74**

Exit **75**

Fit **75**

%Q%i%a!<%?$ND4@0 (adjustable parameters) . . . 77

Fit $N35N, (fit beginners_guide) . . . 77

8m:9I>2A (error estimates) . . . 78

E}7WE*$J35MW (statistical overview) . . . 78

<BMQE*$J%,%$%I%i%$%s (practical guidelines) . . . 79

@)8f (control) . . . 80

@)8fJQ?t (control variables) . . . 80

4D6-JQ?t (control environment) . . . 81

J#?tNEvFOa (multi-branch) . . . 81

=i4|CM (starting values) . . . 81

%R%s%H (tips) . . . 82

Help **82**

History **83**

If **83**

If-old . . . 83

For **84**

Import **84**

Load **85**

Lower **85**

Pause **85**

Plot **86**

<4 (axes) . . . 87

Binary . . . 87

General . . . 87

Array . . . 88

Record . . . 88

Skip . . . 88

Format . . . 88
Endian . . . 89
Filetype . . . 89
Avs . . . 89
Edf . . . 89
Png . . . 89
Keywords . . . 89
Scan . . . 90
Transpose . . . 90
Dx, dy, dz . . . 90
Flipx, flipy, flipz . . . 90
Origin . . . 90
Center . . . 90
Rotate . . . 90
Perpendicular . . . 91
%G! <& ? (data) . . . 91
Bins . . . 92
Every . . . 92
%G! <& ?%U& !%$%k$NNc (example) . . . 93
Index . . . 94
Skip . . . 94
Smooth . . . 95
Acsplines . . . 95
Bezier . . . 95
Bins . . . 95
Csplines . . . 96
Mcsplines . . . 96
Sbezier . . . 96
Unique . . . 96
Unwrap . . . 96
Frequency . . . 96
Fnormal . . . 96
Cumulative . . . 96
Cnormal . . . 96
Kdensity . . . 96
FCJL$J%U& !%$%kL> (special-filenames) . . . 97
Thru . . . 98
Using . . . 98
Using $NNc (using_examples) . . . 99
5?;wNs (pseudocolumns) . . . 100
Xticlabels . . . 100
X2ticlabels . . . 100

Yticlabels . . . 100
Y2ticlabels . . . 100
Zticlabels . . . 100
Volatile . . . 100
Errorbars . . . 101
Errorlines . . . 101
4X?tIA2h (functions) . . . 102
G^2pJQ?t%b!<%IIA2h (parametric) . . . 102
HOOO (ranges) . . . 102
%5%s%W% j%s%0 (sampling) . . . 103
1 <!85$N%5%s%W% j%s%0 (x $^$?$Ot <4) (1D sampling) . . . 103
2 <!85$N%5%s%W% j%s%0 (u $Hv <4) (2D sampling) . . . 104
Plot %3%^%s%I$N for %k!<%W (for loops in plot command) . . . 104
Title . . . 105
With . . . 106

Print **109**

Printerr **109**

Pwd **109**

Quit **109**

Raise **109**

Refresh **109**

Replot **110**

Reread **110**

Reset **111**

Save **111**

Set-show **112**

3Q$NC10L (angles) . . . 112
LpOu (arrow) . . . 113
<+FO=L<\ (autoscale) . . . 114
6K:BI8%b!<%I (polar) . . . 115
Bind . . . 115
Bmargin . . . 115
%O%i%U$NOH@~ (border) . . . 115
K@%O%i%UI} (boxwidth) . . . 117
%+%i!<%b!<%I (color) . . . 117

?'=d2sNs (colorsequence) . . . 118
Clabel . . . 118
%/%j%C%T%s%0 (clip) . . . 118
Ey9b@~%i%Y%k (cntrlabel) . . . 118
Ey9b@~@)8f (cntrparam) . . . 119
%+%i!<%\%C%/%9 (colorbox) . . . 120
?'L> (colornames) . . . 121
Ey9b@~ (contour) . . . 121
E@@~/GK@~@_Dj (dashtype) . . . 122
Data style . . . 122
Datafile . . . 122
Set datafile fortran . . . 122
Set datafile nofpe_trap . . . 122
Set datafile missing . . . 122
Set datafile separator . . . 124
Set datafile commentschars . . . 124
Set datafile binary . . . 124
>.?tE@@_Dj (desimalsign) . . . 125
3J;R>u%G!<%?=hM} (dgrid3d) . . . 125
2>JQ?t (dummy) . . . 127
J8;z%(%s%3!<%I (encoding) . . . 127
8m:9@~$NC< (errorbars) . . . 128
Hs@~7A4X?t2s5" (fit) . . . 128
%U%)%s%H%Q%9 (fontpath) . . . 129
<4$N9o$_=q<0 (format) . . . 130
Gprintf . . . 130
=q<0;XDj;R (format specifiers) . . . 131
F|;~%G!<%?;XDj;R (time/date specifiers) . . . 131
Nc (Examples) . . . 132
Function style . . . 133
Functions . . . 133
3J;R@~ (grid) . . . 133
1#@~=hM} (hidden3d) . . . 133
Historysize . . . 135
%3%^%s%IMzNr (history) . . . 135
8IN)@~%5%s%W%k?t (isosamples) . . . 135
Jitter . . . 136
K^Nc (key) . . . 136
3<!85%0%i%U$NK^Nc (3D key) . . . 137
K^Nc$N%5%s%W%k (key examples) . . . 138
K^Nc$N<+F0%?%$%H%k (key autotitle) . . . 138
K^Nc$NG[CV (key placement) . . . 138

K^Nc$N%5%s%W%k (key samples) . . . 139
J#?tNK^NcN=8Ls (multiple keys) . . . 139
%i%Y%k (label) . . . 140
Examples . . . 141
%O%$%Q!<%F%-%9%H (hypertext) . . . 142
@~<o (linetype) . . . 142
Bh2 <4HNBP1~ (link) . . . 143
Lmargin . . . 143
FI$_9~$_8!:w%Q%9 (loadpath) . . . 143
%m%1!<%k (locale) . . . 144
BP?t<4 (logscale) . . . 144
%^%/%m (macros) . . . 144
3 <!85:BI87O (mapping) . . . 145
<~0O$NM>Gr (margin) . . . 145
Micro . . . 146
Minussign . . . 146
Gr9u%b!<%I (monochrome) . . . 146
%^%&%9 (mouse) . . . 147
Doubleclick . . . 148
Mouseformat . . . 148
%^%&%9%9%/%m!<%k (scrolling) . . . 148
X11 GN%^%&%9 (X11 mouse) . . . 148
Zoom . . . 148
Mttics . . . 149
B?=EIA2h%b!<%I (multiplot) . . . 149
Mx2tics . . . 150
>.L\@9$j9o$_ (mxtics) . . . 151
My2tics . . . 151
Mytics . . . 151
Mztics . . . 151
Nonlinear . . . 152
?^7A%*%V%8%'%/%H (object) . . . 152
D9J}7A (rectangle) . . . 153
BJ1_ (ellipse) . . . 153
1_ (circle) . . . 154
B?3Q7A (polygon) . . . 154
%0%i%U0ICV$ND4@0 (offsets) . . . 155
%0%i%U0ICV$N;XDj (origin) . . . 155
=PNC@h;XDj (output) . . . 155
G^2pJQ?t%b!<%I (parametric) . . . 156
J?9TIA2h<4@_Dj (paxis) . . . 156
Plot . . . 156

Pm3d . . . 156
Pm3d $N%"%k%4%j%:%`(algorithm) . . . 157
8w8;%b%G%k(lighting) . . . 158
Pm3d $NOLCV(position) . . . 158
Av::$N=gHV(scanorder) . . . 158
%/%j%C%T%s%0(clipping) . . . 159
?'$N3d$jEv$F . . . 159
Corners2color . . . 159
Border . . . 160
Interpolate . . . 160
Hs?d>)$J%*%W%7%g%s . . . 160
%Q%l%C%H(palette) . . . 160
Rgbformulae . . . 162
Defined . . . 162
Functions . . . 163
Gray . . . 164
Cubehelix . . . 164
File . . . 164
%,%s%^Jd@5(gamma correction) . . . 164
Postscript . . . 165
Pointinterval $NH"%5%$%:(pointintervalbox) . . . 165
E@%5%$%:(pointsize) . . . 165
6K:BI8%b!<%I(polar) . . . 165
Print %3%^%s%I$N=PNQ@h(print) . . . 166
PostScript Dj5A%U%!%$%k%Q%9(psdir) . . . 166
6K:BI8$NF07B<4(raxis) . . . 167
Rlabel . . . 167
Rmargin . . . 167
Rrange . . . 167
Rtics . . . 167
%5%s%W%k?t(samples) . . . 167
%0%i%UNN0h%5%$%:(size) . . . 168
IA2h%9%?%$%k@_Dj(style) . . . 168
Lp0u%9%?%$%k@_Dj(set style arrow) . . . 169
Boxplot %9%?%$%k;XDj(boxplot) . . . 170
%G!<%?IA2h%9%?%$%k;XDj(set style data) . . . 171
EIjDY7%9%?%$%k;XDj(set style fill) . . . 171
Set style fill border . . . 171
F)L@2=(set style fill transparent) . . . 172
4X?tIA2h%9%?%$%k;XDj(set style function) . . . 172
Set style increment . . . 172
@~%9%?%$%k;XDj(set style line) . . . 172

1_%9%?%$%k;XDj (set style circle) . . . 174
D9U}7A%9%?%$%k;XDj (set style rectangle) . . . 174
BJ1_%9%?%$%k;XDj (set style ellipse) . . . 174
J8;zNs%\%C%/%9%9%?%$%k;XDj (set style textbox) . . . 175
6JLLIA2h (surface) . . . 175
%F!<%V%k%G!<%?=PNO (table) . . . 175
Plot with table . . . 176
=PNO7A<0 (terminal) . . . 176
=PNO7A<0XN%*%W%7%g%s (termoption) . . . 177
6K:BI8J}0I@)8f (theta) . . . 177
A4<4L\@9$j@)8f (tics) . . . 177
Ticslevel . . . 178
Ticscale . . . 178
%?%$% '%9%?%s%W (timestamp) . . . 178
F|;~%G!<%?F~NO=q<0 (timefmt) . . . 178
%0%i%U%?%$%H%k (title) . . . 179
Tmargin . . . 180
Trange . . . 180
Ttics . . . 180
Urange . . . 180
Variables . . . 180
Version . . . 181
;k@~J}8~ (view) . . . 181
Azimuth . . . 181
Equal_axes . . . 181
Vrange . . . 182
X2data . . . 182
X2dtics . . . 182
X2label . . . 182
X2mtics . . . 182
X2range . . . 182
X2tics . . . 182
X2zeroaxis . . . 182
<4Kh$N%G!<%?<dN';XDj (xdata) . . . 182
F|;~%G!<%? (time) . . . 183
MKF|<4L\@9$j (xdtics) . . . 183
<4%i%Y%k (xlabel) . . . 183
7n<4L\@9$j (xmtics) . . . 184
<4HOOO;XDj (xrange) . . . 184
<4<qL\@9$j;XDj (xtics) . . . 186
Xtics timedata . . . 188
Geographic . . . 189

Xtics rangelimited . . . 189
Xy J?LlOlCV (xyplane) . . . 189
Xzeroaxis . . . 190
Y2data . . . 190
Y2dtics . . . 190
Y2label . . . 190
Y2mtics . . . 190
Y2range . . . 190
Y2tics . . . 190
Y2zeroaxis . . . 190
Ydata . . . 190
Ydtics . . . 190
Ylabel . . . 190
Ymtics . . . 191
Yrange . . . 191
Ytics . . . 191
Yzeroaxis . . . 191
Zdata . . . 191
Zdtics . . . 191
Zzeroaxis . . . 191
Cbdata . . . 191
Cbdtics . . . 191
%<%mogCM (zero) . . . 191
%<%m<4 (zeroaxis) . . . 192
Zlabel . . . 192
Zmtics . . . 192
Zrange . . . 192
Ztics . . . 192
Cblabel . . . 192
Cbmtics . . . 192
Cbrange . . . 193
Cbtics . . . 193

%7%'%k%3%^%s%I **(shell)** **193**

Splot **193**

%G!<%?%U%!%$%k (datafile) . . . 194
Matrix . . . 194
Uniform . . . 195
Nonuniform . . . 195
Examples . . . 196
%G!<%?%U%!%$%k$NNc . . . 196
3J;R>u%G!<%? (grid data) . . . 197

Splot $N6JLL (splot surfaces) . . . 197

Stats (4JC1$JE}7W>pJs) 197

System 199

Test 199

Toggle 200

Undefine 200

Unset 200

Linetype . . . 200
Monochrome . . . 200
Output . . . 201
Terminal . . . 201

Update 201

While 201

IV =PNO7A<0 (Terminal) 202

=PNO7A<0$N0lMw 202

Aifm . . . 202
Aqua . . . 202
Be . . . 202
%3%^%s%I%i%$%s%*%W%7%g%s (command-line_options) . . . 203
Gr9u%*%W%7%g%s (monochrome_options) . . . 203
%+%i!<%j%=!<%9 (color_resources) . . . 203
3%?'3,D4%j%=!<%9 (grayscale_resources) . . . 204
@~IA2h%j%=!<%9 (line_resources) . . . 204
Caca . . . 205
Caca limitations and bugs . . . 206
Cairolatex . . . 206
Canvas . . . 208
Cgm . . . 209
CGM $N%U%)%s%H (font) . . . 210
CGM $N%U%)%s%H%5%$%: (fontsize) . . . 211
Cgm linewidth . . . 211
Cgm rotate . . . 211
Cgm solid . . . 211
CGM $N%5%$%: (size) . . . 211
Cgm width . . . 211

Cgm nofontlist . . . 212
Context . . . 212
Requirements . . . 213
Calling gnuplot from ConTeXt . . . 214
Corel . . . 214
Debug . . . 214
Domterm . . . 214
Dumb . . . 214
Dxf . . . 215
Dxy800a . . . 215
Eepic . . . 215
Emf . . . 216
Emxvga . . . 217
Epscairo . . . 217
Epslatex . . . 217
Epson_180dpi . . . 220
Excl . . . 221
Fig . . . 221
Ggi . . . 222
Gif . . . 223
Nc . . . 224
Gpic . . . 224
Grass . . . 225
Hp2623a . . . 225
Hp2648 . . . 225
Hp500c . . . 225
Hpgl . . . 225
Hpljii . . . 226
Hppj . . . 226
Imagen . . . 227
Jpeg . . . 227
Kyo . . . 227
Latex . . . 228
Linux . . . 228
Lua . . . 228
Lua tikz . . . 229
Mf . . . 231
METAFONT $N;H$$J} . . . 231
Mif . . . 232
Mp . . . 233
Metapost $N;H$$J} . . . 234
Pbm . . . 235

Pdf . . . 235
Pdfcairo . . . 236
Pm . . . 237
Png . . . 237
Nc . . . 238
Pngcairo . . . 238
Postscript . . . 239
PostScript $NUT=8 (editing postscript) . . . 241
Postscript fontfile . . . 241
PostScript prologue %U% !%$%k . . . 243
Postscript adobeglyphnames . . . 243
Pslatex and pstex . . . 243
Pstricks . . . 245
Qms . . . 245
Qt . . . 245
Regis . . . 246
Sixelgd . . . 246
Svg . . . 247
Svga . . . 248
Tek40 . . . 248
Tek410x . . . 248
Texdraw . . . 248
Tgif . . . 248
Tikz . . . 249
Tkcanvas . . . 249
Tpic . . . 252
Vgagl . . . 252
VWS . . . 253
Windows . . . 253
%0%i%U%a%K%e!< (graph-menu) . . . 254
0u:~ (printing) . . . 254
%F%-%9%H%a%K%e!< (text-menu) . . . 255
%a%K%e!<%U% !%$%k wgnuplot.mnu . . . 255
Wgnuplot.ini . . . 255
Wxt . . . 256
X11 . . . 258
X11 $N%U%)%s%H (x11_fonts) . . . 259
%3%^%s%I%i%$%s%*%W%7%g%s (command-line_options) . . . 260
%+%i!<%j%=!<%9 (color_resources) . . . 261
3%?'3,D4%j%=!<%9 (grayscale_resources) . . . 261
@~IA2h%j%=!<%9 (line_resources) . . . 261
X11 pm3d %j%=!<%9 (pm3d_resources) . . . 262

X11 $NB>$N% j%=! <%9 (other_resources) 263
Xlib 263

V %P%0 (Bugs) 264

CNil$F$$$k@)8B **(limitations) 264**

30It%i%$%V%i%j **(External libraries) 264**

VI Index 264

Part I
Gnuplot

Cx: n8 " (Copyright)

```
   Copyright (C) 1986 - 1993, 1998, 2004, 2007  Thomas Williams, Colin Kelley
```

Permission to use, copy, and distribute this software and its documentation for any purpose with or without fee is hereby granted, provided that the above copyright notice appear in all copies and that both that copyright notice and this permission notice appear in supporting documentation.

Permission to modify the software is granted, but not the right to distribute the complete modified source code. Modifications are to be distributed as patches to the released version. Permission to distribute binaries produced by compiling modified sources is granted, provided you

```
1. distribute the corresponding source modifications from the
 released version in the form of a patch file along with the binaries,
2. add special version identification to distinguish your version
 in addition to the base release version number,
3. provide your name and address as the primary contact for the
 support of your modified version, and
4. retain our contact information in regard to use of the base software.
```

Permission to distribute the released version of the source code along with corresponding source modifications in the form of a patch file is granted with same provisions 2 through 4 for binary distributions.

This software is provided "as is" without express or implied warranty to the extent permitted by applicable law.

```
     AUTHORS
             Original Software:
                Thomas Williams,  Colin Kelley.
             Gnuplot 2.0 additions:
                Russell Lang, Dave Kotz, John Campbell.
             Gnuplot 3.0 additions:
                Gershon Elber and many others.
             Gnuplot 4.0 and 5.0 additions:
                See list of contributors at head of this document.
```

(0J2<$*$*$^$+$JLu; Lu$O@5$7$/$J$$$+bCNl$^$;sN$G>\$7$/$O>e5-$N86J8$rEv$?$CF/$@$5$$!#Lu<T$O@UG$$r;}A^$;$s!#)

   Copyright (C) 1986 - 1993, 1998, 2004, 2007 Thomas Williams, Colin Kelley

3N%=%U%H%&%'%"H=$NIUB0J8=q$N;HMQ!"J#@=!"G[I[$N5v2D$O!">e5-$NCx:n8"(copyright) I=<($,!"A4FNJ#@=J*$K=q$+lF$$k3H!"$*$h$SCx:n8"I=<($H3N5vBzJ8$NN>J}$,$=$N;Y1gJ8=q$K=q$+lF$$k3H$r>r7o$H7?>e$G!"$3$NJ8=q$KhjJ]>Z5l$^$9!#

3N%=%U%H%&%'%"$N=$@5bG'ail$F$$^$9!#$7$+$7!"=$@5$r4^$'A4%=!<%9%3!<%I$NG[I[$N8"Mx$OG'ail^$;$s!#=$@5$O%j%j!<%9HGKBP9$k%Q%C%A$N7A$GG[I[$7J1lPJj$^$;$s!#=$@5$5$l$?%=!<%9$r%3%s%Q%$%k$7$F:n$il?%P%$%J%j$NG[I[$O!"0J2<$N>r7o$N85$GG'ail^$9:

1. %j%j!<%9HG$+$i$N%=!<%9$N=$@5ItJ,$r!"%Q%C%A$N7A$G%P%$%J%j$H6&$KG[I[$9k3$H
2. %Y!<%9HJ$k%j%j!<%9HG$H6hJL9k$?$a$K!"$=$N%P!<%8%g%sHV9f$KFCJL$J%P!<%8%g%s;XDj;R$rIU2C9k3H
3. $=$N=$@5HG$N%5%]!<%HMQ$K!"$"J?$NL>A0$H%"%/%;%92DG=$J%"%I%l%9$H$rDs6!$9k3$H
4. %Y!<%9HJ$k%=%U%H%&%'%"$N;HMQ$K4X$7FO!"2f!9$NO"Mm>pJs$rJ];}$7B3$1k3$H

% j% j! <% 9HG$N%=! <% 9% 3! <% I$r! "% Q% C% A$N7A$G$N%=! <% 9$N=$@5$H0l=o$KG [I [$9k3HO! "% P% $% J% jG [I [$K4X9k >r9 ` 2 $+$i 4 $^$G$N>r7o$N85$G5v$5l^$9! #

3N%=% U% H% &% ’% "$O "$"k,$^$^" Ds6 !5l! "E,MQ2DG=$JK !N’$G5vailkHOOO$NJ]>Z$rI=L@$"$k$$$OOE< ($7 $F$$O$$^$;$s! #

```
Cx<T
        %*% j% 8% J% k% =% U% H% &% ’% ":
           Thomas Williams,  Colin Kelley.
        Gnuplot 2.0 DI2C:
           Russell Lang, Dave Kotz, John Campbell.
        Gnuplot 3.0 DI2C:
           Gershon Elber $H$=$NB>$N?M! 9! #
        Gnuplot 4.0, 5.0 DI2C:
           $3$NJ8=q$N@hF,$N4sM?<T (contributors) $N0lMw;2>H! #
```

O8aK (Introduction)

gnuplot $O! "%]! <% ?% V% k$J% 3% ^% s% IF~NOJ}<0$N% 0% i% U% f! <% F% #% j% F% #$G! "Linux, OS/2, MS Windows, OSX, VMS, $=$NB>B?$/$N% W% i% C% H% [! <% ’>e$GF0:n$7$^$9! #% =! <% 9% 3! <% IKOCx:n8"$,$"j^9,! "L5NA$GG [I [$5$l $F$$^$9 ($9Jo$A! "$=lKBP2A$r;YJ’$&I,MWO"j^$;$s)! #85$O! "2J3X<T$d3X@8$,?t3X4X?t$d&G! <% ?JI$r BPOCE*$KI=< (G-kh$&:n$il?NG9,! "8=:_$^$G$K! "Nc$ ($P Web % 9% /% j% W% H$J$I! "B?$/$NHsBPOC7?$NMx MQ$b% 5%]! <% H$9kh$&$K@.D9$7$F$$^$9! #$3lO! "Nc$ ($P Octave Nh$&$K% 5! <% I% Q! <% F% #$N% "% W% j% 1! <% 7% g % s$NIA2h% (% s% 8% s$H7F$b;H$olF$$^$9! #gnuplot $O! "1986 hj% 5%]! <% H$H3hH/$J3+H/$,9T$olF$$^$9! #

gnuplot $O! "2 <!85! "$^$?$O3 <!85$N! "B?$/$N<dN ‘$N% 0% i% U$r% 5%]! <% H$7$F$$^$9: @^@~% 0% i% U! "E@% 0% i% U! "K@ % 0% i% U! "Ey9b@~! "% Y% /% H% k>llA2h! "6JLL! "$=$7F=li$K4XO"$9k5$^$6$^$JJ8;zNsEy! #$=$7F5iK$$/$D $+$NFCJL$JIA2h7?$b% 5%]! <% H7F$$^$9! #

gnuplot $OB?$/$N0 [$J$k=PNO$r% 5%]! <% H7F$$^$9: BPOC7?% 9% /% j! <% s=PNO7A<0 (% ^% &% 9$d% [% C% H% -! <F~NO$b2D G=)! "% Z% s% W% m% C% ?$d8=:_$N% W% j% s% ?XND>@\=PNO! "$^$?$OB?$/$N% U% !% $% k7A<0$X$N=PNO (eps, emf, fig, jpeg, LaTeX, pdf, png, postscript, ...)! #gnuplot $O! "MF0W$K?7$7$$=PNO7A<0$rDI2C$9kh$&3HD% 9k3H$,G-$^ $9! #:G6aDI2C$5l?BPOC7?=PNO7A<0KO! "wxWidgets (J#?t$N% W% i% C% H% [! <% ‘$GMxMQ2DG=), Qt $r85$K7?bN $,$"j^$9! #svg $d HTML5 canvas =PNO7A<0$rMxMQ9l$P! "% 0% i% U$r Web % Z! <% 8Fb$K% ^% &% 9MxMQ2DG=$J7A$G Kd$a9~s@=PNO$r@8@.$9k3HbG-$^$9! #

gnuplot $N% 3% ^% s% I8@8l$OBgJ8;z>.J8;z$r6hJL$7$^$9! #9JoA! ">.J8;z$G=q$+l?% 3% ^% s% I$d4X?tL>$O! "$= li$rBgJ8;z$G=q$$$?bNHOF1$8$GO"j^$;$s! #$$$:lN% 3% ^% s% I$b! "$"$$$^$$5$NL5$5$8B$jK*$$F>J N,9k3H$,$G$-$^$9! #1 9TCf$K$O%_% 3% m% s (;) $G6h@Z$C$FJ#?t$N% 3% ^% s% I$r=q$/3H$,$G$-$^$9! #J8;zNs$O C10l0zMQId! "$"$k$$OCFs=E0zMQIdNIAi$+$G=q$-;O$a$^$9$,! "N><T$K$OHyL/$J0c$$$,$"$j$^$9 (>\:Y$O! "0J 2<;2>H **syntax (p. 49)**)! #Nc

```
set title "My First Plot";  plot 'data';  print "all done!"
```

% 3% ^% s% I$O! "U#?t9T$K$^$?$,$k3H$,$G$-$^$9! #$=$N>19g$O! ":G=*9T0J30$NA4$F$N9T$N9TKv$K% P% C% /% 9% i% C% 7% e (\) $r=q$/I,MW$,$"j^$9! #% P% C% /% 9% i% C% 7% e$OI,$:3F9T*:G8e* $NJ8;z$GJ/FOJj$^$;$s! #$=$N7k2l$H$7 $F% P% C% /% 9% i% C% 7% e$H! "$=lKB3$/2~9TJ8;z$,B8:_7J$+$C$?$+Nh$&$K07ol$^$9! #D^$j! "2~9TJ8;z$,% 9 % Z! <% 9NLrr9k3Hb"j^$;$s7! "2~9TKhCF% 3% a% s% H$,=*N;$9k3Hb$"$j$^$;$s! #$G9+$iJ#?t9T K^$?$,$k9T$N@hF,$r% 3% a% s% H% "% &% H$9kH! "$=$N% 3% ^% s% IA4BN$,% 3% a% s% H% "% &% H$5lk3HKJj^$9 (0J 2<;2>H **comments (p. 26)**)! #J*Cm0U7^9,! "b7! "J#?t9T$N% 3% ^% s% I$NI3$+$G% (% i! <$,5/$-$?$H$-! " %Q! <% 5$O$=$N>l=j$r@53N$K$O;X< ($9k3H,G-$^$;s7! "$^$?! "@5$7$9T$K;X< ($9kI,MWb$J$$$G7g$&! #

3N% I% -% e% a% s% HK*$$F! "Cf3g8L ({}) $O>JN,2DG=$J0z?t$rI=$9bN$H$7! "=DK@ (|) $O! "8_$$$KGSB>E*$J0z?t $r6h@Z$kbNH7$^$9! #**gnuplot** $N% -! <% o! <% I$d **help** K*1k9’L\L>$O! "5U0zMQId (!.)! "$^$?$O2DG=$J>19g KO **boldface** (B@;z) $GI=$7$^$9! #3Q3g8L (<>) $O! "$=lKBP1~9kbNKCV-4$9$ (ilkY$-$bNrI=7^ $9! #B?$/$N>19g! "% *% W% 7% g% s$N0z?tKO! "$=$l$,>JN,$5lk$H% G% U%)% k% H$NCM$,;HMQ$5l^$9! #$7$+$7! "$3$1 iN>19g! "I,$:$7$b3Q3g8L$,Cf3g8L$G0O$^1F=q$+$l$F$$ko1GO$"$j$^$;$s! #

$"$k9’L\$K$D$$F$N% X% k% W$,I,MWJH$-$K$O! "**help** $KB3$1F=$N9’L\L>$rF~NO7F2<$5$$! #$^$?$OC1$K **help ?** Gb% X% k% W$N9’L\$N% a% K% e! <$,8=$ol^$9! #

BgNL$N%0%i%U%5%s%W%k$,!"0J2<$N Web %Z!<%8$K$"$j$^$9!#http://www.gnuplot.info/demo/

%3%^%s%I%i%$%s$+$i5/F0$9kH$-$O!"0J2<$N=q<0$,;H$($^$9!#

```
gnuplot {OPTIONS} file1 file2 ...
```

$3$3$Gfile1, file2 Ey$O!"**local** %3%^%s%I$G<h$j9~$`$N$HF1Ey$NF~NO%U%!%$%k(%9%/%j%W%H%U%!%$%k) $G$9!#X11 %Y!<%9$N%7%9%F%`$G$O!"0J2<$N=q<0$,;H$($^$9!#

```
gnuplot {X11OPTIONS} {OPTIONS} file1 file2 ...
```

>\:Y$O!"X11 $N%I%-%e%a%s%H!"$*hS0J2<;2>H: **x11 (p. 258)**!#

gnuplot $KM?$($k%*%W%7%g%s$O!"%3%^%s%I9TNI3$KCV$$F$b9=$$^$;$s!#%U%!%$%k$O;XDj7?=g$K<B9T$5$l!"F1MM$K-e %*%W%7%g%sGG0U%N%3%^%s%I$rM?$($k3$HbG$-$^$9!#Nc:

```
gnuplot   file1.in   -e "reset"   file2.in
```

FCJL$J%U%!%$%kL>"-" $O!"I8=`F~NO$+$iFI$^;$k$N$K;H$$^$9!#**gnuplot** $O:G8e$N%U%!%$%k$r=hM}$7=*$o$k$H=*N;$7$^$9!#FI$_9~$^;$k%U%!%$%k$r0l$D$b;XDj$7$J$>19g$O!"**gnuplot** $OI8=`F~NO$+iNBPOCF~NO$r<h$j$^$9!#>\:Y$O!"0J2<;2>H: **batch/interactive (p. 24)**!#gnuplot MQ$N%*%W%7%g%s$K$D$$F$O!"0J2<$Nh&$K7$F0lMw$r8+$k3H$,$G$-$^$9:

```
gnuplot --help
```

>\:Y$O0J2<;2>H: **command line options (p. 24)**!#

BPOC7?IA2h$&#%s%I%&$G$N:n6HCf$O!"'h' rBGD$H%[%C%H%-!<(**hotkeys**) $H%^%&%95!G=(**mousing**) $K4X$9$k%X%k%W$r8+k3H,G-$^$9!#**seeking-assistance** $N%;%/%7%g%s$O!"5iJk>pJs$d%X%k%W!"FAQ $rC5$9<j3]jrM?$($F$/$lkG7g&!#

C5$7=P$9<j=u$1 (Seeking-assistance)

8x<0$Ngnuplot Web %Z!<%8$O0J2<K"j^$9!#http://www.gnuplot.info

=u $1 $r 5a $a $k A0 $K !"%U%!%$%k FAQ.pdf $+ !"$^ $? $O >e $N Web %5 %$ %H $NFAQ (EY!9J9$+lk<ALd; Frequently Asked Questions) $N0lMw

$r%A%"%C%/$7F/$@$5$$!#

gnuplot %f!<%6H7FN<j=u1,I,MWJi!"0J2<$N%K%e!<%9%0%k!<%W$rMxMQ7F$/$@$5$$!#

```
comp.graphics.apps.gnuplot
```

gnuplot %a!<%j%s%0%j%9%HXNEj9F$NJ}K!$K4X7F$O!"SouceForge K"$k gnuplot $N3+H/ Web %5%$%Hhttp://sourceforge.net/projects/gnuplot

$r;2>H$7F/$@$5$$!#

gnuplot %a!<%j%s%0%j%9%H$K%a!<%k$r=q$/A0$K!":G=iK=$N%a!<%j%s%0%j%9%H$K;22C9kI,MW$,$"k3HKCm0U7F$/$@$5$$!#3l$O!"%9%Q%`$NNL$r8:$i$9$3Hr0];}9k$?$aKI,MWG$9!#

%a!<%j%s%0%j%9%H%a%s%P!<XN%a!<%k%"%l%9:

```
gnuplot-info@lists.sourceforge.net
```

%P%0%j%]!<%H!"%=!<%9$N2~NIEy$O0J2<$N trackers $K upload 7F$/$@$5$$:

```
http://sourceforge.net/projects/gnuplot/support
```

$?$@$7!"%j%]!<%H$rAw$kA0$K!"$"$J$?$,%j%]!<%H7h$&$H7F$$k%P%0$,!"$h$j?7$7$$HG$G4{$K=$@5$5lF$$$J$$$+%A%"%C%/7F$/$@$5$$!#

3+H/HG$K4X$9$k%a!<%j%s%0%j%9%H:

```
gnuplot-beta@lists.sourceforge.net
```

2?$+<ALd$rEj9F9kH-$O!"$"J?$,;HMQ$7$F$$k gnuplot $N%P!<%8%g%s!"=PNO7A<0!"%*%Z%l!<%F%#%s%0%7%9%F%`!"$H$$C$?A4$F$N>pJs$r4^$`h&K7F/$@$5$$!#=l@1GJD8F$$F!"$=$NLdBj$r:F8=$9$kC;$$%9/%j%W%H$rDs<(($9kHJ*NI$$G7g&!#

?7$7$$5 !G= (New features)

%P!<%8%g%s 5.2 $GF3F~$5l?5!G= (Features introduced in version 5.2)

%P!<%8%g%s 5.2 $Ognuplot $N8=:_$N0ED jHG7ONs$G$9!#0J2<$N?75!G=$N0lMw$O!"2017 5 7n; ~E@$G:G?7NbNG$9!#

?7$7$$IA2h%9%?%$%k$H%*%W%7%g%s (New plot styles and style options)

- 3 <!85IA2h%9%?%$%k **with zerrorfill**!#0J2<;2>H: **zerrorfill**, **fenceplots**, zerror %G%b!#
- %S!<%9%&%)!<% '%0%i%U!#0J2<;2>H: **set jitter**, **beeswarm**, %S!<%9%&%)!<% '%0%i%U%G%b!#
- %0%i%U$NE@(points) $G;H$olk8D!9$N5-9f$O!"%G!<%?CM$G@)8f$G$-$^$9!#(0J2<;2>H: **pointtype variable**)

%G!<%?MQ$N?7$7$$A0=hM}%U%#%k%?(New data pre-processing filters)

- %G!<%?=89gFbGN=P8=2s?t$N@55,2=(0J2<;2>H: **smooth fnormal**)
- %G!<%?$N3,5iI}3d$jEvFN<+F02=(0J2<;2>H: **bins**)

6K:BI8%b!<%I$N2~NI$H3HD%(Polar mode improvements and extensions)

- %i%Y%k!"Lp(arrow)!"%*%V%8%'%/%H$NDj5A$K6K:BI8$,;H$($^$9!#
- **set [m]ttics** $O6K:BI8%b!<%I$G$N30<~J}0L<4$N%i%Y%k$H9o$_$rG[CV$7$^$9!#0J2<;2>H: 6K:BI8<4$H9o$_%i%Y%k%G%b
- **set rlabel** $OF07B<4(r<4) $N>e$K%i%Y%k$rG[CV$7$^$9!#
- 5U8~$-$N**rrange** (Nc: set rrange [90:0]) $GE75eCOJ?:BI8(celestial horizontal coordinates) $,;H$(kh $&$KJj$^$9!#0J2<;2>H: E7BN50F;%G%b
- **set border polar** $O6K:BI8$N30<~$N2s$j$K<B@~$rIA$-$^$9!#
- **set theta** $O6K:BI8%0%i%U$N30<~J}0L<4GNtheta = 0 $N0LCV$H!"3Q$NA}2CJ}8~(;~7W2s$j$+H?;~7W2s$j$+) $r@)8f$7$^$9!#

Hs@~7A:BI87O(Nonlinear coordinates systems)

- %0%i%UNG0U$N<4$K!"@~7A$NHC0C$X$N<IA|$H$=$N5U<IA|$r0UL#$9$k4X?t$NAH$r3d$jEvFk3H$,$G$-!"$=lrHs@~7AK9k3Hb2DG=$G$9(0J2<;2>H: **set nonlinear**)!#Hs@~7A x,y <4%G%b
- J8$_?<$$3%^%s%I **set logscale** $O!"8=:_$O4X?t$NAH log(x), exp(x) Kh$kHs@~7A<4NNcN0l$DH7$F:F<BAu$5l^7?!#

?7$7$$%3%^%s%I$d%*%W%7%g%s (New commands and command options)

- 7+jUV7<B9TItJ,$NCf%+%C%3Fb$G$O!"**continue** $O<!$N7+jUV7K9$0$K0\F0$7!"**break** $O7+$jUV7rCfCG7^$9!#
- **toggle {**<plotno> | **"plottitle" | all}**" $O!"BPOCE*$K8=:_$N%0%i%U$N9=@.MWAG$rI=<($5$;$k$+>C$9$+$rA*BrG-$^$9!#
- **save fit** $OHs?d>)$N%3%^%s%I **update** rCV-49$(
- **set table "outfile.name" append** $G!"$=$N8e$Ntable =PNO$r!"4{$KB8:_9k%F%-%9%H%U%!%$%k$r>e=q$-$;$:!"DI2C=PNO$K7^$9!#
- **set pm3d lighting** $G!"H?<M8w%O%$%i%$%H$KhkE@8w;%b%G%k$r;HMQ$7$^$9(0J2<;2>H: **lighting**)!#
- **set minussign** $O!"Ii$N?tGN%"%9%-!<J8;z'-' $r!"8=:_$N%(%s%3!<%IGNFC<lJ8;zKCV-49$($kh&gnuplot $K;X<($7$^$9!#

- **set micro** $O!"2J3XMQ@\F,<-$N!V%^%$%/%m!WMQ$N%"%9%-!<J8;z 'u' $r!"8=:_$N%(%s%3!<%IGNFC<lJ8;z KCV-49$($kh&gnuplot $K;X<($7$^$9!#micro, minussign $NFC<l0u:~5-9f$O!"<49o$_%i%Y%k$H!"L@<(E*$Kgprintf() $G@8@.$7$?J8;zNs$KN_;HMQ7^$9!#$=li$NJ8;zI=8=$N%P%$%HNs$O!"8=:_$N%(%s%3!<%I@_Dj$K0MB8$7$^$9!#

?7$7$$G[Ns%G!<%?7?"array" (New data type "array")

- 3N%P!<%8%g%s$Ngnuplot KO!"?7$7$$G[Ns%G!<%?7?**array name[size]** $,F3F~$5lF$$$^$9!#G[Ns$O!";HMQ9kA0$K@k8@$7J1lP$$$1$^$;$s!#3FG[NsMWAGA[i] $O!"J8;zNs!"@0?t!"<B?t!"J#AG?t$N$$:lG$b9=$$$^$;$s!#0lDNG[Ns$,0[$J$k7?$NMWAG$r;}$D3H$b2DG=$G$9!#4p?t1i;;R|A| $OG[Ns$N%5%$:$rJV7^$9!#0J2<;2>H:**arrays**!#

?7$7$$=PNO7A<0H=$N%*%W%7%g%s (New terminals and terminal options)

- ?7$7$$**sixelgd** =PNO7A<0$O!"vt340 $H8_49$NC<Kv%(%_%e%l!<%?>e$Ggnuplot $r<B9T$7$?>l9g$K!"%0%i%U$r=PNO$9$kL?Na$N%3%^%s%I%i%$%s$N9g4V$K%0%i%U$r64$'$h$&$J=PNO$r%5%]!<%H$7$^$9!#0J2<;2>H:**sixelgd**!#
- **domterm** =PNO7A<0$O!"svg $r2r<a$9$kC<Kv%(%_%e%l!<%?>e$Ggnuplot $r<B9T$7$?>l9g$K!"%0%i%U$r=PNO$9$kL?Na$N%3%^%s%I%i%$%s$N9g4V$K%0%i%U$r64$'$h$&$J=PNO$r%5%]!<%H$7$^$9!#
- **windows** =PNO7A<0$O!"8=:_$N%0%i%U$N%S%C%H%^%C%W%U%!%$%kXNJ]B8$r%5%]!<%H$7$^$9!#
- **windows** =PNO7A<0$O!"%0%i%U%&%#%s%I%&$Hwgnuplot %F%-%9%H%&%#%&%s%I%&$r%I%C%-%s%0$G$-$^$9!#
- **windows** =PNO7A<0MQ(;n83E*) Direct2D/DirectWrite ?7%P%C%/%(%s%I!#
- **wxt** =PNO7A<0$O!"Windows >e$G$OEMF %U%!%$%kXN=PNO$H%W%j%s%?=PNO$r%5%]!<%H!#
- **dumb** =PNO7A<0$O!"@~$HNN0hNEIjDY7GANSI %+%i!<$r%5%]!<%H!#
- **tkcanvas** =PNO7A<0$O!"?7$7$$8@81$H!":G6a$Ngnuplot $NB?$/$N5!G=$r%5%]!<%H9kh&$K=q$-D>5l$F$$$^$9(5.0.3 hj)!#

$=$NB>$N?7$7$$5!G=(Other new features)

- 3<!85%0%i%U$N8~$-$K1F6A$9$kDI2C2sE>3Q**azimuth**!#$3lO!"%3%^%s%I%i%$%s$+$i(0J2<;2>H:**set view azimuth**)!"$^$?$O1&%^%&%9%\%?%s$N%I%i%C%0$G@_Dj$G$-$^$9!#
- Windows >e$Ngnuplot GO!"Unicode (BMP) %9%/%j%W%H$NF~NO$r!"**set encoding** Kh$k8=:_$N%(%s%3!<%I(UTF-8 $r4^$'$KJQ49$7$F2r<a$7$^$9!#
- J8;zOH$K6-3&?'$HGX7J?'$r;XDj$G$-$^$9(0J2<;2>H:**set style textbox**)
- %0%i%U$NI=Bj$N%+%9%?%^%$%:(0J2<;2>H:**plot title**, **set key**, **multiple keys**)
- 5?;w%U%!%$%k'+'$G$N%0%i%U$N%5%s%W%j%s%0HC0Q;XDj$K%5%s%W%j%s%06h4V$r;XDjG-$^$9!#Nc: plot sample [t=0:100:10] '+' using (t):(1):(label[t]) with labels
- 5?;w%U%!%$%k'++'$O!"x, y<4GJ$/u, v<4$K1hC?%5%s%W%j%s%0$r9T$$$^$9!#$3lO!"3<!85%0%i%UCf$K!"JL!9$N%G%+%k%H:BI8NN0h$r@j$akh$&$JJ#?t$NG^2pJQ?t6JL1$rCV$/$N$KJXMx$G7g$&!#
- ^R $G!"AH$_9~$_readline (Windows Gb;Hol$F$$$k)$NMzNr$N5U8~$-8!:w$r3+;O7^$9!#0J2<;2>H:**command-line-editing**!#
- Windows GN**set output "PRN"** Kh$k0u:~$N2~NI!#0J2<;2>H:**windows printing**!#

%P!<%8%g%s 5.0 $GF3F~$5l?5!G=(Features introduced in version 5.0)

- @~$NE@@~/GK@~%Q%?!<%s$O!"8=:_$O@~$NB>$NB0@-$HF'HN)$K;XDj$G$-$^$9!#0J2<;2>H:**dashtype**, **set dashtype**, **set linetype**!#
- 0lDNplot GNO"B3$7$?MWAG$K;HMQ$5lk%G%U%)%k%H$N?'$N=d2sNs$O!"?'<e<T$KhjMF0W$K6hJL$G$-$kbNKJj^7?!#$=$N?'$N=d2sNs$O!"%f!<%6$,@)8f$G$-$^$9(0J2<;2>H:**set colorsequence**)!#3N;EAH$_$O!"Gr9u$N%0%i%U$r@8@.9k3HGb9T$($^$9(0J2<;2>H:**set monochrome**)!#J*!"=>Mh$Ngnuplot $N%P!<%8%g%s$GO**monochrome** $O!"8=:_$N=PNO7A<0$r**set temrinal** $GJQ99$9kH$-$KN_K7$+A*Br$G$-$^$;$sG7$?!#

- ?7$7$$IA2h%9%?%$%k **with parallelaxes**!"**with table**!"$*$h$SEy9b@~$N%i%Y%kIU$1!#
- C1D43 <!%9%W%i%$%s$Khk%G!<%?$N?7$7$$A0=hM}%U%#%k%?(0J2<;2>H: **smooth mcsplines**)
- J8;z$N=q<0@)8f$O!"2<IU$-!">eIU$-!"%U%)%s%H%5%$%:!"$=$NB>0JA0M-8z$@C?bN$K2C$(!":#$OB@;zBN (bold) $H<PBN (italic) %U%)%s%H@_Dj$b%5%]!<%H$7$F$$$^$9!#$3$N%b!<%I(3HD%J8;z=hM}) $O!"8=:_$O%G%U%)%k%H$GM-8z$HJC$F$$$^$9!#0J2<;2>H: **enhanced text**!#J8;zNsMWAGOOHG0O$'$3HbG-$^$9(0J2<;2>H: **set style textbox**)!#
- BPOC7?=PNO7A<0$O!"%O%$%Q!<%F%-%9%H%i%Y%k$r%5%]!<%H$7$F$$$^9,!"3l$O%^%&%9$,$=$N%i%Y%k$N%j%s%/E@>e$K$"$kH-KN$_8=$lkbNG$9!#
- ?7$7$$:BI87O(EY!"J,!"IC)!#0J2<;2>H: **set xtics geographic**!#
- <4$N8+=P$7$N%G%U%)%k%H=q<0MQ$N"% h" (LaTeX 7O=PNO7A<0GO"$%h$")!#3N=q<0$O C $NI8=`=q<0$N%g $K;w$F$$$^9,!";X?tItJ,$,$"$k>19g$O!"$=$l$,>eIU$-J8;zH7$F=q$+lk3H$,0c$$$^$9!#Nc$($P!"1.2E05 GJ$/1.2 x 10^5 HJj^$9!#
- %9%/%j%W%HFb$G!"%$%s%i%$%s%G!<%?$rL>A0IU$-$N%G!<%?%V%m%C%/H7$FJ]B8$77+jJV7IA2hG-kh$&$K!#0J2<;2>H: **inline data**!#
- 32-bit $N%"%k%U%!CM+ RGB ?'I=5-(#AARRGGBB) $r%5%]!<%H!#0J2<;2>H: **colorspec**!#
- hsv2rgb(H,S,V) $H$$$&JQ494X?tKh$k HSV ?'6u4V$N%5%]!<%H!#
- Bh2 <4(x2, y2) $O!"BP1~4X?t$Khj!"Bh1 <4$K8GDj$G$-$^$9!#:G$bC1=cJN$O!"$3lKhjBh1 <4$H2 <4$N<4$NHO0O$r0lCW5;kj3HG$9!#$h$j0lHL$K!"3lKh$jHs@~7A$J<4$rDj5A$G$-$kh&KJj^9,!"3l$^$GO=Nh$&$J3H$OBP?t<4$7$+$G$-$^$;$sG7$?!#0J2<;2>H: **set link**!#
- plot %3%^%s%I$N3F4X?t$K%*%W%7%g%sH7$FIA2hHO0O$rA0CV;XDjG-$^$9!#3l$O!"plot A4BN$NHO0OKO1F6A$;$:!"$=$N4X?t$N%G!<%?%r%5%s%W%j%s%0$9$kHO0O$G$7+$"j^$;$s!#0J2<;2>H: **plot**, **piecewise.dem**!#
- 30It%i%$%V%ijlibcerf $,MxMQ2DG=$G$"$l$P!"$=lOJ#AG?t3X4X?t cerf, cdawson, erfi, faddeeva, $*$h$S Voigt %W%m%U%!%$%k VP(x,sigma,gamma) $rDs6!$9kN$K;H$ol^$9!#
- %3%^%s%I **import** $O!"30It6&M-%*%V%8%'%/%H(%5%]!<%H$O%*%Z%l!<%F%#%s%0%7%9%F%'0MB8) $,Ds6!$9$k4X?t$K%f!<%6Dj5A4X?tL>$r3d$jEvF^$9!#E,Ev$J30It6&M-%*%V%8%'%/%H$r:n$k$?$a$N%F%s%W%l!<%H%X%C%@%U%!%$%k!"%5%s%W%k%=!<%9"makefile JI$, demo NCfK$"j^$9!#
- BPOC:n6H$NMzNr0lMwFb$ND>A0$N%3%^%s%I$O!"HV9f$G:F<B9T$G$-$^$9!#Nc$($P **history !5** $O!"**history** $N0lMwFb$N5 HV$N%3%^%s%I$r:F<B9T7^$9!#
- %S%C%H%7%U%H1i;;R>> $H<<!#
- gnuplot $N%7%'%k8F$S=P7Ggnuplot %9%/%j%W%H$K%Q%i%a!<%?$rEO$;$^$9!#gnuplot -c scriptfile.gp ARG1 ARG2 ARG3 ...

%P!<%8%g%s 4 HN0c$$ (Differences from version 4)

%P!<%8%g%s 5 $GF3F~$5l?$$$/D+$NJQ99$O!"A0NHGN gnuplot MQ$N%9%/%j%W%H$N5sF0rJQ($k2DG=@-$,$"$j$^$9!#

* NaN $d!"@5$7$/$J$$%G!<%?%Ns?t!"$^$?$OB>$NM=4|7J$$$bNr4^$`F~NO%G!<%?$N?tH7$FbIt$GJ]B8$7$^$9!#0JA0$NHG$N gnuplot GO!"UL$N%(%]%C%/(2000 G/1 7n1 F|) $rFbIt$G;HMQ7F$$$^7?!#3NJQ99$O!"gnuplot $N30$G:nil$?ICC10L$N%G!<%?$r7h$7$^$9!#%s%s%9%H!<%k5l$F$$$k8D!9$N gnuplot $,$IAi$N%(%]%C%/$r;HMQ7F$$$k$+$K$D$$$F$O!"%3%^%s%I **print strftime("%F",0)** GCNk3H$,$G$-$^$9!#8=:_$O!";~4V$O>/$J$/$H$b%_jIC$N@:EY$GJ]B8$5l^$9!#

* 4X?t **timecolumn(N,"timeformat")** $O!"8=:_$O2 DN0z?t$r;}$A$^$9!#?7$7$$2 $DL\$N0z?tOI$N%G!<%?$r;HMQ7F$*$i$:!"$hCF3lKh$j4X?t **timecolumn** $r!"x $dy <4$K;XDj9kNH$O0c$&7A<0$NF|;~%G!<%?$NI$_9~$_$K;H($kh&KJj^$9!#$3$N5!G=$O!"<!$N%3%^%s%INs$K<hCFUQoj$^$9: **set xdata time; set timefmt "timeformat"**!#3l$O!"J#?t$N%U!%$%k$+$i0[$J$k=q<0$NF|;~%G!<%?rEIs$G!"$=lirAH_9go;$F1 DN%0%i%UK9k3Hr2DG=$K7$^$9!#

* %3%^%s%I **set [axis]range** $N%-!<%o!<%I **reverse** $O!"<+F0=L<\(autoscaling) KN$_1F6A$7!"**set xrange [0:1]** Nh$&$J%3%^%s%I$N0UL#$r5UK7$?$jB>$NJQ99$r9TC?jO7^$;$s!#3Nh&$J>l9g$Kx<4$NJ}8~$r5U8~$-$K7?1l$P!"Be$ojK **set xrange [1:0]** H7F/$@$5$$!#

* %3%^%s%I **call** $O!"JQ?t72 ARGC, ARG0, ..., ARG9 $rDs6!$9kh$&<BAu$5lF$$$^$9!#ARG0 $O!"<B9T$9$k%9%/%j%W%HL>$r;X7^$9!#ARG1 $+$i ARG9 $OJ8;zNsJQ?t$KJkNG!"D>@\;2>H9k$+!"$^$?$ONc$($P@ARG1 Nh$&$K%^%/%mE83+5;$?$bNr;2>H9k3H$,$G$-$^$9!#call $N8E$$%Q%i%a!<%?;2>H7A<0$0 ... 9O8=:_$OHs?d>)$G$9!#

* %*%W%7%g%s smooth $Nkdensity $N!"bandwidth $NDI2C;XDj$G$O!"%G!<%?Ns$+iGJ/1DN%-!<%o!<%IH7FCMr<hj^$9!#0J2<;2>H:**smooth kdensity (p. 96)**!#

Hs?d>)$J=q<0 (Deprecated syntax)

0JA0NHGG;Hol$F$$$?$$/D+$N=q<0$Ognuplot 4 $GHs?d>)$HJj$^$7$?$,!"8eJ}8_49@-$r;}$?$;$k$?$a$N%3%s%Q%$k;~$N%*%W%7%g%s,MQ0U$5lF$$$^$9!#8E$$=q<0$N%5%]!<%H$O8=:_$O:o=|$5lF$$$^$9!#

gnuplot 4 GOHs?d>)$G!"%P!<%8%g%s5 GO:o=|:

```
set title "Old" 0,-1
set data linespoints
plot 1 2 4              # y=1 $G$N?eJ?@~
```

8=:_$NF1Ey$N5!G=:

```
TITLE = "New"
set title TITLE offset char 0, char -1
set style data linespoints
plot 1 linetype 2 pointtype 4
```

%P!<%8%g%s5.0 GO–enable-backwards-compatibility $G9=C[$5l?>l9g$O;H$(k,Hs?d>):

```
if (defined(VARNAME)) ...
set style increment user
plot 'file' thru f(x)
call 'script' 1.23 ABC
   (in script:  print $0, "$1", "number of args = $#")
```

8=:_$NF1Ey$N5!G=:

```
if (exists("VARNAME")) ...
set linetype
plot 'file' using 1:(f(column(2)))
call 'script' 1.23 "ABC"
   (in script:  print ARG1, ARG2, "number of args = ", ARGC
```

%G%b!"%M%C%H>e$N%5%s%W%k (Demos and Online Examples)

gnuplot $NG[I[J*$N**demo** %G%#%l%/%H%jFbKO!"B?$/$N%5%s%W%k,<}ailF$$$^$9!#$3li$N%5%s%W%k$Npng, svg, canvas =PNO7A<0Kh$k=PNO$r!"0J2<$N%M%C%H>e$G8+k3HbG-$^$9: http://gnuplot.info/demos

$=$3GO!"3F%G%b$r:n@.$9$k%3%^%s%I$,%0%i%UNNYj$KI=<($5l^$9$7!"$=$Ngnuplot %9%/%j%W%H$r%@%&%s%m!<%I$9k3HbG-$^$9NG!"$=$l$rJ]B8$7F1MM$N%0%i%U$r:n@.9k3H$,$G$-$^$9!#

%P%C%A/BPOC7?A':n (Batch/Interactive)

gnuplot $OB?$/$N%7%9%F%>e$G!"%P%C%A=hM}7A<0!"$"$k$$$OBPOC7?NIAi$N7A<0$G$b<B9T$G$-!"$=lirAH_9go;k3Hb2DG=$G$9!#

%3%^%s%I%i%$%s0z?t$O! "%W%m%0%i% 'SX$N%*%W%7%g%s(J8;z- $G;O$^$k) $+! "**gnuplot** %3%^%s%I$r4^$ '%U%!%$%k $NL>A0$G$"$k$H2r<a$5l^$9!#-e "command" $N7A<0$N%*%W%7%g%s$O! "gnuplot %3%^%s%I$r6/@)E*$K<B9T$5$;!" 3F%U%!%$%kH3$N%3%^%s%LJ8;zNs$O! ";XDj5l$?=g$K<B9T5l$^$9!#FCJL$J%U%!%$%kL> "-" $O! "%3%^%s%I$rI8 ='F~NO$+$iFI$_9~$ '3H$r0UL#$7$^$9!#:G8e$N%U%!%$%k$r<B9T$7$?8e$K **gnuplot** $O=*N;$7$^$9!#FI$_9~$^$; $k%U%!%$%k! "$*h$S%3%^%s%LJ8;zNs$r;XDj$7J+C?>l9g$O! "**gnuplot** $OI8='F~NO$+iNBPOC7?$NF~NO$r<u$1 IU$l$^$9!#

exit $H**quit** OIAi$b8=:_$N%3%^%s%I%U%!%$%k$r=*N;$7! "$^$@A4FN%U%!%$%k$,=*CF$$$Jll$P! "<!$N%U%! %$%k$r**load** 9kNK;Hol$^$9!#

Nc:

BPOC$r3+;O$9$k:

```
gnuplot
```

2 DN%3%^%s%I%U%!%$%k"input1", "input2" $r;H$C$F%P%C%A=hM}$r9TJ&:

```
gnuplot input1 input2
```

=i4|2=%U%!%$%k"header" $N8e! "BPOC7?%b!<%I$r5/F0$7! "$=$N8eJL$N%3%^%s%I%U%!%$%k"tailer" $r<B9T$9$k:

```
gnuplot header - trailer
```

%3%^%s%I%i%$%s$+$i**gnuplot** %3%^%s%I$rD>@\M?$(!"=*N;8e$K%9%/%j!<%s>e$K%0%i%U$,;Dkh$&$K%*%W%7%g%s "-persist" $r;H$&:

```
gnuplot -persist -e "set title 'Sine curve'; plot sin(x)"
```

%U%!%$%k$N%3%^%s%I$r<B9T$9$kA0$K! "%f!<%6Dj5AJQ?ta $Hs $r%;%C%H$9$k:

```
gnuplot -e "a=2; s='file.png'" input.gpl
```

%-%c%s%P%9%5%$%:(Canvas size)

gnuplot $N0JA0$NHGGO! "**set size** NCMr! "=PNO9kIA2hNN0h(%-%c%s%P%9) $N%5%$%:$r@)8f$9kNKb;HCF $$?=PNO7A<0b"j^7?$,! "$9YF$N=PNO7A<0$,$=$&$@$C$?$o1GO"j^$;$sG7$?! #$3$NL\E*$N$?$a$K **set size** $r;HMQ$9k3HO%P!<%8%g%s4.2 $GHs?d>)$HJj! "8=:_O[HsIN=PNO7A<0$,0J2<$N%k!<%k$K=>$$ $^$9:

set term <**terminal_type**> **size** <**XX**>, <**YY**> $O! "=PNO%U%!%$%k$N%5%$%:! "$^$?$O "%-%c%s%P%9" $N%5 %$%:$r@)8f$7$^$9!#%G%U%)%k%HGO! "%0%i%UO=$N%-%c%s%P%9A4BN$KIA2h5l$^$9!#

set size <**XX**>, <**YY**> $O! "IA2h<+BN$r%-%c%s%P%9$N%5%$%:KBP7$FAjBPE*$K?-=L5;$^$9!#l hj>.$5$$?-=LCM$r;XDj$9kH! "%0%i%U$O%-%c%s%P%9A4BN$rKda:! "l hjBg$-$$?-=LCM$r;XDj$9kH! "%0%i%U$N0lItJ, N_$,%-%c%s%P%9A4BN$K9g$&h&$KIA2h5l$^$9!#l hjBg$-$$?-=LCM$r;XDj$9kH! "LdBj$,5/$3k+b7$l $J$$$3HKCm0U7F$/$@$5$$!#

3N%k!<%kKh$J$$<g$JNc30$OPostScript %I%i%$%P$G! "%G%U%)%k%HGO0JA0NHGHF1$8?6Iq$$$r7^9,! " >-Mh$OPostScript %I%i%$%P$bF1MM$K%G%U%)%k%H$N?6Iq$$rJQ9$9$k3HKJkG7g$&!#

Nc:

```
set size 0.5, 0.5
set term png size 600, 400
set output "figure.png"
plot "data" with lines
```

3N%3%^%s%I$O! "I}600 %T%/%;%k! "9b$5400 %T%/%;%k$N=PNO%U%!%$%k"figure.png" $r@8@.$7$^$9!#%0%i%U$O %-%c%s%P%9$NCf$N:82<$KCV$+$l$^$9!#3l$O! "multiplot %b!<%I$,>o$K9T$CF-$?J}K!$HL7=b7^$;$s!#

%3%^%s%I%i%$%sJT=8(Command-line-editing)

%3%^%s%I%i%$%s$G$NJT=85!G=$H%3%^%s%I%R%9%H%j$N5!G=$O! "30It$NGNU readline %i%$%V%i%j$+30It$NBSD libedit %i%$%V%i%j! "$^$?$OAH$_9~$^lF$$$kF1EyNbNN$$:l+$r;H$C$F%]!<%H$7$F$$$^$9!#$3$NA*Br$O! "gnuplot $N%3%s%Q%$%k;~$NconfigureスクリプトでGNU readlineまたはBSD libeditのどちらを使うかを選択することができます。

AH$_9~$_$N readline HG$N>l9g$NJT=8%3%^%s%I$COJ2<NDLjG9$,!"DEL %-!<$K4X9kF0:n$O%7%9%F%`$K0MB8$9$k3H$KCm0U$7F/$@$5$$!#GNU readline %i%$%V%i%j$H BSD libedit %i%$%V%i%j$K4X7F$O!"$=$l<+?H$N%I%~%e%a%s%H$r;2>H$7F/$@$5$$!#

%3%^%s%I9TJT=8%3%^%s%I	
J8;z	5!G=
	9TJT=8
^B	1 J8;zA0XLa9
^F	1 J8;z@h$X?J$a$k
^A	9T$N@hF,$X0\F0
^E	9T$N:G8e$X0\F0
^H	D>A0$NJ8;z$r:o=|
DEL	8=:_$NJ8;z$r:o=|
^D	8=:_0LCV$NJ8;z$r:o=|!"6u9TJi EOF
^K	8=:_0LCV$+$i9TKv$^$G:o=|
^L	2ul?I=<($N9T$r:FI=<(
^U	9TA4BN$N:o=|
^W	D>A0$NC18l$r:o=|
^V	3N<!$N%-!<$rJT=8%3%^%s%I$H8+$J5J$$
TAB	%U%!%$%kL>Jd40F0:n
	MzNr
^P	A0$NMzNr$X0\F0
^N	<!$NMzNr$X0\F0
^R	8eJ}8!:w$r3+;O

%3%a%s%H (Comments)

%3%a%s%H5-9f# $O!"%3%^%s%I9TCf$N$[$HsI$I3$KGb=q$/$3H,G-$^$9!#3NH-**gnuplot** $O!"$=$N9T$N;DjNItJ,$rL5;k$7$^$9!#$?$@$7!"5-9f# $O0zMQIdFb$GO3$N8z2L$,$"$j$^$;$s!#%3%a%s%H9T$,'\' $G=*$oCF$$k>l9g!"<!$N9T$b%3%a%s%H$N1It$H7F07olk3HKCm0U7F$/$@$5$$!#

%G!<%?%U%!%$%k$KBP9k%3%a%s%HJ8;z$N;XDj$K$D$$F$O!"0J2<;2>H:**set datafile commentschars (p. 124)**!#

:BI870 (Coordinates)

%3%^%s%I **set arrow**, **set key**, **set label**, **set object** $O%0%i%U>e$NG$0U$N0LCV$,;XDj$G$-$^$9!#$=$N0LCV$O0J2<$N=q<0$G;XDj7^$9:

```
{<system>} <x>, {<system>} <y> {,{<system>} <z>}
```

3F:BI87O;XDj<system> KO!"**first**, **second**, **polar**, **graph**, **screen**, **character** $N$$:l+$,F~$j$^$9!#

first $O:8$H2<$N<4$GDj5A5l$kx,y (3D $N>l9g$Oz $b) $N:BI87O$r;HMQ7^$9!#**second** $Ox2, y2 <4(>e$Hl&$N<4) $r;HMQ$7$^$9!#**graph** $O%0%i%UIA2hNN0hFb$NA jBPE*0LCV$r;XDj$7!":82<$, 0,0 $G1&>e$, 1,1 (splot $N>l9g$O%0%i%UIA2hNN0hFb$N:82<$, 0,0,0 $G!"EZBf$N0LCVOIiNz NCMr;HMQ7^$9!#0J2<;2>H: **set xyplane (p. 189)**) HJj^$9!#**screen** $OI=<(HC0CFb(HC0CA4BN$G$"$j!"**set size** $GA*Br$5lk0lItJ,GO$"$j$^$;$s)$r;XDj$7!":82<$, 0,0 $G1&>e$, 1,1 HJj^$9!#**character** :BI8$O<gK:lr;XDj9kNK;HMQ$7!"@dBPE*$J0LCV$r<($9bNGO$"$j$^$;$s!#**character** $N?eJ?!"?bD>%5%%:$O!"8=:_;HMQ7F$$k%)%s%H$K0MB8$7$^$9!#

polar $O!":G=i$N2 DNCM$r!"x, y GOJ/!"3Q theta $HH>7Br G"kH2r<a7^$9!#$3lO!"Nc$($P2<!85$N6K:BI8!"$"$k$$$O3<!851_C1:BI8GN%0%i%U$K%i%Y%k$rG[CV9kNKLr$KN)$DG7g&!#

x $N:BI87O$,;XDj5l$F$$J$>l9g$O**first** $,;H$ol^$9!#y $N:BI87O$,;XDj5l$F$$J$>l9g$Ox KBP9$k:BI87O$,;HMQ5l$^$9!#

M?$($k:BI8$,@dBPE*$J0LCVGOJ/$FAjBPE*$JCMG"$k>l9g$b"j^$9(Nc$($P **set arrow** ... **rto** $N2 HVL\$N?tCM)!#$=$N$[$HsI$,!"M?$(il$??tCM$r:G=i$N0LCV$KBP9k:9H7F;H$$$^$9!#M?$(il$?:BI8$,BP?t<4FbK"$k>l9g$O!"$=$NAjBPE*JCMOG\N(H7F2r<a5l$^$9!#Nc$($P

```
set logscale x
set arrow 100,5 rto 10,2
```

$O! "x <4$,BP?t<4$Gy <4$,@~7A$N<4$JNG! "100,5 $N0LCV$+$i 1000,7 $N0LCV$X$NLp0u$r=q$/$3HKJj$^$9! #
0l$D ($"$k$$O$=$l0J>e) $N<4$,; ~4V<4G"$k>l9g! "**timefmt** $N=q<0J8; zNs$K=>CF! "0zMQId$G0O$^l?; ~4V
J8; zNs$GE,@Z$J:BI8$r; XDj$9kI,MW,$"$j$^$9! #0J2<; 2>H: **set xdata (p. 182)**, **set timefmt (p. 178)**! #$^
$?! "**gnuplot** $O@0?tI=5-$bG'aF$$F! "$=$N>l9g$=$N@0?t$O 1970 G/1 7n1 F|$+iNIC?t$H2r<a$5l^$9! #

J8; zNs%G! <%? (Datastrings)

%G! <%?%U%!%$%k$K$O! "% [%o%$%H%9%Z! <%9 (6uGr$d%?%V) $r4^$^JG$0U$N0u; z2DG=$JJ8; zNs! "$"$k$$O2 =E0z
MQId$G0O$^l?G$0U$NJ8; zNs (% [%o%$%H%9%Z! <%9$,4^$^$lFbNI$$)! "$N$$:l+$N7A$+iJ$kJ8; zNs%G! <%?$r
; }$?$;k3Hb2DG=$G$9! #%G! <%?%U%!%$%k<!$Nh&$J9T$,4^$^$l$F$$k>l9g! "$=$l$O4 DNNs$r4^$_! "3 Ns
L\$,%F%-%9%HItJ,G"kH8+J5l^$9:

```
 1.000 2.000 "Third column is all of this text" 4.00
```

%F%-%9%HItJ,$O2 <!85$d3 <!85IA2hFbGNc ($P0J2<$Nh&$K; HMQ$5l^$9:

```
 plot 'datafile' using 1:2:4 with labels
 splot 'datafile' using 1:2:3:4 with labels
```

%F%-%9%HItJ,$NNs%G! <%?$O1 $D! "$^$?$OJ#?t$NIA2h<4$NL\@9jN%i%Y%kH7$F; HMQ$G$-$^$9! #<!$NNc$O! "F~NO
%G! <%?$N3 NsL\$H4 NsL\$r (X,Y) :BI8H7$F<h$j=P$7! "$=li$NE@$NNs$r7k$V@~J,$rIA2h$7$^$9! #7+$7$3
$N>l9ggnuplot $O! "x <4$Kl hCFI8= 'E*$K4V$N6u$$??t; z%i%Y%kND$$?L\@9$j9o$_rD1kNGOJ$/! "F~
NO%G! <%?%U%!%$%k$N1 9IL\$N X :BI8$N0LCV$K! "L\@9$j9o$_$HJ8; zNs$r x <4$Kl h$CFD1F9T$-$^$9! #

```
 set xtics
 plot 'datafile' using 3:4:xticlabels(1) with linespoints
```

F~NO%G! <%?NNsN:G=i$N% (%s%H%j ($9JoANsN8+=P$7) $r%F%-%9%HItJ,$H2r<a9kb&0lDN%*%W%7%g%s$,
$"$j! "$=$l$O%F%-%9%HItJ,$r! "$=$NIA2h7?Ns$N%G! <%?$NK^Nc (key) $N%?%$%H%kItJ,H7$F; HMQ$7$^$9! #<!$N
Nc$O! "@hF,$N9T$N2 NsL\$NItJ,$rK^Nc%\%C%/%9Fb$N%?%$%H%k$r@8@.9kNK; HMQ$7! "$=$N8e$NNs$N2,4 NsL\$O
MW5a5l$?6J@~$rIA2h9kNK=hM}5l$^$9:

```
 plot 'datafile' using 1:(f($2)/$4) with lines title columnhead(2)
```

JL$NNc:

```
 plot for [i=2:6] 'datafile' using i title "Results for ".columnhead(i)
```

3NNs$N@hF,$r; HMQ9kJ}K!$O! "**set key autotitle columnhead** $G<+F02=$G$-$^$9! # 0J2<; 2>H: **labels (p. 64)**, **using xticlabels (p. 100)**, **plot title (p. 105)**,**using (p. 98)**, **key autotitle (p. 138)**! #

3HD%J8; zNs=hM}%b! <%I (Enhanced text mode)

B?$/$N=PNO7A<0$,! "3HD%J8; zNs=hM}%b! <%I (enhanced text mode) $r%5%]! <%H$7$F$$$^$9! #$3lO! "J8; zNs$K
DI2C$N=q<0>pJs$rKda3$_$^$9! #Nc$ ($P "x^2" $O x $N<+>h$r! "DL>o2f! 9$,8+$k>eIU$-$N2 $,$D$$$?7A$G=q
$-=P$7$^$9! #3N%b! <%I$O! "=PNO7A<0$N@_Dj; ~$K%G%U%)%k%H$H7FA*Br5l$^$9$,! "$=$N8e$G"set termoption
[no]enhanced" $r; H$CF=$N5!G=$rM-8z/L58zKbG-$^$9$7! ""set label 'x_2' noenhanced" Nh$&$K8D! 9$N
J8; zNsKE,MQ9k3HbG-$^$9! #

3HD%J8;zNs@)8f5-9f			
@)8f5-9f	Nc	7k2L	@bL@
^	a^x	a^x	>eIU$-J8;z
_	a_x	a_x	2<IU$-J8;z
@	a@^b_{cd}	a_{cd}^b	6u%\%C%/%9(I}$,$J$$)
&	d&{space}b	$d_{\sqcup\sqcup\sqcup\sqcup\sqcup\sqcup}b$	;XDj7?D9$5$N%9%Z!<%9$rA^F~
~	~a{.8-}	$\tilde{a}$	'a' $N>e$K'-' $r!"8=:_$N%U%)%s%H%5
			%$%:$N.8 G\;}$A>e$2$?0LCV$K=E$M=q$-
	{/Times abc}	abc	Times %U%)%s%H!":#$N%5%$%:$Gabc $r=PNO
	{/Times*2 abc}	abc	Times %U%)%s%H!":#$NG\$N%5%$%:$Gabc
	{/Times:Italic abc}	*abc*	Times %U%)%s%H!"%$%?%j%C%/BN$Gabc
	{/Arial:Bold=20 abc}	**abc**	Arial %U%)%s%H!"B@;z!"%5%$%:20 $Gabc

=q<0@)8fJ8;z$O!"$=lKB3$/1J8;z!"$^$?$OCf%+%C%3$G0O$^l?bNKE,MQ5l^$9!#Cf%+%C%3Fb$K$O!"Nc$(
$P2^{10} Nh$&$JDI2C$N=q<0J8;zNs$NJJ8;zNs$+!"$^$?$O%U%)%s%H$NB0@-$rJQ99$9$kDI2C@)8fJ8;zNs$rF~
lk3H$,$G$-$^$9!#0J2<$NNcO=$NCf%+%C%3$NF~$l;R$r<(7F$$$F!"%\!<%k%IBN$NA $K%$%?%j%C%/BN$N2<IU
$-$NE:;zi$,$D$$$?bN$,!"$$:lb8=:_$N%U%)%s%H$GIA$+$l$^$9!#3NNc$N:Normal $r<h$k$H!"2<IU$-$NE:
;z$O%\!<%k%IBN$G$+$D%$%?%j%C%/BN$KJj$^$9!#

```
    {/:Bold A_{/:Normal{/:Italic i}}}
```

%U%)%s%H;XDj$O!"3+$-Cf%+%C%3'{' $ND>8e$KB3$/'/' N9$0<!$K=q$+$J1l$P!V$$$1$^$;$s!W#

6u%\%C%/%9(phantom box) $Oa@^b_c $N>eIU$-J8;z$H2<IU$-J8;z$rB7$(kH$-$KM-MQG9$,!"J8;z$K%"%/%;
%s%H5-9f$r=E$M$k>19g$K$O&$^$/F/$-$^$;$s!#8e<T$NL\E*N?aK$O!"?'!9$J%"%/%;%s%Hd=$NB>$N%@%$%"%/
%j%F%#%+%k%^!<%/N"$kB?$/$NJ8;z$r;}$D%(%s3!<%I(Nc$($Piso_8859_1 $dutf8) $r;HMQ$9$kJ}$,$$$$G7g
$&!#0J2<;2>H **set encoding (p. 127)**!#$=$N%\%C%/%9$O%@%Z!<%7%s%0$,9TJolJ$$N$G!"%\%C%/%9Fb($D
$^$j@ $N8e$m) $N>eIU$-J8;z$d2<IU$-J8;z$rC;$/=PNO9kNKE,7F$$$^$9!#

$"$kJ8;zNs$HF1$8D9$5$N%9%Z!<%9$rJ8;z'&' $r;H$&3H$GF~$lk3H,G-$^$9!#9JoA!"

```
        'abc&{def}ghi'
```

$O0J2<$r@8@.7^$9(abc $Hghi $N4V$O3J8;zJ,$N6uGr):

```
        'abc    ghi'
```

J8;z'~ ' $O!"<!$NJ8;z!"$^$?$O%+%C%3$G0O$^$l$?J8;zNs$K!"$=$l$KB3$/J8;z$^$?$O%+%C%3$G0O$^$l$?J8;zNs
$r=E$M=q$-$7$^$9!#2HVL\$NJ8;z$O:G=i$NJ8;zK"o;$F?eJ?J}8~$K%;%s%?%j%s%0$5$l$^$9!#hC$F'~a/' $O
'a' $r4S$/h&$J%9%i%C%7%e$,F@il$^$9!#2HVL\$NJ8;z$O!"$=$NA0$K?t;zrCV/3H$G?bD>J}8~$K0\F0$5$;$k
3H$,$G$-$^$9!#$=$N?t;z$O8=:_$N%U%)%s%H%5%$%:KBP9$k3d9g$r0UL#$7!"$=lK=>CFJ8;z$,>e$,C?$j2<
$,$C$?$j7^$9!#$3$N>19g?t;zHJ8;zNs$O1J8;zhjD9$/$JkN$G%+%C%3$G0O$'I,MW$,$"$j$^$9!#=E$M=q$-$5
lkJ8;zNs$,?t;z$+$i;O$^CF$$$k>19g$O!"?bD>$K$:$i$9CM$HJ8;zNsHN4V$K%9%Z!<%9$rF~lF$/$@$5$$($'~
{abc}{.5 000}')!#$=$l0J30$O%9%Z!<%9$OITMW$G$9('~ {abc}{.5 — }')!#0lJ}!"$"$k$$$CN>J}$N%U%)%s%H$rJQ99
9k3HbG$-$^$9('~ a{.5 /*.2 o}'; 'a' $=$N1/5 NBg-5N'o'!"3N>19g?t;z$H%9%i%C%7%e$N4V$N%9%Z!<
%9OI,MWG$9)$,!"$=$NJ8;zNs$,;O$^C?8e$GJQ99$9$k3$HOG$-$^$;$s!#$=$l$>$l$NJ8;zNsFb$G!"B>$NFC<l
$J=q<0$r;H$&$3HbG-$^$;$s!#$bAms!"'~ a{\^}' Nh$&$KFC<l$JJ8;z$r%(%9%1!<%W9k3$H(2<5-;2>H)
$O2DG=$G$9!#

FC<l5-9f$O!"8?JJ8;z%3!<%I$rM?$($k3H$G?t;z$G;XDjG-$^$9!#Nc$($P!"{/Symbol\245} $O!"Adobe Symbol
%U%)%s%H$NL58BBg$N5-9f$G$9!#7+$7!"$3lO!"UTF-8 Nh$&$J%^%k%A%P%$%H%(%s%3!<%C%#%s%0$G$O&$^$/
$$-$^$;$s!#UTF-8 4D6-$G$O!"%?%$%WBG$A!"$=$&$GJ1lP"J?$,K>$'J8;z$rA*$Vh&$&$JK!$G!"%^%k%A%P
%$%HNs$r4V@\E*$KF~NO$G$-$kh&K9Y-$G$9!#

@)8fJ8;z$O!"\\ $d\{ JINh$&$K\ $r;H$C$F%(%9%1!<%W$G$-$^$9!#

Fs=E0zMQIdFb$NJ8;zNs$OC10l0zMQIdFb$NJ8;zNs$H$O0[$JCF2r<a5lk3HKCm0U7F$/$@$5$$!#kg$J0c$$$O!"
Fs=E0zMQIdFb$NJ8;zNs$G$O%P%C%/%9%i%C%7%e$O2 $D=E$MkI,MW,$"$k3H$G$9!#

gnuplot %=!<%9G[I[J*Fb$N/docs/psdoc %5%V%G%#%l%/%H%jK"$k%!%$%k"ps_guide.ps" $K!"3HD%$5l?=q<0
$K4X$9kNc,:\$C$F$$$^$9!#F1MM$NbN$,%G%b**enhanced_utf8.dem**

Kb$"$j$^$9!#

4D6¬JQ?t (Environment)

gnuplot $OB?$/$N%7%'%k4D6¬JQ?t$rG'<1$7$^$9!#I,?\$NbNO"j^$;$s$,!";H$($PJXMx$KJk$+$bCN1^$;$s!#

GNUTERM $O!"$=1,Dj5A$5$1$F$$1$P!"5/F0;~$N=PNO7A<0$r@_Dj$9kN$K;H$o1^$9!#%P!<%8%g%s 5.2 $+$i$O!"GNUTERM $NJ8;zNsA4It$,"set term" KEO5$1$kNG!"$=$3$K terminal %*%W%7%g%s$rF~1k3HbG$-$^$9!#Nc:

```
GNUTERM="postscript eps color size 5in, 3in"
```

$3$1$O!"~/.gnuplot ($^$?$O$=$1$KAjEv$9$k) =i4|2=%U%!%$%k(0J2<;2>H:**startup (p. 47)**) Kh$k;XDj$d!"bAms$=$N8e$NL@<(E*$J**set term** %3%^%s%IKh$k;XDj$GJQ9G-$^$9!#

GNUHELP $K%X%k%W%U%!%$%k(gnuplot.gih) $N%Q%9L>$rDj5A7F$*$/3H$,$G$-$^$9!#

VMS GO!"O@M}L>GNUPLOT$HELP $r**gnuplot** $N%X%k%W%i%$%V%i%j$NL>A0$H7FDj5A7^$9!#**gnuplot** $N%X%k%W$OG$0U$NVMS %7%9%F%'$N%X%k%W%i%$%V%i%j$KF~$1k3H,G-$^$9!#

Unix K*$$F$O!"%+%l%s%H%G%#%l%/%H%j$K.gnuplot $H$$&%U%!%$%k$,$J$$>l9gKO!"HOME $KDj5A$5$1$?%G%#%l%/%H%j$rC5$7$^$9!#MS-DOS, Windows, OS/2 GOGNUPLOT $,$=$NLr3d$K;Ho1$^$9!#Windows GO!"NT @lMQ$NUQ?tUSERPROFILE $b;2>H$5$1$^$9!#VMS GOSYS$LOGIN $G$9!#**help startup** HBGCF_F/$@$5$$!#

Unix K*$$F$O!"PAGER $,%X%k%W%a%C%;!<%8$N=PNOMQ$N%U%#%k%?$H7F;Ho1$^$9!#

Unix GO!"SHELL $,**shell** %3%^%s%I$N:]$K;H$o1^$9!#MS-DOS, OS/2 GOCOMSPEC $,**shell** %3%^%s%I$N:]$K;H$o1^$9!#

FIT_SCRIPT $O!"Ev$FOa(fit) $,CfCG$5$1$?H-$K<B9T$9$k**gnuplot** %3%^%s%I$N;XDj$K;H$o1^$9!#0J2<;2>H:**fit (p. 75)**!#**FIT_LOG** OEvFOaKh$k%m%0%U%!%$%k$N%G%U%)%k%H$N%U%!%$%kL>$N;XDj$K;H$o1^$9!#

GNUPLOT_LIB $O!"%G!<%?%3%^%s%I%U%!%$%k$N8!:w%G%#%l%/%H%j$rDI2CDj5A9kNK;Ho1$^$9!#$=$NUQ?t$O!"0l$D$N%G%#%l%/%H%jL>$+$^$?$OUJ#?t$N%G%#%l%/%H%jL>$r=q$/3H$,$G$-$^9,!"%G%#%l%/%H%j$N6h@Z$j$O%W%i%C%H%[!<%'Kh$K0c$$$^$9!#Nc($PUnix GO':' $G!"MS-DOS, Windows, OS/2 GO';' $G$9!#GNUPLOT_LIB NCMOUQ?t**loadpath** $KDI2C$5$1$^9,!"$=$1$O**save** $d**save set** %3%^%s%I$G$OUJ]B8$5$1$^$;$s!#

=PNO%I%i%$%P$NCfKOgd %i%$%V%i%j7PM3$GTrueType %U%)%s%H$r07($kbN$b$$$/D+$"$j$^$9!#$3$1iN%I%i%$%P$N%U%)%s%H8!:w%Q%9$O!"4D6¬JQ?tGDFONTPATH $G@)8f$G$-$^$9!#$5iK!"$=$1iN%I%i%$%P$G$N%G%U%)%k%H$N%U%)%s%H$O4D6¬JQ?tGNUPLOT_DEFAULT_GDFONT $G@)8f$G$-$^$9!#

postscript =PNO%I%i%$%P$O<+J,$G;}$C$F$$$k%U%)%s%H8!:w%Q%9$r;H$$^9,!"$=$1$O4D6¬JQ?t GNUPLOT_FONTPATH $G@)8f$G$-$^$9!#=q<0$OGNUPLOT_LIB $HF1$8$G$9!#GNUPLOT_FONTPATH NCMOJQ?t**fontpath** $KDI2C$5$1$^9,!"$=$1$O**save** $d**save set** %3%^%s%I$G$OUJ]B8$5$1$^$;$s!#

PostScript %I%i%$%P$O!"30It(AH$_9~$^1F$$J$)Dj5A%U%!%$%k$rC5$9$?$a$K4D6¬JQ?tGNUPLOT_PS_DIR $rMxMQ$7$^$9!#%$%s%9%H!<%k;~$N:n6HKh$j!"gnuplot KO$=$1iN%U%!%$%k$N%3%T!<$,AH$_9~$^1F$$$k$+!"$^$?$O%G%U%)%k%H$N%Q%9$,Kd$a9~$^1F$$^$9!#$3$NUQ?t$O!"postscript =PNO7A<0$G%G%U%)%k%H$N%U%!%$%k$NBeoj$K%+%9%?%^%$:7?prologue %U%!%$%k$r;HMQ9kNKMxMQG-$^$9!#0J2<;2>H:**postscript prologue (p. 243)**!#

<0 (Expressions)

4pK\E*KOC, FORTRAN, Pascal, BASIC K*$$FMxMQ2DG=$J?t3XI=8=$r;HMQG-$^$9!#1i;;R$NM%@h=g0L$OC8@8l$N;EMM$K=>$$^$9!#?t<0Cf$N6uGrJ8;z$H%?%VJ8;z$OL5;k$5$1$^$9!#

gnuplot $O"<B?t" $H"@0?t" 1i;;$rFORTRAN $dC Nh$&$K07$&$H$$$&3H$KCm0U$7F/$@$5$$!#'1", "-10" JI$O@0?t$H8+J5$1!"'1.0", "-10.0", "1e1", 3.5e-1 JI$O<B?t$H8+J5$1$^$9!#$3$1$i2DNbCHb=EMW$JOc$$O3d;;$G$9!#@0?t$N3d;;$O@Z;j<NFi1^$9: 5/2 = 2!#<B?t$O$=$&GO"j^;;$s: 5.0/2.0 = 2.5!#$=1i$,:.:_$7$?<0$N>l9g!"7W;;$NA0$K@0?t$O<B?t$K"3HD%" $5$1$^$9: 5/2e0 = 2.5!#Ii$N@0?t$r@5$N@0?t$G3d$k>l9g!"$=NCMO%3%s%Q%$%i$KhCFJQoj^$9!#'print -5/2" H7$F!"$"J?$N%7%9%F%'$,>o$K@Z$j<NFk(-5/2 $G-3 KJ$k) N+!"$^$?$O0 $N6a$/$K4]$a$k(-5/2 $G-2 KJ$k) N+$r3NG'$7F/$@$5$$!#

?t<0 "1/0" $O"L$Dj5ACM(undefined)" %U%i%0$r@8@.$7!"$=$1Khj=$NE@$rL5;k7^$9!#$"$k$$O!"8aDj5A$5$1$F$$kCMNaN $r;H$CFbF1$8$3HKJj$^$9!#NcKD$$F$O!"0J2<;2>H:**using (p. 98)**!#

gnuplot $OJ8;zNs$KBP9kC1=c$J1i;;!"$*hSJ8;zNsJQ?t$bMxMQ$G$-$^$9!#Nc$($P<0("A" . "B" eq "AB") $O ?:$HI>2A5l$^$9$,!"$3lOJ8;zNs$N7k9g1i;;;R$HJ8;zNs$NEy9f1i;;;R$r0UL#7F$$$^$9!#

?tH7FNCM$r4^$`J8;zNs$O!"$=l,?t<0$GMxMQ$5l?>l9g$O!"BP1~$9$k@0?t$d<B?t$KJQ49$5l^$9!#$hCF!" ("3" + "4" == 7) $d(6.78 == "6.78") OIAi$b?KJj^$9!#@0?t$O!"$=l,J8;zNs7k9g1i;;;R$G;Hol $?>l9g$OJ8;zNs$KJQ49$5l^9,!"<B?t$dJ#AG?t$O%@%a$G$9!#E57?E*JNcO!"%U%!%$%kL>$dB>$NJ8;zNsFb$K@0 ?t$r;H$&>l9gG7g&:Nc$($P("file" . 4 eq "file4") $O?:$G$9!#

8eCV;XDj9kHC0C5-=R;R[beg:end] KhCF!"ItJ,J8;zNs$r;XDj$9k3H,G-$^$9!#Nc$($P!"'ABCDEF"[3:4] == "CD" $G!"'ABCDEF"[4:*] == "DEF" $G$9!#=q<0"string"[beg:end] $O!"J8;zNsCM$NAH$_9~$_4X?tsub-str("strings",beg,end) $r8F$V3HH[$\F1$8G9$,!"4X?t8F$S=P7G$Obeg, end $O>JN,$9k3HOG-$^ $;$s!#

Dj?t (Constants)

@0?tDj?t$O!"C $Nstrtoll() %i%$%V%i%j%k!<%A%s$r;H$C$F2r<a$7$^$9$,!"$3lO!""0" $G;O$^$kDj?t$O8?J?t $H!"$^$?"0x" $+"0X" $G;O$^$kDj?t$O16?J?tH_J9$3$H$r0UL#$7$^$9!#

<B?t(IbF0>.?t) Dj?t$O!"C $Natof() %i%$%V%i%j%k!<%A%s$r;H$C$F2r<a$7$^$9!#

J#AG?t$NDj?t$O{<real>,<imag>} $HI=8=$7$^$9!#$3$3$G<real> $H<imag> (<BIt!"5uIt) $O?tCMDj?t$G$" kI,MW,$"j^$9!#Nc$($P{3,2} $O3 + 2i r"ic$7!"{0,1} $O'i' <+?H$rI=7^$9!#$3liKOL@<(E*$KCf %+%C%3$r;H$&I,MW$,$"$j$^$9!#

J8;zNsDj?t$OC10l0zMQId$+Fs=E0zMQId$N$$:l+$G0O$^l?G$0U$NJ8;zNJBS$+$iJkbN$G$9!#C10l0zMQId $HFs=E0zMQId$N0c$$$O=EMW$G$9!#0J2<;2>H:**quotes (p. 50)**!#

Nc:

```
1 -10 0xffaabb          # @0?tDj?t
1.0 -10. 1e1 3.5e-1     # <B?tDj?t
{1.2, -3.4}             # J#AG?tDj?t
"Line 1\nLine 2"        # J8;zNsDj?t (\n $O2~9T$KE83+$5$l$k)
'123\n456'              # J8;zNsDj?t (\ $H n $O$=$N$^$^$NJ8;z)
```

4X?t (Functions)

FC$KCm0U$,J1lP!"**gnuplot** $N?t3X4X?t$N0z?t$O@0?t!"<B?t!"J#AG?t$NCM$r<h$k3H$,$G$-$^$9!#3Q$r0z?t dLajCMH9$k4X?t(Nc$($P sin(x)) $O!"$=NCMr%i%8%"%sH7$F07$$$^9,!"3l$O%3%^%s%I **set angles** $K hCFEYKJQ99G-$^$9!#

?t3X%i%$%V%i%j4X?t		
4X?t	0z?t	La$jCM
abs(x)	G$0U	x $N@dBPCM, $\|x\|$; F1$87?
abs(x)	J#AG?t	x $ND9$5, $\sqrt{\mathrm{real}(x)^2+\mathrm{imag}(x)^2}$
acos(x)	G$0U	$\cos^{-1}x$ (%"!<%/%3%5%$%s)
acosh(x)	G$0U	%i%8%"%sGN$\cosh^{-1}x$ (5UAP6JM>89)
airy(x)	G$0U	%(%"%j!<4X?t $\mathrm{Ai}(x)$
arg(x)	J#AG?t	x $NJP3Q
asin(x)	G$0U	$\sin^{-1}x$ (%"!<%/%5%$%s)
asinh(x)	G$0U	%i%8%"%sGN$\sinh^{-1}x$ (5UAP6J@589)
atan(x)	G$0U	$\tan^{-1}x$ (%"!<%/%?%s%8%'%s%H)
atan2(y,x)	@0?t$^$?$O<B?t	$\tan^{-1}(y/x)$ (%"!<%/%?%s%8%'%s%H)
atanh(x)	G$0U	%i%8%"%sGN$\tanh^{-1}x$ (5UAP6J@5@\)
EllipticK(k)	<B?t k ∈ (-1:1)	$K(k)$ Bh1 <o40A4BJ1_@QJ,
EllipticE(k)	<B?t k ∈ [-1:1]	$E(k)$ Bh2 <o40A4BJ1_@QJ,
EllipticPi(n,k)	<B?t n<1, <B?t k ∈ (-1:1)	$\Pi(n,k)$ Bh3 <o40A4BJ1_@QJ,
besj0(x)	@0?t$^$?$O<B?t	J_0 %Y%C%;%k4X?t(0 <!%Y%C%;%k4X?t)
besj1(x)	@0?t$^$?$O<B?t	J_1 %Y%C%;%k4X?t(1 <!%Y%C%;%k4X?t)

?t3X%i%$%V%i%j4X?t		
4X?t	0z?t	La$jCM
besy0(x)	@0?t$^$?$O<B?t	Y_0 %Y%C%;%k4X?t ($0 <!%N%$%^%s4X?t)
besy1(x)	@0?t$^$?$O<B?t	Y_1 %Y%C%;%k4X?t ($1 <!%N%$%^%s4X?t)
ceil(x)	G$0U	$\lceil x \rceil$, x ($$N<BIt) 0J>e$N:G>.$N@0?t
cos(x)	G$0U	x $N%3%5%$%s $\cos x$
cosh(x)	G$0U	$\cosh x$, x $N%O%$%Q%\%j%C%/%3%5%$%s
erf(x)	G$0U	erf(real(x)), x $N<BIt$N8m:94X?t
erfc(x)	G$0U	erfc(real(x)), 1.0 - (x $N<BIt$N8m:94X?t)
exp(x)	G$0U	e^x, x $N;X?t4X?t
expint(n,x)	@0?t $n \geq 0$, <B?t $x \geq 0$	$E_n(x) = \int_1^\infty t^{-n} e^{-xt}\,dt$, x $N;X?t@QJ,
floor(x)	G$0U	$\lfloor x \rfloor$, x ($$N<BIt) 0J2<$N:GBg$N@0?t
gamma(x)	G$0U	gamma(real(x)), x $N<BIt$N%,%s%^4X?t
ibeta(p,q,x)	G$0U	ibeta(real(p,q,x)), p,q,x $N<BIt$NIT40A4%Y!<%?4X?t
inverf(x)	G$0U	x $N<BIt$N5U8m:94X?t
igamma(a,x)	G$0U	igamma(real(a,x)), a,x $N<BIt$NIT40A4%,%s%^4X?t
imag(x)	J#AG?t	x $N5u?tItJ, (<B?t)
invnorm(x)	G$0U	x $N<BIt$N5U@55,J,I[4X?t
int(x)	<B?t	x $N@0?tItJ, (0 $K8~$+CF4]$a)
lambertw(x)	<B?t	Lambert W 4X?t
lgamma(x)	G$0U	lgamma(real(x)), x $N<BIt$N%,%s%^BP?t4X?t
log(x)	G$0U	$\log_e x$, x $N<+A3BP?t (Dle)
log10(x)	G$0U	$\log_{10} x$, x $NBP?t (Dl10)
norm(x)	G$0U	x $N<BIt$N@55,J,I[(%,%&%9J,I[) 4X?t
rand(x)	@0?t	6h4V[0:1] Fb$N5?;wMp?t@8@.4o
real(x)	G$0U	x $N<BIt
sgn(x)	G$0U	$x > 0$ Ji1, $x < 0$ Ji-1, $x = 0$ Ji0. x $N5uIt$OL5;k
sin(x)	G$0U	$\sin x$, x $N%5%$%s
sinh(x)	G$0U	$\sinh x$, x $N%O%$%Q%\%j%C%/%5%$%s
sqrt(x)	G$0U	$\sqrt{x}$, x $NJ?J}:,
tan(x)	G$0U	$\tan x$, x $N%?%s%8%'%s%H
tanh(x)	G$0U	$\tanh x$, x $N%O%$%Q%\%j%C%/%?%s%8%'%s%H
voigt(x,y)	<B?t	Voigt/Faddeeva 4X?t $\frac{y}{\pi}\int \frac{exp(-t^2)}{(x-t)^2+y^2}dt$
		Cm0U: voigt$(x,y) = real(\text{faddeeva}(x+iy))$

libcerf (MxMQ2DG=$J>19g$N$_) Kh$kFC<l4X?t		
4X?t	0z?t	La$jCM
cerf(z)	J#AG?t	J#AG8m:94X?t
cdawson(z)	J#AG?t	Dawson @QJ, $D(z) = \frac{\sqrt{\pi}}{2} e^{-z^2} erfi(z)$ $NJ#AG3HD%
faddeeva(z)	J#AG?t	:F%9%1!<%k2=J#AG8m:94X?t $w(z) = e^{-z^2}\ erfc(-iz)$
erfi(x)	<B?t	5u8m:94X?t $erf(x) = -i * erf(ix)$
VP(x,σ,γ)	<B?t	Voigt %W%m%U%!%$%k $VP(x,\sigma,\gamma) = \int_{-\infty}^{\infty} G(x';\sigma)L(x-x';\gamma)dx'$

J8;zNs4X?t		
4X?t	0z?t	JV$jCM
gprintf("format",x,...)	G$0U	gnuplot $N=q<02r@O4o$rE,MQ7?7k2L$NJ8;zNs
sprintf("format",x,...)	J#?t8D	C 8@81$N sprintf NJV9J8;zNs
strlen("string")	J8;zNs	%P%$%HC10L$G$NJ8;zNs$ND9$5(@0?t)
strstrt("string","key")	J8;zNs	ItJ,J8;zNs"key" $,8=$1$k@hF,0ICV
substr("string",beg,end)	J#?t8D	J8;zNs"string"[beg:end]
strftime("timeformat",t)	G$0U	gnuplot Kh$k;~9o2r@O7k2L$NJ8;zNs
strptime("timeformat",s)	J8;zNs	J8;zNss $rJQ49$7$?1970 G/$+iNIC?t
system("command")	J8;zNs	%7%'%k%3%^%s%I$N=PNO$r;}$DJ8;zNs
word("string",n)	J8;zNs, @0?t	J8;zNs"string" $Nn HVL\$NC181
words("string")	J8;zNs	J8;zNs"string" Cf$NC181?t

B>$N **gnuplot** $N4X?t		
4X?t	0z?t	JV$jCM
column(x)	@0?t$+J8;zNs	%G!<%?%U%!%$%k=hM}Cf$Nx NsL\
columnhead(x)	@0?t	%G!<%?%U%!%$%k$N:G=iNx$ NsL\Cf$NJ8;zNs
exists("X")	J8;zNs	JQ?tL>X $,Dj5A$5$1$F$$1$P1, $=$&GJ$1$1$P0
hsv2rgb(h,s,v)	h,s,v ∈ [0:1]	24 %S%C%HRGB ?'CM
stringcolumn(x)	@0?t$+J8;zNs	J8;zNsH7FNx NsL\$NFbMF
timecolumn(N,"timeformat")	@0?t, J8;zNs	%G!<%?F~NCCfNN$ NsL\$NF|;~%G!<%?
tm_hour(x)	@0?t	;~
tm_mday(x)	@0?t	F|
tm_min(x)	@0?t	J,
tm_mon(x)	@0?t	7n
tm_sec(x)	@0?t	IC
tm_wday(x)	@0?t	$=$N=5$N2?F|L\
tm_yday(x)	@0?t	$=$NG/$N2?F|L\
tm_year(x)	@0?t	@>Nq
time(x)	G$0U	8=:_$N%7%9%F%';~9o
valid(x)	@0?t	%G!<%?Cf$N column($x$) $N@5Ev@-
value("name")	J8;zNs	L>A0 name $NJQ?t$N8=:_$NCM

<o!9$NBJ1_@QJ, (elliptic integrals)

4X?t **EllipticK(k)** $O!"Bh1 <o40A4BJ1_@QJ,!"$9Jo$A!"4X?t**(1-(k*sin(p))**2)**(-0.5)** $N0 $+$i&P/2 $^$G$NHO0O$N9-5A@QJ,NCMrJV7^$9!#**k** $NDj5A0h$O-1 $+$i1 $G$9(N>C<$O4^$^$J$$)!#

4X?t **EllipticE(k)** $O!"Bh2 <o40A4BJ1_@QJ,!"$9Jo$A!"4X?t**(1-(k*sin(p))**2)**0.5** $N0 $+$i&P/2 $^$G$NHO0O$N9-5A@QJ,NCMrJV7^$9!#**k** $NDj5A0h$O-1 $+$i1 $G$9(N>C<$b4^$')!#

4X?t **EllipticPi(n,k)** $O!"Bh3 <o40A4BJ1_@QJ,!"$9Jo$A4X?t**(1-(k*sin(p))**2)**(-0.5)/(1-n*sin(p)**2)** $N0 $+$i&P/2 $^$G$NHO0O$N9-5A@QJ,NCMrJV7^$9!#%Q%i%a!<%?**n** $O1 hj>.5/!"**k** $O-1 $H1 $N4V(N>C<$O4^$^$J$$) GJ$1$1$P$$1$^$;$s!#Dj5A$h$j!"$9YF$N@5$N**k** KBP7EllipticPi(0,k) == EllipticK(k) G"k3HKCm0U7F$/$@$5$$!#

Mp?t$N@8@. (random)

4X?t **rand()** $O0 $H1 $N4V$N5?;wMp?tNs$r@8@.$7$^$9!#$3$1$O0J2<$+iN"%k%4%j%:'$r;HMQ$7$F$$$^$9: P. L'Ecuyer and S. Cote, "Implementing arandom number package with splitting facilities", ACM Transactions onMathematical Software, 17:98-111 (1991).

```
rand(0)      FbIt$K;}$D 2 $D$N 32bit $N<o (seed) $N8=:_$NCM$+$i@8
             @.$5$1$k [0:1] 6h4VFb$N5?;wMp?tCM$rJV$9
rand(-1)     2 $D$N<o$NCM$rI8='CM$KLa$9
rand(x)      0 < x < 2^31-1 $N@0?t$J$i<o$NN>J}$r x $K@_Dj$9$k
rand({x,y}) 0 < x,y < 2^31-1 $N@0?t$J$i seed1 $r x $K seed2 $r y
             $K@_Dj$9$k
```

Value

A $,%f!<%6!<Dj5AJQ?t$NL>A0G"lP!"B = value("A") $O;v<B>eB = A $HA4$/F1$8$G$9!#$3lO!"JQ?t$NL>A0<+?H$,J8;zNsJQ?t$K<}$ail$F$$k>l9g$KM-MQ$G$9!#0J2<;2>H: **user-defined variables (p. 36)**!#3l$O!"JQ?tL>$r%G!<%?%U%!%$%k$+iFI_<hk3Hb2DG=K7$^$9!#0z?t$,?t<0$G$"$k>l9g!"value() O=$N?t<0$NCMrJV7$^$9!#0z?t$,J8;zNs$G!"Dj5A5l$F$$$kJQ?t$KBP1~$9kbN,$J$$>l9g!"value() $ONaN rJV7$^$9!#

C18l$N<h$j=P7HC18l?t **(word, words)**

word("string",n) $O!"J8;zNs (string) $Nn HVL\$NC18lrJV7$^$9!#Nc$($P **word("one two three",2)** $OJ8;zNs "two" rJV7$^$9!#

words("string") $O!"J8;zNs (string) $NC18l?t$rJV7^$9!#Nc$($P!"**words(" a b c d")** $O4 rJV7$^$9!#

4X?t **word** $H **words** $O!"C10l0zMQId!"Fs=E0zMQIdGOC^l?J8;zNs$b!"8ED jE*$G9,%5%]!<%H7F$$$^$9:

```
print words("\"double quotes\" or 'single quotes'")   # 3
```

3+;COzMQId$NA0$O!"%9%Z!<%9$+!"$^$?$OJ8;zNs$N@hF,$GJ1lP$$$1$^$;$s!#$3lO!"C18lFb!"$"$k$$$OC18l=*ojKD$/$"$]%9%H&m&U&#!<(') $O!"$=l>lNC18l$NMWAG$G$"$k$H8+$J5lk3Hr0UL#7^$9:

```
print words("Alexis' phone doesn't work") # 4
```

0zMQIdJ8;z$N%(%9%1!<%W$O%5%]!<%H7F$$$^$;$sNG!"$"$k0zMQId$r0];}$7$?$$>l9g$O!"$=l>lrJIL$N<cN`$N0zMQId$GOC^{J}1$l$P$$$1$^$;$s:

```
s = "Keep \"'single quotes'\" or '\"double quotes\"'"
print word(s, 2) # 'single quotes'
print word(s, 4) # "double quotes"
```

:G8eNNcG$O!"0zMQId$N%(%9%1!<%W$,J8;zNs$ND j5A;~N_KI,MWG$"$k3H$KCm0U$7F/$@$5$$!#

1i;;;R (Operators)

gnuplot $N1i;;;R$O!"C 8@8l$N1i;;;R$H$[$\F1$8$G9,!"FC$KCm0U$,JJ1l$PA4$F$N1i;;;R$,@0?t!"<B?t!"JAG?t$N0z?t$r<hk3H,G-$^$9!#$^$?!"FORTRAN $G;H$($k** (N_>h) 1i;;;R$b%5%]!<%H5l$F$$$^$9!#

1i;;$NI>2A$N=g=x$rJQ9$9kK$O+$C3r;H$$$^$9!#

C19`1i;;;R **(Unary)**

0J2<$O!"C19`1i;;;R$H$=$N;HMQK!$N0lMw$G$9:

C19`1i;;;R		
5-9f	Nc	@bL@
-	-a	%^%$%J%9Id9f
+	+a	%W%i%9Id9f(2?b7$J$$)
~	~a	* 1 $NUd?t(%S%C%HH?E>)
!	!a	* O@M}E*H]Dj
!	a!	* 3,>h
$	$3	* `using` FbGN0z?t/Ns;XDj
|	|A|	G[Ns A $NMWAG?t

@bL@$K@10u(*) ND$$$?1i;;;R$N0z?t$O@0?tGJ1lPJj^$;$s!#

1i;;;R$NM%@h=g0L$OFortran $dC $HF1$8$G$9!#$=$liN8@8lF1MM!"1i;;$NI>2A$5lk=g=xrJQ(k?aK$+$C3,;Hol$^$9!#hC$F-2**2 = -4 $G!"(-2)**2 = 4 $G$9!#

3,>h1i;;;R$O!"Bg$-JCMrJV$;$kh&$K<B?t$rJV7^$9!#

Fs9 '1i;;R (Binary)

0J2<$O!"Fs9'1i;;R$H$=$N;HMQK!$N0lMw$G$9:

Fs9'1i;;R		
5-9f	Nc	@bL@
**	a**b	N_>h
*	a*b	@Q
/	a/b	>&
%	a%b	* M>$j
+	a+b	OB
-	a-b	:9
==	a==b	Ey$7$$
!=	a!=b	Ey7/$J$$
<	a<b	hj>.$5$$
<=	a<=b	0J2<
>	a>b	hjBg$-$$
>=	a>=b	0J>e
<<	0xff<<1	Id9f$J$7:8%7%U%H
>>	0xff>>1	Id9f$J$71&%7%U%H
&	a&b	* %S%C%H@Q (AND)
^	a^b	* %S%C%HGSB>E*O@M}OB (XOR)
|	a|b	* %S%C%HOB (OR)
&&	a&&b	* O@M}E* AND
||	a||b	* O@M}E* OR
=	a = b	BeF~
,	(a,b)	N_<!I>2A
.	A.B	J8;zNs$NO"7k
eq	A eq B	J8;zNs$,Ey$7$$
ne	A ne B	J8;zNs$,Ey$7$/$J$$

@bL@$K@10u (*) ND$$?1i;;R$N0z?t$O@0?tGJ1lPJj^$;$s!#BgJ8;z$N A,B $O1i;;R$,J8;zNs0z?t$rMW5a$9k3Hr0UL#7^$9!#

O@M}1i;;R$N AND (&&) $H OR (||) $OC 8@81F1MM$KI,MW:G>.8B$NI>2A$7$+$7$^$;$s!#$9Jo$A!"&& $NBh2 0z?t$O!"Bh1 0z?t$,56$JiPI>2A5l$^$;s7!"|| $NBh2 0z?t$O!"Bh1 0z?t$,??$JiPI>2A5l$^$;$s!#

N_<!I>2A (,) $O!"%+%C%3$NCfGN$_I>2A$5$l!":8$+$i1&$X=g$K<B9T$9k3H,J]>Z5l!":G$b1&$N<0NCM,JV5l$^$9!#

;09'1i;;R (Ternary)

0lD@$1;09'1i;;R$,$"$j$^$9:

;09'1i;;R		
5-9f	Nc	@bL@
?:	a?b:c	;09'1i;;R

;09'1i;;R$OC NbNHF1$8F/$-r7$^$9!#:G=i$N0z?t (a) $O@0?t$GJ1lP$$$1$^$;$s!#$3NCM,I>2A5l!"$=$l$,??(%<%m$G$J$$) JiP2 HVL\$N0z?t (b) $,I>2A$5l=NCM,JV5l!"$=$&GJ1l$P3 HVL\$N0z?t (c) $,I>2A$5$l!"$=NCM,JV5l$^$9!#

;09'1i;;R$O!"6hJ,E*$KDj5A5l$?4X?t$d!"$"$k>r7o$,K~$?5l$?>l9g$KN_E@$rIA2h$9$k!"$H$$$C$?$3Hr9TJ&>l9g$KM-MQ$G$9!#

Nc:

0 <= x < 1 GO sin(x) $K!"1 <= x < 2 GO 1/x KEy7$/$F!"$=$l0J30$Nx GOCDj5A5l$J$$4X?t$rIA2h

```
f(x) = 0<=x && x<1 ? sin(x) : 1<=x && x<2 ? 1/x : 1/0
plot f(x)
```

gnuplot OLDj5ACMKBP7FO2?$bI=< ($;$:$K$?$@L5;k9kNG! ":G8e$N>l9g$N4X?t (1/0) $CE@$r2?$b=PNO$7$J$$3HKCm0U7F$/$@$5$$! #$^$?! "3N4X?tIA2h$NIA2h%9%?%$%k$, lines (@~IA2h) $N>l9g! "ITO"B3E@ (x=1) $N=j$bO"B34X?tH7$F@~$,7kPlF7$^$&3HKbCm0U7F$/$@$5$$! #$=$NE@$rITO"B3$KJkh&K9kK$O! "4X?t$r2 DNItJ,$=$l$>$l$KJ,$1F/$@$5$$(3Nh&$J>l9g! "G^2pJQ?t4X?t$r;H$&$N$,JXMx$G$9)!#

%U%!%$%k'file' $N%G!<%?$G! "4 NsL\$N%G!<%?$,Ii$G$J$$$H$-$@$1! "1 NsL\$N%G!<%?$K4X$9$k2 NsL\$H3 NsL\$N%G!<%?$NJ?6QCM$rIA2h:

```
plot 'file' using 1:( $4<0 ? 1/0 : ($2+$3)/2 )
```

using $N=q<0$N@bL@$K4X$7FO! "0J2<;2>H: **plot datafile using (p. 98)**!#

OB (Summation)

OB$N<0$O! "0J2<$N7A<0$GI=7^$9:

```
sum [<var> = <start> : <end>] <expression>
```

$3$3$G <var> $O! "<start> $+$i <end> $^$G$N@0?tCM$r=g$K<h$k@0?tJQ?tH7$F07$ol^$9! #$=$N3FCM$KBP7F! "<0 <expression> NCM,9g7WCM$KDI2C$5$l! ":G=*E*$J9g7WCM$,$3NOBN<0NCMHJj$^$9! #Nc:

```
print sum [i=1:10] i
    55.
# 0J2<$O plot 'data' using 1:($2+$3+$4+$5+$6+...) $HF1Ey
plot 'data' using 1 : (sum [col=2:MAXCOL] column(col))
```

<expression> $O! "I,$:7bJQ?t <var> $r4^$`I,MWO"j^$;$s! #<start> $H<end> $OJQ?tCM$d?t<0$G;XDj$bG-$^$9$,! "$=liNCMOF0E*$KJQ9$9k3HOG-$^$;$s! #$=$&$G$J$$$HI{:nMQ$,5/$3$jF@$^$9! #<end> $, <start> hj>.$5$$>l9g$O! "OB$NCM$O0 HJj^$9!#

Dj5A:Q$_JQ?t (Gnuplot-defined variables)

gnuplot $O! "%W%m%0%i%`$N8=:_$NFbIt>uBV$HD>A0$NIA2h$rH?1G9kh&JFI_=P$7@lMQ$NJQ?t$r$$$/D+;}CF$$$^$9! #$3li$NJQ?t$NL>A0$O! "Nc$ ($PGPVAL_TERM, GPVAL_X_MIN, GPVAL_X_MAX, GPVAL_Y_MIN Nh$&$K"GPVAL_" $G;O$^j^$9! #$3li9YFN0lMwH=NCMr8+kK$O! "**show variables all** $HF~NO$7F/$@$5$$! #$?$@$7! "<4$N%Q%i%a!<%?$K4XO"$9$kCM(HCOO! "BP?t<4$G$"$k$+Ey) $O! "8=:_**set** 7?bNGOJ/! ":G8e$KIA2h$5l?bN$,;HMQ$5l^$9!#

Nc: E@[X,Y] $N%9%/%j!<%sHf$G$N:BI8$r7W;;9kJ}K!

```
GRAPH_X = (X - GPVAL_X_MIN) / (GPVAL_X_MAX - GPVAL_X_MIN)
GRAPH_Y = (Y - GPVAL_Y_MIN) / (GPVAL_Y_MAX - GPVAL_Y_MIN)
SCREEN_X = GPVAL_TERM_XMIN + GRAPH_X * (GPVAL_TERM_XMAX - GPVAL_TERM_XMIN)
SCREEN_Y = GPVAL_TERM_YMIN + GRAPH_Y * (GPVAL_TERM_YMAX - GPVAL_TERM_YMIN)
FRAC_X = SCREEN_X * GPVAL_TERM_SCALE / GPVAL_TERM_XSIZE
FRAC_Y = SCREEN_Y * GPVAL_TERM_SCALE / GPVAL_TERM_YSIZE
```

FI$_=P$7@lMQJQ?tGPVAL_ERRNO $O! "G$0U$NgnuplotがC%3%^%s%I$,$"$k%(%i!<$N?$aKAa/=*oCF7$^$C$?>l9g$K0 GJ$$$CM$K%;%C%H$5$l! "D>A0$N%(%i!<%a%C%;!<%8$OJ8;zNsJQ?tGPVAL_ERRMSG $KJ]B8$5l^$9! #GPVAL_ERRNO $HGPVAL_ERRMSG $O! "%3%^%s%I**reset errors** $r;H$C$F%/%j%"$G$-$^$9!#

mouse 5!G=$,;H$($kBPOC7?F~=PNO7A<0$O! ""MOUSE_" $G;O$^kFI_=P$7@lMQJQ?t$r$$$/D+;}CF$$$^$9! #>\:Y$O! "0J2<;2>H: **mouse variables (p. 45)**!#

fit 5!G=$O! ""FIT_" $G;O$^$k$$$/D+$NJQ?t$r;HMQ7^9N$G! "$=Nh$&$JL>A0$r;H$&NOHr1kkY-G7g&! #**set fit errorvariables** $r;HMQ$9kH! "3FEvFO$aJQ?t$N%(%i!<$O! "$=$N%Q%i%a!<%?L>$K"_err" $rDI2C$7$?JQ?t$KJ]B8$5$l$^$9! #>\:Y$O! "0J2<;2>H: **fit (p. 75)**!#

0J2<$b;2>H: **user-defined variables (p. 36)**, **reset errors (p. 111)**,**mouse variables (p. 45)**, **fit (p. 75)**!#

%f!<%6Dj5A$NJQ?t$H4X?t (User-defined)

?7$?$J%f!<%6Dj5AJQ?t$H1 8D$+$i12 8D$^GN0z?t$r;}$D%f!<%6Dj5A4X?t$r!"G$0U$N>l=j$GDj5A7?$j;H$C$?$j9k3H$,$G$-$^$9!#$=lO **plot** %3%^%s%I>eGb2DG=$G$9!#

%f!<%6Dj5A4X?t=q<0:

```
<func-name>( <dummy1> {,<dummy2>} ... {,<dummy12>} ) = <expression>
```

$3$3$G <expression> $O2>JQ?t <dummy1> $+$i <dummy12> $GI=$5lk?t<0$G$9!#

%f!<%6Dj5AJQ?t=q<0:

```
<variable-name> = <constant-expression>
```

Nc:

```
w = 2
q = floor(tan(pi/2 - 0.1))
f(x) = sin(w*x)
sinc(x) = sin(pi*x)/(pi*x)
delta(t) = (t == 0)
ramp(t) = (t > 0) ? t : 0
min(a,b) = (a < b) ? a : b
comb(n,k) = n!/(k!*(n-k)!)
len3d(x,y,z) = sqrt(x*x+y*y+z*z)
plot f(x) = sin(x*a), a = 0.2, f(x), a = 0.4, f(x)

file = "mydata.inp"
file(n) = sprintf("run_%d.dat",n)
```

:G8e$N2 9T$NNc$O!"%f!<%6Dj5AJ8;zNsJQ?t$H!"%f!<%6Dj5AJ8;zNs4X?t$r0UL#$7$F$$$^$9!#

JQ?t **pi** (3.14159...) $H **NaN** (IEEE Hs?t ("Not a Number")) O"i+8aDj5A5l$F$$$^$9!#$3li$,I,MW$J1l$P!"B>$NbN$K:FDj5A$9k3Hb2DG=G9$7!"0J2<$Nh&K7$F85$NCM$KI|5"$9k3HbG-$^$9:

```
NaN = GPVAL_NaN
pi  = GPVAL_pi
```

B>Kb$$$/D+$NJQ?t$,!"Nc$($PBPOC7?F~=PNO7A<0GN%^%&%9A`:ndEvFOa(fit) JI$N gnuplot $NF0:n>uBV$K1~8FDj5A5l$^$9!#>\:Y$O0J2<;2>H: **gnuplot-defined variables (p. 35)**!#

$"$kJQ?tV $,4{$KDj5A5l$F$$$k$+$I$&$+$O!"<0 exists("V") $G%A%'%C%/$G$-$^$9!#Nc:

```
a = 10
if (exists("a")) print "a is defined"
if (!exists("b")) print "b is not defined"
```

JQ?tL>$d4X?tL>$NL?L>5,B'$O!"BgDq$N%W%m%0%i_%s%08@8l$HF1$8$G!"@hF,$O%"%k%U%!%Y%C%H$G!"$=$N8e$NJ8;z$O%"%k%U%!%Y%C%H!"?t;z!""_" $,;H$($^$9!#

3F4X?t$NDj5A<0$O!"GPFUN_' $H$$&@\F,<-$r;}$DFCJL$JJ8;zNsCMJQ?t$H7FMxMQG-$^$9!#

Nc:

```
set label GPFUN_sinc at graph .05,.95
```

0J2<;2>H: **show functions (p. 133)**, **functions (p. 102)**, **gnuplot-defined variables (p. 35)**,**macros (p. 48)**, **value (p. 33)**!#

G[Ns (Arrays)

G[Ns$O!"%f!<%6JQ?t$NE:;zIU$-%j%9%H$H7F<BAu5l$F$$$^$9!#0l$D$NG[Ns$NMWAG$O!"0l$D$NJQ?t7?$K$O8BDj$5lF$$$^$;$s!#G[Ns$O!";2>H$9$kA0$KL@<(E*$K:n$ilF$$$J1l$P$$$1$^$;$s!#G[Ns$r:n@.7?8e$G!"$=$N%5%$%:$rJQ99$9k3HOG-$^$;$s!#$9YF$NMWAG$O!":G=iOLDj5A(undefined) $G$9!#$[$HsI$N>lLl$G!"L>A0IU$-%f!<%6JQ?t$NBeoj$KG[NsMWAG$rMxMQG-$^$9!#G[Ns A $NMWAG?t$O!"?t<0|A| $G<hF@$G$-$^$9!#

Nc:

```
array A[6]
A[1] = 1
A[2] = 2.0
A[3] = {3.0, 3.0}
A[4] = "four"
A[6] = A[2]**3
array B[6] = [ 1, 2.0, A[3], "four", , B[2]**3 ]

do for [i=1:6] { print A[i], B[i] }
    1 1
    2.0 2.0
    {3.0, 3.0} {3.0, 3.0}
    four four
    <undefined> <undefined>
    8.0 8.0
```

Cm0U: G[Ns$HJQ?t$O!"F1$8L>A06u4V$r6&M-7^$9!#Nc$($P!"$"i+8a FOO $H$$$&L>A0$NG[Ns$,$"$k>19g!" FOO $H$$$&L>A0$NJ8;zNsJQ?t$r;H$&$H!"G[Ns$rGK2u$7$^$9!#

G[Ns$NL>A0$r **plot**, **splot**, **fit**, **stats** %3%^%s%I$KM?$(k3HbG-$^$9!#$=$N>19g!"G[Ns$NE:;z$,%U%!%$%k$N 1 NsL\$NCM$G(1 $+$i size $^$G)!"$=$NCMA[i] $,%U%!%$%k$N2 NsL\$G$"$kh&$J%G!<%?%U%!%$%k$rM?$($?$3$H $HF1Ey$KJj$^$9!#

Nc:

```
array A[200]
do for [i=1:200] { A[i] = sin(i * pi/100.) }
plot A title "sin(x) in centiradians"
```

$?$@$7!"plot ;~$KJ#AG?tCMG[Ns$N5u?tItJ,$r;HMQ9k>19g$O!"$=NCMO$2 GOJ/!"A[$1] H7$F;2>H$9$k I,MW$,$"$j$^$9!#Nc:

```
plot A using (F1(real(A[$1])) : (F2(imag(A[$1]))
```

%U%)%s%H

gnuplot $=$l<+?HKOIs$J%U%)%s%H$b4^$^$lFO$*$i$:!"30It%U%)%s%H=hM}$KMjCF$$$k$@$1$G!"$=$N:YIt OHa7$$3HK=PNO7A<0Kh$K0[$Jj^$9!#$3$3$G$O!"J#?t$N=PNO7A<0KE,MQ5lk%U%)%s%H5!9=KD$$$F@bL@ 7^$9!#$3$3$K>e2?bN0J30$N=PNO7A<0$G$N%U%)%s%H$N;HMQ$K4X$7FO!"$=$N=PNO7A<0$N%I%-%e%a%s%H$r;2 >H7F$/$@$5$$!#

0l;~E*$K!"Nc$($P Adobe Symbol %U%)%s%H$Nh&$JFCJL$J%U%)%s%H$K@Z$jBX$($k3H$G%"%k%U%!%Y%C%H$GOJ $$5-9f$rF~$lk3Hb2DG=G9$,!"8=:_$O!"UTF-8 %(%s%3!<%G%#%s%0$r;HMQ$7$F!"I,MW$J5-9f$r;X$9Unicode %(%s%H%j$r;XDj$9kH$$$&J}K!$,$"j^$9!#0J2<;2>H: **encoding (p. 127)**, **locale (p. 144)**!#

Cairo (pdfcairo, pngcairo, epscairo, wxt =PNO7A<0)

3liN=PNO7A<0$O!"%U%)%s%H$N8!:w$H%"%/%;%9$K30It$N fontconfig %D!<%k72$r;HMQ7^$9!# fontconfig %f!<%6%^%K%e%"%k

$r;2>H$7F/$@$5$$!#3l$O!"gnuplot $G0lHIE*$JL>A0$c%5%$%:$G%U%)%s%H$rMW5a9k3H$r2DG=$K$7!"I,MW Ji$P fontconfig $KF1Ey$N%U%)%s%H$rBeMQ$5;k3HbG-kN$G!"DI>c$O3l$G==J,$G7g$&!#0J2<$O!"B?J,$$:lb5!G=7^$9:

```
set term pdfcairo font "sans,12"
set term pdfcairo font "Times,12"
set term pdfcairo font "Times-New-Roman,12"
```

Gd (png, gif, jpeg, sixel terminals)

png, gif, jpeg, sixelgd =PNO7A<0$N%U%)%s%H=hM}$O! "30It%i%$%V%i%jlibgd KhCF9Tol$^$9! #libgd $O! "<!$N 5 <dN`$N4pK\%U%)%s%H$rD>@\Ds6!7F$$^$9: **tiny** (5x8 %T%/%;%k), **small** (6x12 %T%/%;%k), **medium**, (7x13 Bold), **large** (8x16), **giant** (9x15 %T%/%;%k)! #3liN%U%)%s%HOBg-5rJQ99$7$?$j2sE>$7$?$j9k3H$O G-$^$;$s! #; HMQ9k:]$O! "**font** %-! <%o! <%INBeojK>e$N%-! <%o! <%I$r; XDj7^$9! #Nc:

```
set term png tiny
```

B?$/$N%7%9%F%`$G! "libgd $O Adobe Type 1 %U%)%s%H (*.pfa) $H TrueType %U%)%s%H$X$N%"%/%;%9$bDs6!7^$9! #$=$N>l9g%U%)%s%H<+?H$NL>A0GOJ/! "%U%)%s%H%U%!%$%k$NL>A0$r! ""<face> {,<pointsize>}" $N7A<0$GM?$($^$9! #$3$3$G! "<face> $O%U%)%s%H%U%!%$%k$N%U%k%Q%9L>$+! "$^$?$O4D6-JQ?t GDFONTPATH $G; X<($5lk%G%#%l%/%H%j$N0l$DNCfN%U%!%$%kL>$N@hF,ItJ,! "$N$$:l+$G$9! #hC$F! "set term png font "Face"' $O! "< $"$k%G%#%l%/%H%j>/Face.ttf $+< $"$k%G%#%l%/%H%j>/Face.pfa $H$$&%U%!%$%kL>$N%U%)%s%H$rC5$=$&$H7^$9! #Nc$($P! "GDFONTPATH $K/**usr/local/fonts/ttf:/usr/local/fonts/pfa** $,4^$^lF$$k>l9g $O! "0J2<$N%3%^%s%I$N2 D:DO$$:lbF1$8$3HKJj$^$9:

```
set term png font "arial"
set term png font "/usr/local/fonts/ttf/arial.ttf"
set term png font "Helvetica"
set term png font "/usr/local/fonts/pfa/Helvetica.pfa"
```

%G%U%)%k%H$N%U%)%s%H%5%$%:$bF1; ~$K; XDj9kKO:

```
set term png font "arial,11"
```

TrueType $H Adobe Type 1 %U%)%s%H$O! "40A4KBg-5NJQ99$d2sE>$,2DG=$G$9! #'set term" %3%^%s%I$G%U%)%s%H$r; XDj7J$+$C$?>l9g! "gnuplot OJLN%G%U%)%k%H%U%)%s%H$N@_Dj$,$"$k$+$I$&$+$rD4$Yk?aK4D6-JQ?t GNUPLOT_DEFAULT_GDFONT $r; 2>H$7$^$9! #

Postscript (%+%W%;%k2=**postscript *.eps** $b)

PostScript %U%)%s%H=hM}$O! "%W%j%s%?$+I=<(%=%U%H$,9T$$^$9! #$b$7! "$"J?$N%3%s%T%e!<%?$K%U%)%s%H$,0l@Z$J$/$F$b! "gnuplot $O@5$7$$PostScript %U%!%$%k! "$^$?$O%+%W%;%k2=PostScript (*.eps) %U%!%$%k$r@8@.G-$^$9! #gnuplot $OC1$K=PNO%U%!%$%kCf$K%U%)%s%H$rL>A0$H7FF~lk$@$1$G! "%W%j%s%?$dI=<(%=%U%H$,$=$NL>A0$+$i%U%)%s%H$r8+D1k+6a; w9k3H$r2>Dj$7$F$$$^$9! #

PostScript %W%j%s%?$dI=<(%=%U%H$O9Y$F! "I8=`E*$J Adobe %U%)%s%H%;%C%H **Times-Roman**, **Helvetica**, **Courier**, **Symbol** $OCN$C$F$$k$O$:$G$9! #B?J,$=$NB>$K$bB?$/$N%U%)%s%H$,; H$($k$h$&$K$J$C$F$$k$H; W$$$^$9$,! "$=$l$iFCD j$N%U%)%s%H%;%C%H$O$"$J$?$N%7%9%F%`$d&W%j%s%?$N@_Dj$KOMB8$7$^$9! #gnuplot $O! "$=lOCNj^$;$s$75$$Kb7$^$;$s! #gnuplot $,:n@.$7$?*.ps $d*.eps =PNO$O! "$"$J$?$NMW5a7?%U%)%s%HL>$rC1$K; }CF$$k$@$1$G$9! #

hC$F! "

```
set term postscript eps font "Times-Roman,12"
```

$O! "$9YF$N%W%j%s%?$dI=<(%=%U%H$KE,@Z$J=PNO$r:n@.$7$^$9! #

0lJ}! "

```
set term postscript eps font "Garamond-Premier-Pro-Italic"
```

$O! "@5$7$$PostScript $r4^$`=PNO%U%!%$%k$r:n@.7^9,! "$=$l$OFC<l$J%U%)%s%H$r; 2>H$7$^$9NG! "0lIt$N%W%j%s%?$dI=<(%=%U%H7+! "MW5a7?$=$NFCD j$N%U%)%s%H$OI=<(G-$J$$$G7g$&! #BgDo$N>l9gOJLJ%U%)%s%H$GBeMQ$5l^$9! #

7+$7! "; XDj$7$?%U%)%s%H$r=PNO%U%!%$%kCf$KKd$a9~$s$G! "$IsJ%W%j%s%?Gb$=$l$r; H$&h&K9k3Hb2DG=$G$9! #3lKO! "$"$J$?$N%7%9%F%`$KE,@Z$J%U%)%s%H5-=R%U%!%$%k$,$"$k$3$H$,I,MW$H$J$j$^$9! #$3$NJ}K!$G%U%)%s%H$rKd$a9~$`>l9g! "FCD j$N%i%$%;%s%9$,I,MW$HJk%U%)%s%H%U%!%$%k$b$"$k3H$KCm0U$7F/$@$5$$! #hj>\:Y$J@bL@$dNcKD$$F$O! "0J2<; 2>H:**postscript fontfile (p. 241)**! #

%X%k%W$NMQ8l2r@b (Glossary)

3N%I%-%e%a%s%HA4BNKEOC$F! "MQ8l$K4X9k0l4S@-$N0]; }$,9M$ (il$F$$$^$9! #$7$+$7$3$N; n$_$O40A4KO @.8y7F$$^$;$s! #$=$l$O **gnuplot** $,; ~4V$r$+$1$F?J2=$7F-$?$h$&$K! "%3%^%s%I$d%-! <%o! <%I$NL>A0b= Nh$&$J40A4@-$rGS= |$9k+Nh$&$K: NMQ5lFMhF$$$k$+$i$G$9! #3N%;%/%7%g%sGO! "3liN%-! <%o! < %I$N$$/D+$,$INh$&$K; Hol$F$$k$+$r@bL@7^$9! #

"%Z! <%8 (page)"! ""I=< (2hLL (screen)"! ""%-%c%s%P%9 (canvas)" $O! "**gnuplot** $,%"%/%;%92DG=$JNN0hA4BN$r; X$7$^$9! #%G%9%/%H%C%WGO$=$l$O%&%#%s%I%&A4BN$r; X$7! "%W%m%C%?$G$O! "0lKg$N; fA4BN! "svga %b! <%IGO! "%b %K%?%9%/%j! <%sA4BN$r; X$7$^$9! #

I=< (2hLL$O! "0l$D! "$^$?O=$l0J>e$N "%0%i%UIA2h (plot)" $r4^$_$^$9! #%0%i%UIA2h$O0l$D$N2#: BI8$H0lDN =D: BI8$GDj5A$5l^9,! "M>Gr (margin) d=NCfK=q$+$l$kJ8; zNs (text) F1MM! "$=li$O<B:]$K$=$N>e$KI= <($5lF$$$kI,MWO"j^$;$s! #

%0%i%UIA2h$O0l$D$N "%0%i%U" $r4^$_$^$9! #%0%i%U$O0l$D$N2#: BI8$H0lDN=D: BI8$GDj5A$5l^9,! "3l$i $O<B:]$K$=$N>e$KI=< ($5lF$$$kI,MWO"j^$;$s! #

%0%i%U$O0l$D$^$?O=$l0J>e$N "6J@~ (line)" $r4^$_$^$9! #6J@~$O0l$D$N4X?t! "$^$?$O%G! <%?=89g$G$9! #MQ8l "line" $OIA2h%9%?%$kH7Fb; Hol$^$9! #5iK3$NMQ8l$O "J8; zNs$N0l9T (a line of text)" Nh$&$K; H$o lk3Hb"j^$9! #B?J,J8L.$+i=li$O6hJLG-$kG7g&! #

0lDN%0%i%U>e$NJ#?t$N6J@~O=l>$lL>A0$r; }A^$9! #$=$NL>A0$O! "$=$N6J@~$NI=8=$K; Hol$kIA2h%9%?%$ %k$N%5%s%W%k$HHb$K"K^Nc (key)" Fb$K0lMwI=< (5l$^$9! #K^Nc$O! "; ~$K$O"I=Bj (legend)" Hb8FPl$^$9! #

MQ8l"%?%$H%k (title)" $O **gnuplot** GOJ#?t$N0UL#$G; Hol$^$9! #3N%I%-%e%a%s%HGO$=$lir6hJL9k$? aK! "7AMF; lH7$F "IA2h$N (plot)"! ""6J@~$N (line)"! ""K^Nc$N (key)" $rF,$KDl$?$jb7$^$9! #2 <!85$N%0 %i%U$O4 D^GN8+=P$7IU$l5l$k<4$r; }D3H,G-$^$9! #3l$i4 DN<4$NL>A0O=l>$l! "%0%i%UIA 2h$N2<$N6-3&$K1h$&<4G"$k"x"! ": 8$N6-3&$K1h$&<4"y"! ">e$N6-3&$K1h$&<4"x2"! "1&$N6-3&$K1h$&<4"y2" HJCF$$^$9! #0J2<; 2>H: **axes (p. 87)**! #

3 <!85$N%0%i%U$O3 D^GN8+=P$7IU$l5l$k<4 (**axes**) "x","y","z" $r; }$D3H$,$G$-$^$9! #$I$NFCDj$N<4 $K4X$7Fb$=$l$,%0%i%U>e$GI3$K=q$+lk$+$r=RYk3HOG$-$^$;$s! #$=$l$O! "**set view** $G%0%i%U$r8+ $kJ}8~$rJQ9G-k+iG$9! #

%G! <%?%U%!%$%k$K4X9k5DO@GO! "MQ8l"9T (record)" $rI |3h$7! "%U%!%$%k$N0l9T$NJ8; zNs! "$9Jo$A! "2~9T J8; z$d9TKvJ8; zF1; N$N4V$NJ8; zNs! "$r; X$7< (9N$K; H$$$^$9! #"E@ (point)" $O9T$+$i<h$j=P7?0lDN%G! <%? $G$9! #%G! <%?$N "%V%m%C%/ (block)" $O! "6u9T$G6h@Zil$?O"B3$7$?J#?t$N9T$+$iJk=89g$G$9! #%G! <%?%U%! %$%k$N5DO@NCfG "line" $,; 2>H$5lk>19g$O! "$3lO%V%m%C%/$NItJ,=89g$r; X7^$9! #"%G! <%?$N%V%m%C%/ (data block)" $H$$$&@MU$O! "%$%s%i%$%s%G! <%?$NL>A0IU$-%V%m%C%/$r; X9NKb; Hol$F$$^$9! #0J2<; 2>H: **datablocks (p. 89)**! #

(LuCm: 3NF |K\8lLuNCfGO3$3$K=q$+$l$F$$$kh&$JMQ8l$NE}0l$O9MN8$5lFO*i:! "hC$F: .Mp$r0z$- 5/$3$92DG=@-$,$"$j$^$9! #87L)KO6J8$r; 2>H$9Y-G7g&! #)

%$%s%i%$%s%G! <%?$H%G! <%?%V%m%C%/ (inline data and datablocks)

gnuplot $N%3%^%s%IF~NO$NCf$K%G! <%?$rKd$a9~$\; EAH$_$O2 <oN'MQ0U5l$F$$$^$9! #$^$:! "FC<l%U%!%$%kL>'-' $, plot %3%^%s%ICf$KM?$($k$H! "$=$Nplot %3%^%s%IO0J2<$KB3$/9T$,%$%s%i%$%s%G! <%?$H2r<a$5l^$9! #0J2<; 2>H:**special-filenames (p. 97)**! #3NJ}K!$GDs6!$5lk%G! <%?$O! "$=$N plot %3%^%s%I$G0lEY7+; HMQG-$^ $;$s! #

b&0lDO! "%R%"%I%-%e%a%s%HH7$FL>A0IU$-$N%G! <%?%V%m%C%/$rDj5A9kJ}K!$G$9! #$=$NL>A0IU$-$N%G! <%? $O; D$kNG! "J#?t$N plot %3%^%s%I$G; 2>HG-$^$9! #Nc:

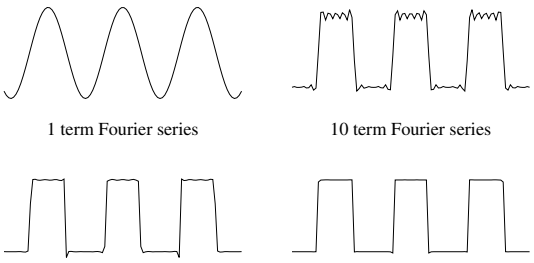
```
$Mydata << EOD
11 22 33 first line of data
44 55 66 second line of data
# %G! <%?%U%!%$%kF1MM%3%a%s%H$b5!G=$9$k
77 88 99
EOD
stats $Mydata using 1:3
plot $Mydata using 1:3 with points, $Mydata using 1:2 with impulses
```

%G! <%?%V%m%C%/L>$O! "B>$NJQ?t$H6hJL$9k?aK! ": G=i$NJ8; z$r$ K9kI,MW,$"$j$^$9! #%G! <%?$N=*$ojN 6h@Z$j(>e$NNcGO EOD) $O! "G$0U$N%"%k%U%!%Y%C%H! "?t; z$+iJ$kJ8; zNs$G9=$$^$;$s! #

%3%^%s%I **undefine** $r; H$ ($P! "J]B8$7$?L>A0IU$-%G! <%?%V%m%C%/$r: o=|$G$-$^$9! #**undefine $*** $O! "$9YF$N L>A0IU$-%G! <%?%V%m%C%/$r0lEY$K: o=|7^$9! #

7+jJV7 (iteration)

gnuplot %P! <%8%g%s 4.6 KO! "7+jJV7 (iteration) %3%^%s%I$d%V%m%C%/9=B$$r07$ ($k if/else/while/do $,F3F~$5 lF$$$^$9! #0J2<; 2>H: **if (p. 83)**,**while (p. 201)**, **do (p. 74)**! #C1=c$J7+$jJV7O! "%3%^%s%I **plot**, **set** $GMxMQ G-$^$9! #0J2<; 2>H: **plot for (p. 104)**! #J#?t$N%3%^%s%I$rJq4^9k0lHLE*$J7+$jJV7O! "2<$G>R2p$9$k%V%m%C%/9=B$$rMxMQ9k3H$G9T$ ($^$9! #4XO"9k?7$7$5!G=G"$k?t<07?$N0J2<$b; 2>H: **summation (p. 35)**! #0J2<$O! "$3li$N?7$7$9=J85!G=$r$$$/D+MxMQ7?Nc$G$9:




```
set multiplot layout 2,2
fourier(k, x) = sin(3./2*k)/k * 2./3*cos(k*x)
do for [power = 0:3] {
    TERMS = 10**power
    set title sprintf("%g term Fourier series",TERMS)
    plot 0.5 + sum [k=1:TERMS] fourier(k,x) notitle
}
unset multiplot
```

7+jJV7$O! "0J2<$Nh&$J=q<0$Khk7+jJV7; XDj$G@)8f$7$^$9! #

```
for [<var> in "string of N elements"]
```

$^$?$O

```
for [<var> = <start> : <end> { : <increment> }]
```

:G=i$N=q<0$G$O <var> $OJ8; zNsJQ?t$G! "$=$N8emK; XDj7?J8; zNs$K4^$^lk1 HVL\$+$i N HVL\$^GNC1 8lJ8; zNs$r=g$KCMH7$F<h$j$^$9! #2 HVL\$N=q<0GO! "<start>, <end>, <increment> $O@0?t! "$^$?$O@0?t CM$r<h$k?t<0$G$9! #

7+jJV7JQ?t$N%9%3! <%W(DIMQHOOO) $O! "$=$N7+$jJV7NCf$@$1$K@)8B$5l^9+$i! "$=NCMr! "7+jJV7$N <B9T%V%m%C%/Fb$+$i1JB3E*$KJQ9$9$k3HOG$-$^$;$s! #7+jJV7JQ?t$,7+$jJV7NA0KCMr; }CF$$$?$H$7 $?$i! "$=$NCM$O7+$jJV7N=*N;; ~$KJ]; }! "$^$?$OI|5"5l$^$9! #Nc$ ($P! "0J2<$NNc$O! "7+$jJV7r10 2s9T$$! " $=$N8ei NCMO:F$S "A" HJj^$9! #

```
i = "A"
do for [i=1:10] { i=10 }
```

@~<o! "?'! "%9%?%$%k (linetypes)

8E$$HG$N gnuplot GO! "3F=PNO7A<0$O "@~<o (linetype)" r"$kDxEYMQ0U7F$$$F! "$=$liO?'! "B@$5! "E@@~/GK@~$N%Q%?! <%s! "$^$?$O?'$HE@@~/GK@~$NAH9g$;$G0c$$rI=8=7F$$$^7?! #$=$liN?'! "E@@~/GK@~$N%Q%?! <%s$O! "=PNO7A<0$r1[$ ($FF1$8bNKJkH$$&J]>Z$O2?$b$"$j$^$;sG7?$,! "B?$/$OF1$8?'$NNs! "@V/NP/@D/;g/?e?'/2+?'$r; HMQ$7$F$$$^7?! #3N8E$$5sF0$O! ": #$O **set colorsequence classic** $GA*Br$G$-$^9,! " gnuplot %P! <%8%g%s 5 $N%G%U%)%k%H$O! "=PNO7A<0$KL54X78$K6&DL$N8 ?'Ns$r; HMQ7^$9! #

@~<o (linetype) $NB0@-$NJBSO! "BPOCE*$+=i4|2=%U%!%$%k%N$$:l+KhCF5iK%+%9%?%^%$%:2DG=$G$9! #0J2<; 2>H: **set linetype (p. 142)**! #G[I[%Q%C%1! <%8$K=i4|2=%U%!%$%k%N5%s%W%k$,$$/D+MQ0U5l$F$$^$9! #

FCDj$N=PNO7A<0$KBP9k@~<o$NB0@-$N8=:_$N>uBV$O! "$=$N=PNO7A<0$r@_Dj$7$?"$H$G **test** %3%^%s%I$r<B9T$9 k3HG3NG'G-$^$9! #

0lDNIA2h%3%^%s%IFbGN4X?t$d&G!<%?%U%!%$%k$NO"B3$9kJBSKO!"8=:_$N%G%U%)%k%H$N@<oNs$+$i@<o$,=gHV$K3djEvFil$^$9!#8D!9$N4X?t!"%G!<%?%U%!%$%k!"$^$?O=$NB>$NIA2hMWAGKBP9$k@<o$O!"$=$NIA2h%3%^%s%I>e$GL@<(E*$K@~$NB0@-$r;XDj9k3H$G>e=q$-G-$^$9!#

Nc:

```
plot "foo", "bar"                # @~<o 1, 2 $G 2 %U%!%$%k$rIA2h
plot sin(x) linetype 4           # @~<o?' 4 $r;HMQ
```

0lHI$K!"?'$N;XDj$O!"?'$NL>A0$+!"RGB (@V!"NP!"@D) @.J,$+!"HSV (?'Aj!":LEY!"L@EY) @.J,$+!"8=:_$Npm3d%Q%l%C%H$K1h$C$?:BI8$G9T$$^$9!#

Nc:

```
plot sin(x) lt rgb "violet"      # gnuplot $N;}$D?'L>$N0l$D
plot sin(x) lt rgb "#FF00FF"     # L@<(E*$J 16 ?J RGB 3 $DAH
plot sin(x) lt palette cb -45    # 8=:_$N%Q%l%C%H$N cbrange $N
                                 # -45 $KBP1~$9$k?'
plot sin(x) lt palette frac 0.3  # %Q%l%C%H$KBP1~$9$k>.?tCM
```

0J2<;2>H: **colorspec (p. 41)**, **show colornames (p. 121)**, **hsv (p. 32)**, **set palette (p. 160)**,**cbrange (p. 193)**!#0J2<$b;2>H: **monochrome (p. 146)**!#

@~<o (linetype) KO!"E@@~/GK@~$N%Q%?!<%s$b7kSD1ilF$$^9,!"9YFN=PNO7A<0G=l,;H$($ko1GO$"$j$^$;$s!#gnuplot %P!<%8%g%s 5 GO!"@~?'HOFHN)$KE@@~/GK@~%Q%?!<%s$r;XDjG-$^$9!#0J2<;2>H**dashtype (p. 43)**!#

?';XDj (colorspec)

B?$/$N%3%^%s%I$G!"L@<(E*$J?'$N;XDj$rHbJC$?@~<o$r;XDj9k3H$,$G$-$^$9!#

=q<0:

```
... {linecolor | lc} {"colorname" | <colorspec> | <n>}
... {textcolor | tc} {<colorspec> | {linetype | lt} <n>}
```

<colorspec> $O0J2<$N7A<0$N$$:l+$G$9:

```
rgbcolor "colorname"    # Nc: "blue"
rgbcolor "0xRRGGBB"     # 16 ?J?tCM$NDj?tJ8;zNs
rgbcolor "0xAARRGGBB"   # 16 ?J?tCM$NDj?tJ8;zNs
rgbcolor "#RRGGBB"      # x11 7A<0$N 16 ?J?tJ8;zNs
rgbcolor "#AARRGGBB"    # x11 7A<0$N 16 ?J?tJ8;zNs
rgbcolor <integer val>  # AARRGGBB $rI=$9@0?tCM
rgbcolor variable       # F~NO%U%!%$%k$+$i@0?tCM$rFI$_9~$`
palette frac <val>      # <val> $O 0 $+$i 1 $NCM
palette cb <value>      # <val> $O cbrange $NHO0O$NCM
palette z
variable                # F~NO%U%!%$%k$+$i?'HV9f$rFI$_9~$`
bgnd                    # GX7J?'
black
```

<n> $O!"$=$N@<o(linetype) HV9f$,;H$&?'$r0UL#7^$9!#0J2<;2>H**test (p. 199)**!#

"colorname" $Ognuplot $,FbIt$K;}CF$$$k?'$NL>A0$N$&$A$N0l$D$r;XDj$7$^$9!#M-8z$JL>A0$N0lMw$K4X$7FO!"0J2<;2>H: **show colornames (p. 121)**!#

16 ?JDj?t$O!"0zMQIdIU$-$G"#RRGGBB" $d"0xRRGGBB" $N7A$GM?$($k3H$,$G$-$^$9!#RRGGBB $O!"?'$N@V!"NP!"@D$N@.J,$r0UL#$7!"$=l>$l00 $+$iFF $^$G$NHO0Fb$GJ1lP$$$1$^;$s!#Nc$($P!"%^%<%s%?(;g) $O!":G$bL@$k$$$@V+ :G$bL@$k$$$@D!"JN$G"0xFF00FF" $HI=$5$1!"$3lO16 ?J?t$G(255 << 16) + (0 << 8) + (255) $r0UL#$7$F$$^$9!#

"#AARRGGBB" $O!"RGB ?'$N>e0L%S%C%H$K%"%k%U%!CM(F)2a@-) $,$D$$F$$k3H$r0UL#$7$^$9!#%"%k%U%!CM0 $O40A4$KIF)L@?'G"k3Hr0UL#$7!"$hCF"#00RRGGBB" $O"#RRGGBB" $HF1$8KJj^$9!#

%"%k%U%!CM$N255 (FF) $O40A4$KF)L@G"k3Hr0UL#7^$9!#Cm0U: 3N;XDjK!$N%"%k%U%!CM$N0ICV$O!"0JA0NHGN gnuplot $N2hA|IA2h%b!<%I "with rgbalpha" Kh$k;XDj$N>l9g$NH?BP$KJC$F$$$^$9!#

%+%i!<%Q%l%C%HHO!"?'$N@~7?$J8{G[$G!"C10l$N?tCM$rFCDj$N?'$K3j$i$+$KBP1~E1$^$9!#>oK=Nh$&$J2 DNBP1~IU1,8zNO$r;}$A$^$9!#**palette frac** $O0 $+$i1 $^$G$N>.?tCM$r!"%+%i!<%Q%l%C%H$NA4HC0O$KBP1~IU1kbN$G!"**palette cb** $O!"?'<4$NHC0O$rF1$8%+%i!<%Q%l%C%H$X3d$jEvFkbN$G$9!#0J2<;2>H: **set cbrange (p. 193)**, **set colorbox (p. 120)**!#3liNBP1~IU1NIAi+$r;H$C$F!"8=:_$N%Q%l%C%H$+$iDj?t?'$rA*$S=P$9$3H,G-$^$9!#

"palette z" $O!"3FIA2h@~J,$dIA2hMWAG$Nz NCMr!"%Q%l%C%H$XBP1~$E1ilF$$$k cbrange $NHC0O$KBP1~E1$^$9!#3lKh$j!"3<!85$N6J@~$d6JL$K1hCF?'$r3j$i$+$KJQ2=5;k3H,G-$^$9!#3l$O!"2<!85IA2h$G!"%Q%l%CHCM$rDI2C$NNs$G!<%?$+iFI_9~$^$;$F?'IU$1$9$kNK$b;H$($^$9(9YFN2<!85IA2h%9%?%$%k$,3NDI2CNs$rG'<1$9kolGO"j^$;$s)!#FC<l$J?';XDj$,2 D"j^$9!#GX7J?'$N**bgnd** $H!"**black** $G$9!#

Background color

B?$/$N=PNO7A<0$G%0%i%U$NGX7J?'$rL@<(E*$K@_DjG-$^$9!#FCJL$J@~<o(linetype) **bgnd** O=$N?'$GIA2h7^9,!"$=$N**bgnd** $O?'$H7F$bG'<1$5l^$9!#Nc:

```
# 0J2<$O%-%c%s%P%9$N0lItJ,$rGX7J?'$G>e=q$-$9$k$3$H$G>C5n$7$^$9!#
set term wxt background rgb "gray75"
set object 1 rectangle from x0,y0 to x1,y1 fillstyle solid fillcolor bgnd
# 0J2<$O x <4$K1h$C$?!V8+$($J$$!W@~$rIA$-$^$9!#
plot 0 lt bgnd
```

Linecolor variable

lc variable $O!"F~NO%G!<%?$N0lDNNs$+$iFIs@CM$r@~<o(linetype) $NHV9f$H7F;H$$!"$=$N@~<o$KB0$9$k?'$r;H$&$h$&%W%m%0%i%`$K;X<(7^$9!#$hCF3l$O!"**using ;**XDj;R$XBP1~9kNs$N;XDj$NDI2CrI,MWH7^$9!#J8;z$N?'$bF1MM$K!"**tc variable** $G;XDj$G$-$^$9!#

Nc:

```
# %G!<%?$N3 NsL\$r!"8D!9$NE@$K?'$r3d$jEv$F$k$N$K;HMQ
plot 'data' using 1:2:3 with points lc variable
```

```
# 0l$D$N%G!<%?%U%!%$%k$K$OJ#?t$N%G!<%?=89g$rF~$l$k$3$H$,2DG=$G!"
# $=$l$i$O 2 9T$N6u9T$GJ,N%$5$l$F$$$^$9!#8D!9$N%G!<%?=89g$K$O
# index CM$,3d$jEv$F$i$l$F$$$F (0J2<;2>H: 'index')!"using ;XDj$N
# column(-2) $G<hF@$G$-$^$9!#0J2<;2>H: 'pseudocolumns'!#0J2<$NNc
# $O -2 $N column CM$r;H$C$F!"8D!9$N%G!<%?=89g$r0[$J$k@~?'$GIA2h
# $7$^$9!#
plot 'data' using 1:2:(column(-2)) with lines lc variable
```

Rgbcolor variable

%0%i%U$N3F%G!<%?2E@!"3F@~J,!"$^$?$O3F%i%Y%kK=l>$l0[$J$k?'$r3djEvFk3H,G-$^$9!#**lc rgbcolor variable** $O!"%G!<%?%U%!%$%k$N3F9T$+$iRGB ?'$N>pJsrFI_9~$'$h$&%W%m%0%i%`$K;X<(7^$9!#$hCF3l$O!"**using ;**XDj;R$KhkBP1~9kNs$N;XDj$NDI2CrI,MWH$7!"$=NNsO24-bit 7A<0$NRGB $N3 DAHG$"$kH_J5l^$9!#$=NCMr%G!<%?$+$iD>@\M?$($k>l9g$O!"$3lO:G$b4JC1$J7A<0$N16 ?JCM$GM?$($^$9(0J2<;2>H:**rgbcolor (p. 41)**)!#0lJ}$G!"0J2<$NNcNh$&$K24-bit RGB ?'H7$FI>2A$5lkh&$J?t<0$r**using ;**XDj;R$KF~$lk3HbG-$^$9!#J8;z$N?'$bF1MM$K!"**tc rgbcolor variable** $G;XDj$G$-$^$9!#

Nc:

```
# 3 <!85IA2h$G!"3F x,y,z :BI8$KBP1~$7$?@V!"NP!"@D$N@.J,$r;}$D?'
# $N$D$$$?E@$rG[CV
rgb(r,g,b) = 65536 * int(r) + 256 * int(g) + int(b)
splot "data" using 1:2:3:(rgb($1,$2,$3)) with points lc rgb variable
```

E@@~/GK@~<o (dashtype)

gnuplot %P!<%8%g%s5 $G!"**linecolor** $d **linewidth** $HF1MM$K!"E@@~/GK@~%Q%?!<%s(**dashtype**) $,3F6J@~Kh$N B0@-H7$FFHN)$7$^$7$?!#=>Mh$Nh&$J!";HMQCf$N=PNO7A<0$NE@@~$r=q$/$?aNFCJL$J%b!<%I$H7F;XDj9k I,MWO"j^$;$s!#9JoA!"**set term** <**termname**> {**solid**|**dashed**} Nh$&$J%3%^%s%I$O8=:_$OL5;k$5 l^$9!#%P!<%8%g%s4MQ$K=q$$?8E$%9%/%j%W%H$X$N8eJ}8_49@-$,I,MW$J>19g$O!"0J2<Nh$&$J=q$-J}$GBeMQ G-$^$9:

```
    if (GPVAL_VERSION >= 5.0) set for [i=1:9] linetype i dashtype i
    if (GPVAL_VERSION < 5.0) set termoption dashed
```

9YFN@~$O!"$[$+$K;XDj7Jll$P!"**dashtype solid** $H$$$&B0@-$r;}$A$^$9$,!"$3$N%G%U%)%k%HCM$r%3%^%s%I**set linetype** $GFCDj$N@<o$KJQ99$7$=$N8e$N%3%^%s%I$G;H$($kh&KG$-$^$9!#$^$?$O!"**plot** $dB>$N%3%^%s%I$N0lItJ,$H7F;HMQ7?$$E@@~/GK@~$N7?$r;XDjG-$^$9!#

=q<O:

```
     dashtype N           # Dj5A:Q$_E@@~/GK@~7?$rHV9f$G8F$S=P$7
     dashtype "pattern"   # E@(.)2#@~(-)2<@~(_) $H6uGr$NAH$_9g$o
                          # $;J8;zNs$K$h$k;XDj
     dashtype (s1,e1,s2,e2,s3,e3,s4,e4)  # 1~4 8D$N<<B@~D9>,<6uGrD9>
                          # $NAH$K$h$kE@@~/GK@~%Q%?!<%s;XDj
```

Nc:

```
     # 2 $D$N4X?t$,@~<o 1 $r;H$&$, dashtype $G6hJL
     plot f1(x) with lines lt 1 dt solid, f2(x) with lines lt 1 dt 3
```

$$/D+$N=PNO7A<0$O!"$=$l$,Ds6!$9$kDj5A:Q$_E@@~/GK@~%Q%?!<%s$K!"%f!<%6Dj5A%Q%?!<%s$rDI2C9k3H $r%5%]!<%H$7$F$$$^$9!#

Nc:

```
    plot f(x) dt 3             # =PNO7A<0$N;}$D%Q%?!<%s 3 $r;HMQ
    plot f(x) dt ".. "         # 0l;~E*$J%Q%?!<%s$r:n@.
    plot f(x) dt (2,5,2,15)    # F1$8%Q%?!<%s$r?tCM$GI=8=
    set dashtype 11 (2,4,4,7) # ?7%Q%?!<%s$rHV9f$G8F$S=P$;$k$h$&Dj5A
    plot f(x) dt 11            # ?7%Q%?!<%s;r;H$C$FIA2h
```

E@@~/GK@~%Q%?!<%s$rJ8;zNs$G;XDj7?>19g!"gnuplot O=lr<<B@~D9>,<6uGrD9> NAHNNs$KJQ49$7$^ $9!#%I%C%H"." $O(2,5) $K!"%@%C%7%e"-" $O(10,10) $K!"2<@~"_" $O(20,10) $K!"$^$?6uGr" " $OD>A0$N<6u GrD9> NCMK10 $rDI2C$7$^$9!#$=$N>19g!"%3%^%s%I**show dashtype** $O!"85$NJ8;zNs$HJQ498e$N?tCMNNsN N>J}$rI=<($7$^$9!#

Linestyles $H linetypes

linestyle $O!"B0@-linecolor, linewidth, dashtype, pointtype $N0l;~E*$JAH$_9g$o$;$G!"3l$O%3%^%s%I**set style line** $GDj5A$7$^$9!#0lEYlinestyle $rDj5A$9kH!"1 2s$Nplot %3%^%s%I>e$G$=$l$r;H$C$F!"1 $D!"$^$?$OhjB?$/$NIA2hMWAG$N8+$?L\$r@)8fG-$^$9!#8@$$4G(lP!"3l$OCzEYlinetype $+$i1JB3@-$r<h$j=|$$?bN!"$H8@$&3H$,$G$-$k$G7g$&!#**linetypes** $O1JB3E*(L@<(E*$K$=$lir:FDj5A9k$^$G$OJ];}$5lk) $G 9,!"**linestyles** $O!"<!$N%0%i%U%#%C/$N>uBV$,%j%;%C%H5lk^GN4V7+J];}5l$^$;$s!#

Nc:

```
    # ?7$7$$%i%s%9%?%k$r!"=PNO7A<0$K0MB8$7$J$$?' cyan!"@~I}$, 3!"
    # E@<o 6 (4]$NCf$KE@) $HDj5A
    set style line 5 lt rgb "cyan" lw 3 pt 6
    plot sin(x) with linespoints ls 5          # Dj5A%9%?%$%k 5 $G
```

%l%$%d!<(layers)

gnuplot $N%0%i%U$O!"?'!9$JMWAG$r8GDj5l$?=gHV$GIA$-->e$2$F$$/3H$G9=@.$5lF$$$^$9!#$3$N=gHV$O!" %-!<%o!<%I**behind**, **back**, **front** $r;H$C$FMWAG$KFCDj$N3,AX$r3djEvFk3HGJQ99G-$^$9!#Nc($P!"%0%i %UNN0h$NGX7J?'$rJQ99$9kK$O!"?'$N$D$$?D9J}7A$rB0@-**behind** $GDj5A$9lP$$$olG$9!#

```
set object 1 rectangle from graph 0,0 to graph 1,1 fc rgb "gray" behind
```

IA2h$N=gHV$C0J2<NDLj$G$9:

```
behind
back
%0%i%U<+BN
%0%i%U$NI=Bj ('key')
front
```

3F3,AXFbGO!"MWAG$NIA2h$C0J2<$N=gHV$G$9:

```
HV9f=g$N%*%V%8%'%/%H (rectangle, circle, ellipse, polygon)
HV9f=g$N%i%Y%k (label)
HV9f=g$NLp0u (arrow)
```

1 %Z!<%8$KJ#?t$N%0%i%U$,$"$k>19g (multiplot %b!<%I)!"3N=g=x$O!"J#?t%0%i%U$rA4BNH7FE,MQ9kNGOJ/!"3FIA2hMWAG$KJL!9$KE,MQ7^$9!#

%^%&%9F~NO (mouse input)

B?$/$N=PNO7A<0$G!"8=:_$NIA2h$K%^%&%9$r;HCF:nMQr9k3H,2DG=KJCF$$$^$9!#$=N&$A$$/D+$O%[%C%H%-!<$NDj5A$b%5%]!<%H$7$F$$$F!"%^%&%9%+!<%=%k$,M-8z$JIA2h%&%#%s%I%&K"kH$-$K!"$"$k%-!<$r2!$9$3$HG"i+8aDj5A7?4X?t$r<B9T$5$;$k3H$,$G$-$^$9!#%^%&%9F~NO$r batch %3%^%s%I%9%/%j%W%HHAH_9go;k3Hb2DG=$G!"Nc$($P pause mouse H7$F!"$=$N8e$K%^%&%9%/%j%C%/KhCF%Q%i%a!<%?H7FUVCFMhk%^%&%9JQ?tr=$N8e$N%9%/%j%W%HF0:n$KH?1G$5$;$k3H$,$G$-$^$9!#0J2<;2>H: bind (p. 44),mouse variables (p. 45)!#$^$?0J2<$b;2>H: set mouse (p. 147)!#

Bind

=q<0:

```
bind {allwindows} [<key-sequence>] ["<gnuplot commands>"]
bind <key-sequence> ""
reset bind
```

bind $O!"%[%C%H%-!<$NDj5A!":FDj5A$K;HMQ$7$^$9!#%[%C%H%-!<HO!"F~NO%+!<%=%k$,%I%i%$%P$N%&%#%s%I%&Fb$K$"$kH-$K!"$"$k%-!<!<"$^$?$OJ#?t$N%-!<$r2!$9$3HG!"gnuplot $N%3%^%s%INs$r<B9T5;$k5!G=$N3H$r8@$$^$9!#bind $O!"gnuplot $, mouse $r%5%]!<%H$9kh$&$K%3%s%Q%$%k$5lF$$$F+$D%^%&%9$,M-8z$J=PNO7A<0>e$G;HolFk>19gKN$_M-8z$G$"$k3H$KCm0U$7F/$@$5$$!#%f!<%6;XDj$N%-!<3dEv (binding) $O!"AH$_9~$_ (builtin) %-!<3dEv$rCV-49($^$9,!"<space> $H'q' $ODL>o$O:FDj5AOG$-$^$;$s!#$=$NM#01$NNc30$K$KD$$F$O!"0J2<;2>H: bind space (p. 45)!#

%^%&%9%\?%s$O!"%\?%s1 N_!"2<!85IA2hMQKN$_Dj5A2DG=$G$9!#

%[%C%H%-!<$N0lMw$rF@kK$O show bind, $^$?$O bind $H%?%$%W9k$+!"%0%i%U%&%#%s%I%&>e$G%[%C%H%-!<'h' $rF~NO$7F/$@$5$$!#

%-!<Dj5A$O!"reset bind $G%G%U%)%k%H$N>uBV$KI|5"$G$-$^$9!#

=$>~%-!<$r4^$'U#?t$N%-!<$NDj5A$C0zMQId$G0O$'I,MW$,$"k3HKCm0U7F$/$@$5$$!#

I8='GO%[%C%H%-!<$C08=:_$NIA2h%&%#%s%I%&>e$KF~NO%+!<%=%k$,$"$k>19gN_G'<1$5$l$^$9!#bind allwindows <key> ... (bind all <key> ... $H>JN,2D) $O!"<key> $N3dEv$r!"$=$l$,8=:_$NM-8zJbN+H]$+$K4Xoi$:!"$9YF$N gnuplot $NIA2h%&%#%s%I%&>e$G2DG=K7$^$9!#3N>19g!"gnuplot JQ?t MOUSE_KEY_WINDOW K=l,9TJol?%&%#%s%I%&$N ID $,JB8$5lkNG$=$l$r%-!<$K3djEvF$?%3%^%s%I$G;HMQ9k3H$,$G$-$^$9!#

Nc:

- %-!<3dEv$N@_Dj:

```
bind a "replot"
bind "ctrl-a" "plot x*x"
```

```
   bind "ctrl-alt-a" 'print "great"'
   bind Home "set view 60,30; replot"
   bind all Home 'print "This is window ",MOUSE_KEY_WINDOW'
```

```
- %-!<3dEv$rI=<(:
   bind "ctrl-a"          # ctrl-a $KBP$9$k%-!<3dEv$rI=<(
   bind                   # A4$F$N%-!<Dj5A$rI=<(
   show bind              # A4$F$N%-!<Dj5A$rI=<(
```

```
- %-!<3dEv$r:o=|:
   bind "ctrl-alt-a" ""   # ctrl-alt-a $N%-!<3dEv$r:o=|
                            (AH$_9~$_%-!<Dj5A$O:o=|$5$1$^$;$s)
   reset bind             # %G%U%)%k%H (AH$_9~$_) $N%-!<Dj5A$rF3F~
```

```
- %H%0%k%9%$%C%A7A<0$K%-!<3dEv:
 v=0
 bind "ctrl-r" "v=v+1;if(v%2)set term x11 noraise; else set term x11 raise"
```

```
=$>~%-!<(ctrl / alt) $OBgJ8;z>.J8;z$N6hJL$O$"$j$^$;$s$,!"%-!<$O$=$&$G$O$"$j$^$;$s:
   ctrl-alt-a == CtRl-alT-a
   ctrl-alt-a != ctrl-alt-A
```

```
=$>~%-!<(alt == meta) $N0lMw:
   ctrl, alt, shift (%\%?%s 1 $G$N$_M-8z)
```

```
%5%]!<%H$5$1$F$$$kFC<1%-!<$N0lMw:
  "BackSpace", "Tab", "Linefeed", "Clear", "Return", "Pause", "Scroll_Lock",
  "Sys_Req", "Escape", "Delete", "Home", "Left", "Up", "Right", "Down",
  "PageUp", "PageDown", "End", "Begin",

  "KP_Space", "KP_Tab", "KP_Enter", "KP_F1", "KP_F2", "KP_F3", "KP_F4",
  "KP_Home", "KP_Left", "KP_Up", "KP_Right", "KP_Down", "KP_PageUp",
  "KP_PageDown", "KP_End", "KP_Begin", "KP_Insert", "KP_Delete", "KP_Equal",
  "KP_Multiply", "KP_Add", "KP_Separator", "KP_Subtract", "KP_Decimal",
  "KP_Divide",

  "KP_1" - "KP_9", "F1" - "F12"
```

```
0J2<$O!"<B:]$N%-!<$G$O$J$/!"%&%#%s%I%&$K4X$9$k%$%Y%s%H$G$9:
  "Button1" "Close"
```

0J2<$b;2>H: **mouse (p. 147)**!#

Bind space

gnuplot $,!"configure ;~$K%*%W%7%g%s-enable-rase-console rD1F%$%s%9%H!<%k$5$1$?>19g$O!"IA2h%&%#%s%I%&Fb$G<space> $r%?%$%W9k$Hgnuplot $N%3%^%s%I%&%#%s%I%&$,A0LL$K=P$^$9!#$3$N%[%C%H%-!<$O!"gnuplot -ctrlq' Nh$&$K7Fgnuplot $r5/F0$9k+!"$^$?$O X %j%=!<%9$N'gnuplot*ctrlq' $r@_Dj$9k3HGctrl-space $KJQ99$G$-$^$9!#0J2<;2>H: **x11 command-line-options (p. 260)**!#

%^%&%9MQ$NJQ?t (Mouse variables)

mousing (%^%&%95!G=) $,M-8z$J>19g!"8=:_$N%&%#%s%I%&>e$G$N%^%&%9%/%j%C%/$KhC$Fgnuplot $N%3%^%s%I%i%$%s>e$G;H$&3H$,$G$-$k?'!9$J?f!<%6JQ?t$,@_Dj$5$1$^$9!#%/%j%C%/;~$N%^%&%9$N:BI8$OJQ?tMOUSE_X, MOUSE_Y, MOUSE_X2, MOUSE_Y2 $KBeF~$5$1$^$9!#%/%j%C%/$5$1$?%\?%s$d!"$=NH$-$N%a%?%-!<$NuBV$OMOUSE_BUTTON, MOUSE_SHIFT, MOUSE_ALT, MOUSE_CTRL $KBeF~$5$1$^$9!#$3$1$i$NJQ?t$OG$0U$NIA2h$N3+;O;~$KOLDj5A$G!"M-8z$JIA2h%&%#%s%I%&CfGN%^%&%9%/%j%C%/$%Y%s%H$KhC$F=i$a$FDj5A$5$1$^$9!#M-8z$JIA2h%&%#%s%I%&Cf$G%^%&%9$,4{$K%/%j%C%/$5$1$?$+$I$&$+$r%9%/%j%W%H$+$iD4$YkK$O!"$3$1$i$NJQ?t$N$&$ANI1+0lD,Dj5A$5$1$F$$$k$+$I$&$+$r%A%'%C%/$9$1$P==J,$G$9!#
```
```

```
plot 'something'
pause mouse
if (exists("MOUSE_BUTTON")) call 'something_else'; \
else print "No mouse click."
```

IA2h%&%#%s%I%&>eGN0lO"$N%-!<F~NO$rDI@W9k3H$b!"%^%&%9%3!<%I$r;H$&$3HG2DG=HJj^$9!#

```
plot 'something'
pause mouse keypress
print "Keystroke ", MOUSE_KEY, " at ", MOUSE_X, " ", MOUSE_Y
```

pause mouse keypress $,!"%-!<F~NO$G=*N;7?>l9g$O MOUSE_KEY KO2!5l$?%-!<$N ASCII %3!<%I $,JJB8$5l^$9!#MOUSE_CHAR KO$=$NJ8;z<+?H$,J8;zNsCM$H7FJJB8$5l^$9!#pause %3%^%s%I$,(Nc$(
$P ctrl-C $dIA2h%&%#%s%I%&$,30It$+$iJD8ilkJI7F)0[>o=*N;7?>l9g$O MOUSE_KEY $O-1 KJj^$9!#

%^%&%9Kh$k3HBg$N8e$N?7$7$IA2hHOOO$O!"GPVAL_X_MIN, GPVAL_X_MAX, GPVAL_Y_MIN, GPVAL_Y_MAX $G;2>H$G$-$k3H$KCm0U$7F/$@$5$$!#0J2<;2>H: **gnuplot-defined variables (p. 35)**!#

;DN1 (Persist)

gnuplot $NB?$/$N=PNO7A<0 (aqua, pm, qt, x11, windows, wxt, ...) $,!"%9%/%j!<%s>e$K%0%i%Ur=NCfKIA$$$?I=<(MQ$N%&%#%s%I%&$rJL$K3+$-$^$9!#%*%W%7%g%s **persist** $O!"<g$?$k%W%m%0%i%'$,=*N;7?H-Kb!"$=$liN%&%#%s%I%&$r;D$9h&gnuplot $K;X<($7$^$9!#3l$O!"HsBPOC7?=PNO7A<0=PNO$G$O2?$b7^$;$s!#Nc$($P!"0J2<$N%3%^%s%I$r<B9T9k$H

```
gnuplot -persist -e 'plot [-5:5] sinh(x)'
```

gnuplot $O!"I=<(%&%#%s%I%&$r3+$-!"$=NCfK%0%i%UrIA-!"$=$7$F=*N;$7!"I=<(%&%#%s%I%&$O%0%i%U$r$=$NCf$K;}$C$?$^$^9%/%j!<%s$K;Dj^$9!#=PNO7A<0$KhCFO!"$=$N;DC?%&%#%s%I%&>eGbB?>/$N%^%&%9A':n$,2DG=$J>l9g$b$"$j$^$9!#7+$7!"%0%i%U$N:FIA2h$rMW5a$9$k%:!<%'($H$=$N5U)Nh$&$JA':n$O!"4{$K%W%m%0%i%'$,=*N;$7$F$$kNG0lHLE*KOL5M}$G$9!#

?7$7$=PNO7A<0$r@_Dj$9kH$-$K$b **persist** $d **nopersist** $r;XDj$G$-$^$9!#Nc:

```
set term qt persist size 700,500
```

IA2h (Plotting)

gnuplot KO%0%i%U$rIA2h$9$k4 DN%3%^%s%I **plot**, **splot**, **replot**, **refresh** $,$"j^$9!#B>$N%3%^%s%I$O!":G=*E*$K%0%i%U>e$K@8@.$5lkIA2hMWAG$d!"%l%$%"%&%H!"%9%?%$%k$N@)8f$r9T$$$^$9!#**plot** $O2<!85%0%i%U$r@8@.7^$9!#**splot** $O3<!85%0%i%U($bAm$s<B:]$KO=$N2<!85LL$X$N<M1F)$r@8@.7^$9!#**replot** $O!"D>A0$N **plot** $d **splot** %3%^%s%I$r:F<B9T7^$9!#**refresh** $O!"**replot** $H;w$F$$$^9,!"F~NO%G!<%?rdF~NO%9%H$j!<%'$+$i:FFI$_9~$_$9kBeojK!"A0$KJ]B8$7$?%G!<%?$r:F;HMQ7^$9!#

3l$i4 DN%3%^%s%IN&AN0lDr<B9T7?>l9g$O!"8=:_Dj5A$5lF$$k<4!"%i%Y%k!"%?%$%H%k!"$*hS85$N plot %3%^%s%I$G;XDj5l$?5$^6^$J4X?t$d%G!<%?NY%Y%F$r4^$`=PNO$N%9%/%j!<%s$r:FIA2h9k$+!"?7$7$$=PNO%Z!<%8$r@8@.$7$^$9!#b7!"0lDN%Z!<%8$KJ#?t$N%0%i%UrNYj9g$&$h$&$KJBYF=PNO7?$$>l9g!"Nc$($PJ#?t$N?^$N%Q%M%k$r:n@.$7$?$j!"Bg$-$J%0%i%UNCfK>.5J%0%i%U$rA^F~$7$?$j7?$>l9g$O!"%3%^%s%I **set multiplot** $r;HMQ$7!"3FIA2h%3%^%s%I$G?7$7$%Z!<%8$,:nilkN$rM^@)$7F/$@$5$$!#

IA2h$K4X$9$k0lHLE*$J>pJs$NBgH>$O!"**plot** $K4X$9$k9'$G+D+j^$9!#3<!85IA2h$K8GM-$N>pJs$O **splot** $N9'$K$"$j$^$9!#

plot $O xy D>8r:BI87O$H6K:BI87O$,;H$($^$9!#0J2<;2>H: **set polar (p. 165)**!#**splot** $O xyz D>8r:BI8$,;H$($^9,!"3<!856K:BI8!"1_C1:BI8%G!<%?$bF~NO$G$-$^$9!#0J2<;2>H: **set mapping (p. 145)**!#**plot** GO!"4 DN6-3&x (2<), x2 (>e), y (:8), y2 (1&) r=l>$lFHN)$J<4H7$F07$&3HbG$-$^$9!#%*%W%7%g%s **axes** $G!"M?$(il$?4X?t$d%G!<%?=89grI$N<4$N%Z%"$GI=<($5$;$k$+$rA*Y^$9!#$^$?!"3F<4$N=L<\$d8+=P7E1r40A4$K@)8f$9k?aK=J,$JJd:4$HJk **set** %3%^%s%I72$,B8:_$7$^$9!#$$/D+$N%3%^%s%I$O!"**set xlabel**

Nh$&$K<4$NL>A0$r$=$NCf$K; }$C$F$$^$9$7! "$=$l0J30NbNO **set logscale xy** Nh$&$K! "l $D! "$^$?$QJ# ?t$N<4$NL>A0$r%*%W%7%g%s$H7FHj$^$9! #z <4$r@)8f$9$k%*%W%7%g%s$d%3%^%s%I$O2 <!85%0%i%U$K$O8zNO$r ; }A^$;$s! #

splot $O! "E@$d@~$K2C$ ($F6JLL$dEy9b@~$r=q$/3H$,$G$-$^$9! #3 <!85$N4X?t$N3J; RDj5A$K4X9k>pJsKD$$ FO! "0J2<; 2>H: **set isosamples (p. 135)**! #3 <!85%G! <%?$N%U%!%$%kKI,MWJ7ABVKD$$F$O! "0J2<; 2>H: **splot datafile (p. 194)**! #Ey9b@~$K4X$9$k>pJs$K$D$$F$O! "0J2<; 2>H: **set contour (p. 121)**, **set cntrlabel (p. 118)**,**set cntrparam (p. 119)**! #

splot GN=I<\$d8+=P$7IU$1$N@)8f$O! "z <4KbM-8zG"k3$H! "$*hSx2 <4! "y2 <4$N%i%Y%kIU$1$, **set view map** $r; H$C$F: n$i1k5?; wE*$J2 <!85IA2h$KN_2DG=G"k3Hr=|1P **plot** $HA4$/F1$8$G$9! #

=i4|2= (Startup (initialization))

5/F0; ~$K! "gnuplot O^$:%7%9%F%'MQ$N=i4|@_Dj%U%!%$%k **gnuplotrc** $rC5$7$^$9! #$=$N%U%!%$%k$NCV$->l=j$O gnuplot $N%$%s%9H! <%k; ~$K7hDj$5$l! "**show loadpath** GCNk3H$,$G$-$^$9! #<!$K%f! <%6$N%[! <%'%G%#%l %/%H%jFb$K8D?MMQ$N@_Dj%U%!%$%k$rC5$7$^$9! #$=$N%U%!%$%k$O Unix 7O$N%7%9%F%'$G$O **.gnuplot** G"$j! "$=$N B>$N=hM}7OGO **GNUPLOT.INI** HJCF$$$^$9! #(OS/2 GO! "4D6-JQ?t **GNUPLOT** $K@_Dj$5lF$$$k L>A0$N%G%#%l%/%H%jFb$K$=$l$rC5$7$^$9; Windows GO! "**APPDATA** $r; HMQ$7$^$9)! #Cm0U: %$%s%9%H! <%k ; ~$K **gnuplot** $,: G=i$K%+%l%s%H%G%#%l%/%H%j$rC5$9h&$K@_Dj$G$-$^9, ! "%;%-%e%j%F%#>e4m81JN$G=$l $O?d>)$7$^$;$s! #

J8; zNsDj?t$HJ8; zNsJQ?t (Strings)

J8; zNsDj?t$K2C$ ($F! "$[HsIN gnuplot %3%^%s%I$QJ8; zNsJQ?t! "U8; zNs<0$^$?$QJ8; zNsrJV94X?t$b<u$1IU 1^$9! #Nc$ ($P! "0J2<$N4 DN plot Nd$jJ}$O7k2LH7$FA4$FF1$8IA2h%?%$%k$r@8@.$7$^$9:

```
four = "4"
graph4 = "Title for plot #4"
graph(n) = sprintf("Title for plot #%d",n)

plot 'data.4' title "Title for plot #4"
plot 'data.4' title graph4
plot 'data.4' title "Title for plot #".four
plot 'data.4' title graph(4)
```

@0?t$O! "$=l,J8; zNs7k9g1i; ;; RKhCF: nMQ5l$?>19g$O! "U8; zNs$KJQ49$5l^9N$G! "0J2<$NNc$b>e$HF1 MM$KF0: n$7$^$9:

```
N = 4
plot 'data.'.N title "Title for plot #".N
```

0lHL$K! "%3%^%s%I%i%$%s$N3FMWAG$O! "$=$li,I8=`E*$J gnuplot XNL?NaJ8K!$N0lItJ,$HG'<1$5lkbN0J30 $O! "M-8z$JJ8; zNsJQ?tH7FNI>2AN_,9TJol^$9! #$hCF! "0J2<$N%3%^%s%INs$O! "62i/$O: .Mp$r0z$- 5/$3$5$J$$h$&$KHr1ilkY$-$G9, ! "J8K!E*KO4V0cCF$O$$^;$s:

```
plot = "my_datafile.dat"
title = "My Title"
plot plot title title
```

<!$N3 DNFs9'1i; ;; R$QJ8; zNs$K: nMQ7^$9: J8; zNs$N7k9g1i; ;; R "." , J8; zNs$NEy9f1i; ;; R "eq" , $*$h$SJ8 ; zNs$NI TEy9f1i; ;; R "ne" $G$9! #0J2<NNcG$O TRUE $,I=< ($5l^$9! #

```
if ("A"."B" eq "AB") print "TRUE"
```

0J2<$b; 2>H: 2 DNJ8; zNs=q<04X?t **gprintf (p. 130)**, **sprintf (p. 32)**! #

G$0U$NJ8; zNs! "U8; zNsJQ?t! "J8; zNsCM4X?t$K! "HO0O; XDj; R$rD1k3HKhjItJ,J8; zNs$r; XDj$G$-$^$9! #HO 0O; XDj; R$O [begin:end] $N7A$G! "begin $OItJ,J8; zNs$N@hF,0LCV! "end $O: G8e$N0LCV$G$9! #0LCV; XDj$O! ": G=i$N J8; z$r1 HVL\$H8+$^$9! #@hF,$N0LCV! ": G8e$N0LCV$O6u! "$"$k$$$O'*' Gb9=$$$^;$s! #$=$N>19g! "$=lO85$N J8; zNs<+BN$N@hF,! "$"$k$$$O: G8e$r0UL#$7$^$9! #Nc$ ($P! "str[:] $dstr[*:*] OIAi$b str $NJ8; zNsA4BN$r0UL# 7^$9! #

CV4 9$H%3%^%s%I%i%$%s%^%/%m (Substitution)

gnuplot XNL?NaJ8;zNs$,:G=i$KFI$_9~$^l?;~E@!"9JoA$^$@$=$l$,2r<a$5$l!"$b7/$O<B9T$5lkA0$NCJ3,$G!"2 DN7A<0$NC18l$NCV4 9$,<B9T$5l^9!#$=$liO5U0zMQId(!.) (ASCII HV9f96) $G0O$^lF$$$k$+!"$^$?$O@ (ASCII HV9f64) $,F,$K$D$$$?J8;zNsKBP7$F9T$Jol$^9!#

5U0zMQIdKh$k%7%9%F%`%3%^%s%I$NCV4 9 (Substitution backquotes)

%7%'%k%3%^%s%I$r5U0zMQId(!.) $G0O$`$3$H$K$h$C$F%3%^%s%ICV4 9$r9T$&$3$H$,$G$-$^9!#$3$N%3%^%s%I$O;R&W%m%;%9$G<B9T$5$l!"$=$N=PNO7k2L$G%3%^%s%I%i%$%s%N5U0zMQId$G0O$^$l?ItJ,$rCV$-49$($^9!#%7%9%F%`%3%^%s%I$N=*N;%9%F!<%?%9$O!"JQ?t GPVAL_SYSTEM_ERRNO $H GPVAL_SYSTEM_ERRMSG KJV5l^9!#0J2<;2>H: **system (p. 199)**!#

%3%^%s%ICV4 9$O!"C10l0zMQIdFb$NJ8;zNs0J30$O!"**gnuplot** $N%3%^%s%I%i%$%sCf!"I3GG$b;HMQ2DG=$G$9!#

Nc

0J2<NNcO!"**leastsq** $H$$$&%W%m%0%i%`$r<B9T$7!"$=$N=PNO7k2L$G!"**leastsq** $r($^oj$N0zMQId$3$_$G) CV-49($^$9:

```
f(x) = `leastsq`
```

$?$@$7 VMS GO!"

```
f(x) = `run leastsq`
```

0J2<$O8=:_$NF|IU$H%f!<%6!<L>$N%i%Y%k$r@8@.$7$^$9:

```
set label "generated on `date +%Y-%m-%d` by `whoami`" at 1,1
set timestamp "generated on %Y-%m-%d by `whoami`"
```

J8;zNsJQ?t$N%^%/%mCV4 9 (Substitution macros)

J8;z@ $O!"%3%^%s%I%i%$%s>eG=$NJ8;zNsJQ?t$NCMXNCV4 9$r9T$J$&$N$K;H$ol^9!#J8;zNsJQ?tNCMH7F$NJ8$O!"J#?t$NC18l$+iJk3Hb2DG=$G$9!#3lKh$jJ8;zNsJQ?t$r%3%^%s%I%i%$%s%^%/%m$H7F;H$&$3H,2DG=KJj^9!#3N5!G=Kh$jE83+$G$-$kNOJ8;zNsDj?tN_$G!"U8;zNs$rCM$K<h$k?t<0$r;H$&3HOG$-$^$;$s!#Nc:

```
style1 = "lines lt 4 lw 2"
style2 = "points lt 3 pt 5 ps 2"
range1 = "using 1:3"
range2 = "using 1:5"
plot "foo" @range1 with @style1, "bar" @range2 with @style2
```

3N@5-9f$r4^$`9T$O!"$=$NF~NO;~$KE83+5l!"$=$l$,<B:]$K<B9T5lkH$-$K$O<!$Nh&$KA4ItBG$A9~s@>19g$HF1$8$3$HKJj^9!#

```
plot "foo" using 1:3 with lines lt 4 lw 2, \
     "bar" using 1:5 with points lt 3 pt 5 ps 2
```

4X?t exists() $O%^%/%m$NI>2A$K4X$7$FM-MQ$G7g$&!#0J2<$NNc$O!"C $,0BA4$K%f!<%6D`5AJQ?t$NL>A0$KE83+G-k+I&$+$r%A%'%C%/7^9!#

```
C = "pi"
if (exists(C)) print C," = ", @C
```

%^%/%m$NE83+$O!"C10l0zMQIdFb!"$^$?$OFs=E0zMQIdFb$G$O9T$Jol$^$;$s!"5U0zMQId(!.) Fb$G$O%^%/%mE83+$5l^9!#

%^%/%m$NE83+$O!"gnuplot $,?7$7$$%3%^%s%I9T$r8+$?H-$KHs>o$KAa$$CJ3,$Ggnuplot $,=hM}$7!"$=$7F?$@0lEY$@1=lr9T$$$^9!#hC$F!"

```
A = "c=1"
@A
```

Nh$&$J%3!<%I$O@5$7$/<B9T$7$^$9$,!"0J2<$Nh&$J9T$O$@$a$G$9!#$=$l$O!"%^%/%m$NDj5A$,F1$89TK"k?$aE83+$K4V$K9g$o$J$$$+iG$9!#

```
A = "c=1"; @A   # will not expand to c=1
```

%3%^%s%I$r40@.$5$;$F<B9T9kKO!"%3%^%s%I **evaluate** $bM-MQ$G7g$&!#

J8;zNsJQ?t!"%^%/%m!"%3%^%s%I%i%$%sCV49 (**mixing_macros_backquotes**)

J8;zNsJQ?t$d5U0zMQId(!.) Kh$kCV49!"%^%/%m$KhkCV49$NAj8_4X78$O>/7dd3$7$$G$9!#5U0zMQId$O%^%/%mCV49$rK8$2$J$$$N$G!"

```
filename = "mydata.inp"
lines = ‘ wc --lines @filename | sed "s/ .*//" ‘
```

$O!"mydata.ipn $N9T?t$r@0?tJQ?t lines $KJ]B8$9k3HKJj$^$9!#$^$?!"Fs=E0zMQId$O5U0zMQId$NCV49$rK8$2$J$$$N$G!"

```
mycomputer = "‘uname -n‘"
```

$O!"%7%9%F%‘%3%^%s%I **uname -n** NJV9J8;zNs$rJ8;zNsJQ?t mycomputer $KJ]B8$9k3HKJj$^$9!#

7+$7!"%^%/%mCV49$OFs=E0zMQIdFbGO5!G=7J$$$N$G!"%7%9%F%‘%3%^%s%I$r%^%/%mH7$FDj5A$7F=lr%^%/%mH7$FMxMQ$7$+$D5U0zMQIdCV49$r9T$J$&$3HOGG$-$^$;$s!#

```
machine_id = "uname -n"
mycomputer = "‘@machine_id‘"  # $&$^$/$$$+$J$$ !
```

3N<:GT$O!"Fs=E0zMQId$,@machine_id $r%^%/%m$H7F2r<a9k3H$rK8$2$F$$$k$+$i$G$9!#%7%9%F%‘%3%^%s%I$r%^%/%m$H7FJ]B8$7!"$=$N8e$=lr<B9T9kKO!"5U0zMQIdk+BN$b%^%/%mFb$K4^akI,MW$,$"j^$9!#$3lO0J2<Nh$&$K%^%/%m$rDj5A$9k3HG<B8=G-$^$9!#sprintf $N=q<0$K$O3<cN‘$N0zMQIdA4F,F~$l;R$KJC$F$$$k3H$KCm0U$7F/$@$5$$!#

```
machine_id = sprintf('"‘uname -n‘"')
mycomputer = @machine_id
```

6h@Zjd%+%C%3$N;H$$J}(**Syntax**)

%j%9%H$d:BI8$,%3%s%^(,) 6h@ZjG$"$kNKBP$7!"%*%W%7%g%s$d$=$l$KH<$&%Q%i%a!<%?$O%9%Z!<%9() 6h@Z$j$G$9!#HOO$O%3%m%s(:) $G6h@Z$CF+$.$+$C$3([]) G/$/$j$^$9$7!"J8;zNs$d%U%!%$%kL>$O0zMQIdG/$/$j!"B>$K$$$/D+%+%C%3(()) G/$/$kbN$,$"j^$9!#

%3%s%^$O0J2<$N6h@ZjG;HMQ5l$^$9!#**set** %3%^%s%I$N**arrow**, **key**, **label** $N:BI8;Ev$FOa(fit) il$kJQ?t$N%j%9%H(%3%^%s%I **fit** $N%-!<%o!<%I **via** $KB3$/%j%9%H); %3%^%s%I **set cntrparam** $G;XDj$5lkHSHS$NEy9b@~$NCMd=$N%k!<%W%Q%i%a!<%?$N%j%9%H; **set** %3%^%s%I$N**dgrid3d dummy**, **isosamples**, **offsets**, **origin**, **samples**, **size**, **time**, **view** $N0z?t; L\@9$j$N0lCV$d$=$N%k!<%W%Q%i%a!<%?$N%j%9%H; %?%$%H%k$d<4$N8+=P7N0lCV; **plot**, **replot**, **splot** %3%^%s%I$Nx,y,z :BI8$N7W;;$K;H$olkG^2pJQ?t4X?t$N%j%9%H; **plot**, **replot**, **splot** %3%^%s%I$NJ#?t$NIA2h(%G!<%?!"$^$?$O4X?t) N=l>lN0lO"$N%-!<%o!<%I$N%j%9%H!#

(4]) %+%C%3$O!"L\@9$j$N8+=P$7$r(%k!<%W%Q%i%a!<%?$GOJ$/(E*$K=89gM?$($k>19g$N6h@Z$jH7$F!"$^$?$O**fit**, **plot**, **replot**, **splot** %3%^%s%I$N**using** %U%#%k%?$G$N7W;;$r;X<(9k$?$a;Hol$^$9!#

(%+%C%3$d%3%s%^$CDL>o$N4X?t$NI=5-Gb;Hol$^$9!#)

$+$.$+$C3O!"**set**, **plot**, **splot** %3%^%s%IGOH0O0$r6h@Z$kNK;Hol$^$9!#

%3%m%s$O**range** (HOO0) ;XDj(**set**, **plot**, **splot** %3%^%s%I$G;H$olk) $NN>C<$NCM$r6h@Z$kNK!"$^$?$O**plot**, **replot**, **splot**, **fit** %3%^%s%I$N**using** %U%#%k%?$N3F%(%s%H%j$r6h@Z$kNK;Hol$^$9!#

%;%_%3%m%s(;) $O!"0l9T$N%3%^%s%I9TF'b$GM?$(il$kJ#?t$N%3%^%s%I$r6h@Z$kNK;Hol$^$9!#

Cf%+%C%3({}) $O!"3HD%J8;zNs=hM}%b!<%I(enhanced text mode) $N5-=R$d!"if/then/else J8$N%V%m%C%/$N6h@ZjH7F;Hol$^$9$7!"$^$?$OJ#AG?t$r5-=R$9kN$K%b;H$ol^$9: {3,2} = 3 + 2i HJj^$9!#

EEPIC, Imagen, Uniplex, LaTeX, TPIC $N3F=PNO7A<0$G$O!"C10l0zMQIdFb$N\\ $^$?$OFs=E0zMQIdFb$N\\\\ $G2~9T$r<($9$3H,2DG=$G$9!#

0zMQId (Quotes)

gnuplot $O!"J8;zNs$r6h@ZkN$K!"Fs=E0zMQId(ASCII %3!<%I34 HV)!"C10l0zMQId(ASCII %3!<%I39 HV)!"$*$h$S5U0zMQId(!.) (ASCII %3!<%I96 HV) $N3<cN'$N0zMQId$r;H$$^$9!#

%U%!%$%kL>$OC10l0zMQId!"$"$k$$OFs=E0zMQIdFb$G0O$_$^$9!#3N%^%K%e%"%kGO0lHL$K%3%^%s%I$NNc<(GO!"o+jd9/9k$?$a$K%U%!%$%kL>$OC10l0zMQId$G$/$/$j!"B>$NJ8;zNs$OFs=E0zMQId$G$/$/j^$9!#

8+=P$7(label)!"%?%$%H%k(title)!"$^$?O=$NB>$NIA2hMWAG$G;HMQ$5lkJ8;zNsDj?t$dJ#?t9TJ8;zNs$OC10l0zMQId!"$"$k$$OFs=E0zMQIdFb$G0O$_$^$9!#0zMQId$G0O$^l?J8;zNsN5iJ$k=hM}$N7k2L$O!"$I$N0zMQId5-9f$rA*V+KhCFJQoj$^$9!#

\n(2~9T) $d\345(8?JI=5-$NJ8;z%3!<%I) Nh$&$J%P%C%/%9%i%C%7%e(\) Kh$kFC<lJ8;zI=8=$O!"2=E0zMQIdFb$NJ8;zNs$GN_8zNO$r;}$A$^$9!#C10l0zMQIdFbGO!"%P%C%/%9%i%C%7%e<+BN$,DI>o$NJ8;z$H8+$J5l$^$9!#C10l0zMQIdFb$NJ8;zNs$GC10l0zMQId<+BN(ASCII %3!<%I39 HV) $r;H$&KO!"$=$l$r=E$M$F=q$/I,MW$,$"j^$9!#$D$^$j!"J8;zNs"d\" s' b\\" $H!"d" s'' b\' $O40A4$KF1$8$bNHJj$^$9!#

1 DNJ#?t9TJ8;zNs$K4X$9$k9TB7$($O3F9T$KF1Ey$KF/$-$^$9!#hC$F!"Cfl{$K9TB7$($5l?J8;zNs

```
"This is the first line of text.\nThis is the second line."
```

$O<!$Nh&$KI=<($5l^$9:

```
This is the first line of text.
   This is the second line.
```

7+$7

```
'This is the first line of text.\nThis is the second line.'
```

$@$H<!Nh$&$KJj$^$9!#

```
This is the first line of text.\nThis is the second line.
```

3HD%J8;zNs=hM}(enhanced text processing) $OFs=E0zMQId$KBP7F$bC10l0zMQId$KBP7F$b5!G=$7$^$9!#7+$7!"$=$N%b!<%I$r%5%]!<%H7F$$$k=PNO7A<0GN$_F/$-$^$9!#0J2<;2>H: **enhanced text (p. 27)**!#

5U0zMQId$O,%3%^%s%I%i%$%sCf$NCV49$N$?$a$K%7%9%F%'%3%^%s%I$r0O$'$N$K;H$$^$9!#0J2<;2>H: **substitution (p. 48)**!#

;~4V/F|IU%G!<%?(Time/Date)

gnuplot $OF~NO%G!<%?$H7F;~4V/F|IU>pJs$N;HMQ$r%5%]!<%H7F$$^$9!#$3$N5!G=$O **set xdata time**, **set ydata time** JI$N%3%^%s%I$KhC$FM-8z$KJj$^$9!#

FbItGOA4FN;~4V/F|IU$O1970 G/$+iNIC?t$KJQ49$5l^$9!#%3%^%s%I **set timefmt** $OA4$F$NF~NO$KBP9k%G%U%)%k%H$N=q<0$rD j5A7^$9!#%G!<%?%U%!%$%k!"HCOO!"<4$NL\@9$j$N8+=P$7!"%i%Y%k$NOLCV$H!"F|~%G!<%?CM$r<u$1F~lk9YFNbNXNF~NO$N=q<0$,!"%G%U%)%k%HG3lKJj^$9!#0l;~$KOOlD$N%G%U%)%k%HF~NO=q<0$N$_,M-8z$G$9!#$hCF!"%U%!%$%kFb$Nx $Hy $NN>J}$,;~4V/F|IU%G!<%?G"$k>l9g$O!"%G%U%)%k%HGO$=$l$CF1$8=q<0$H2r<a$5l^$9!#$7$+$7!"3N%G%U%)%k%H$O!"**using** ;XDj$G4X?t **timecolumn** $rMQ$$F!"$=$l$KBP1~$9$kFCDj$N%U%!%$%k$dNs$+$i%G!<%?$rF I$_3$'$3HKhj!"UQ$($k3H,2DG=$G$9!#

IC?t$X(IC?t$+$i) $NJQ49$O9q:]I8=';~(UT;%0%j%K%C%8I8=';~(GMT) $HF1$8)$,;H$ol^$9!#3F9qI8=';~$d2F;~4VXNJQ49$N5!G=$O2?$b;}$A9go;$F$$$^;$s!#$b$7%G!<%?$,9Y$FF1$8I8=';~4VB$K=>$C$F$$kJi($=$7$FA4$F$,2F;~4V$+!"$=$&GJ$$$+NIAi$+0lJ}$KN_=>$&$J$i)$3lK4X7F2?$b?4G[$9k3HO$"$j$^;$s!#7+$7!"$"J?$,;HMQ$9$k%W%j1!<%7%g%s$G@dBPE*$J;~9o$r87L)$K9M;!$7J1lP$$$1J>19g$O!"$"J?<+?H$,UT $KJQ49$9Y-G7g&!#

show xrange Nh$&$J%3%^%s%I$O!"$=$N@0?tCM$r **timefmt** $K=>$C$F2r<a$7D>7^$9!#**timefmt** $rJQ99$7Fb&0lEY **show** G=NCMrI=<(5k$H!"$=lO?7$7$$ **timefmt** $K=>$C$FI=<($5l^$9!#$3N?a!"(**set xdata** JIKh$j)$=$N<4$KBP9k%G!<%?%;%C%H$H!"$=NCMO@0?tCMH7$FI=<($5lk3HKJj^$9!#

%3%^%s%I **set format** $^$?$O **set tics format** $O!";XDj$5l?<4KBP9$kF~NO$,;~4V/F|IUG"k3oi$:L\@9$j$N8+=P$7$K;H$olk=q<0$rDj5A$7$^$9!#

; ~4V/F |IU>pJs$,%U% !%$%k$+$iIA2h5l$k>l9g! "**plot**, **splot** %3%^%s%IGO **using** %*%W%7%g%s$r!VI,$:!W; H$& I,MW$,$"$j$^$9! #**plot**, **splot** GO3F9T$N%G! <%?Ns$NJ,N%$K%9%Z! <%9$r; H$$$^9,! "; ~4V/F |IU%G! <%?O=$NCf $K%9%Z! <%9$r4^$_F@$k$+$i$G$9! #b7%?%V6h@Zjr; HMQ7F$$$kNJ$i! "$"J?$N%7%9%F% `$,$=$lrI$&07$& $+3N$+ak$?$a$K2?EY$b%F%9%H9kI,MW$,$"kG7g$&! #

4X?t **time** $O! "8=:_$N%7%9%F% `; ~9o$rF@$kNK; H$ ($^$9! #3NCM$O! "**strftime** 4X?t$GF |; ~J8; zNs$KJQ49$G$-$^ $9$7! "**timecolumn** HAH_9go;$FAjBPE*$JF |; ~%0%i%U$r:n@.$9kNKb; H$ ($^$9! #0z?t$N7?$O$=$l$,JV$9$b Nr7hDj7^$9! #0z?t$,@0?t$N>l9g$O time() $O8=:_$N; ~9o$r 1970 G/1 7n1 F |$+iN@0?tH7$FJV$7! "0z?t $,<B?t ($^$?$OJ#AG?t) Ji$PF1MM$NCM$r<B?t$H7FJV7^9,! ">.?t (IC0J2<) ItJ,$N@:EY$O! "%*%Z%l! <%F%# %s%0%7%9%F% `$K0MB8$7$^$9! #0z?t$,J8; zNs$JiP! "$=$l$r=q<0J8; zNs$G$"$kH_$J$7! "=q<02=5l$?F |; ~J8; z Ns$rDs6!9kh&$=$l$r **strftime** KEO7$^$9! #

<!NNcO; ~4V/F |IU%G! <%?$NIA2h$NNc$G$9! #

%U%!%$%k "data" $C0J2<$Nh&$J9T$+iJkH7^$9:

```
03/21/95 10:00  6.02e23
```

3N%U%!%$%k$C0J2<Nh$&$K7FI=< (5l$^$9:

```
set xdata time
set timefmt "%m/%d/%y"
set xrange ["03/21/95":"03/22/95"]
set format x "%m/%d"
set timefmt "%m/%d/%y %H:%M"
plot "data" using 1:3
```

$3$3$G! "x <4$NL\@9jN8+=P7O "03/21" Nh$&$KI=< (5l$^$9! #

8=:_$N gnuplot $O! "; ~9o$r%_%jIC@:EY$GDI@W$7! "; ~9o$N%U%)! <%^%C%H$b$=$l$KH<$C$FJQ99$5lF$$$^$9! #Nc: 8=:_$N; ~9o$r%_%jIC@:EY$GI=< (

```
print strftime("%H:%M:%.3S %d-%b-%Y",time(0.0))
18:15:04.253 16-Apr-2011
```

0J2<;2>H: **time_specifiers (p. 131)**! #

Part II

IA2h%9%?%$%k (plotting styles)

gnuplot GO! "$?$/5s$NIA2h%9%?%$%k$,MxMQ$G$-$^$9! #$=li$O! "%"%k%U%!%Y%C%H=g$KOJ2<$K>R2p$5lF$$$^$9! #%3%^%s%I **set style data** $H **set style function** $O! "$=$lOJ9_$N**plot** $d **splot** %3%^%s%I$KBP7F%G%U%)%k%H$NIA2h%9%?%$%k$rJQ99$7$^$9! #

IA2h%9%?%$%k$O! "%3%^%s%I **plot** $d **splot** $N0lItJ,$H7F! "L@<(B*$K%*%W%7%g%s;XDj$9k3HbG-$^$9! #0lDNIA2hNCfG! "J#?t$NIA2h%9%?%$%krAH_9go;$?$>19g$O! "3FMWAG$KBP7FIA2h%9%?%$%k$r;XDj9kI,MW$,$"j^$9! #

Nc:

```
plot 'data' with boxes, sin(x) with lines
```

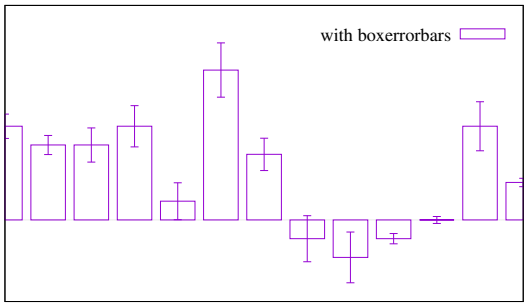
3FIA2h%9%?%$%k$O! "$=$l<+BN$,%G!<%?%U%!%$%k$+$i$N$$$/D+$N%G!<%?$NAH$r4|BT$7$^$9! #Nc$($P! "%G%U%)%k%HGO **lines** %9%?%$%k$O! "y NCM@1N1 Ns$N%G!<%?(x NCMCOEL[$K=gHV$K<hil$k)! "$^$?$O:G=i$, x, <! $, y $N2 DNNs$r4|BT7F$$$^$9! #%U%!%$%k%N2?Ns$N%G!<%?rIA2h%G!<%?$H2r<a5;k&$^$J}K!$K4X$9$k>pJs$K$D$$$F$O! "0J2<;2>H **using (p. 98)**! #

Boxerrorbars

IA2h%9%?%$%k **boxerrorbars** $O2<!85$N%G!<%?IA2hGN$_MxMQ2DG=$G$9! #$3lO! "3 Ns! "$^$?$O4 Ns! "$^$?$O5 Ns$N%G!<%?$,I,MW$G$9! #F~NCNs$rDI2C(4,5,6 NsL\) 9k$H! "$=li$O3F%G!<%?E@Kh$Nvariable color >pJs(0J2<;2>H **linecolor (p. 41)**, **rgbcolor variable (p. 42)**) H7$F;H$ol^$9! #8m:9@~$O! "H"$N6-3&$HF1$8?'$GIA2h5l$^$9! #

```
3 Ns:  x  y  ydelta
4 Ns:  x  y  ydelta xdelta        # H"$NI} != -2
4 Ns:  x  y  ylow  yhigh          # H"$NI} == -2
5 Ns:  x  y  ylow  yhigh  xdelta
```

y $N8m:9$, "ydelta" $N7A<0$GM?$($ilF! "H"$N2#I}$,$"$i$+$8$a-2.0 $K@_Dj$5lF(**set boxwidth -2.0**) $$$J1l$P! "H"$N2#I}$O4 NsL\$NCM$GM?$(il$^$9! #y $N8m:9$, "ylow yhigh" $N7A<0$GM?$($ilk>19g$OH"$N2#I}$O5 NsL\$NCM$GM?$(il$^$9! #FCJL$J>19g$H7F! "'ylow yhigh" $N8m:97A<0$N4 Ns$N%G!<%?$KBP9k **boxwidth = -2.0** $H$$$&@_Dj$,$"j^$9! #$3$N>19gH"$N2#I}$O! "NY@\$9$kH"$K$/$CD/h&$K<+F0E*$K7W;;5l$^$9! #B Ns$N%G!<%?$N>19g$b! "2#I}$O<+F0E*$K7W;;$5l^$9! #



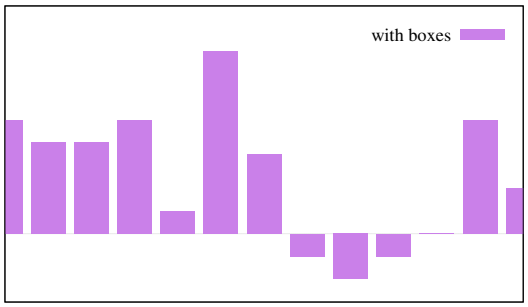
H"$N9b$5$O! "**yerrorbars** %9%?%$%kF1MM$Ky $N8m:9$NCM$+$i7hDj5l$^$9! #y-ydelta $+$iy+ydelta $^$G! "$"$k$$$O ylow $+$iyhigh $^$G! "3liO2?Ns$N%G!<%?$,M?$($ilF$$$k$+$KhC$F7h$^j^$9! #

Boxes

boxes %9%?%$%k$O2<!85IA2hGN$_MxMQ2DG=$G$9! #$3lOM?$($il?x :BI8$rCf?4$H$7! "x <4$+$i(%0%i%U$N6-3&$+$i! "GO$"$j$;$s)M?$($il?y :BI8$^$G$NH"$r=q$-$^$9! #$3lO4pK\E*$K! "2 Ns! "$^$?$O3 Ns$N%G!<%?r;HMQ$7$^$9! #M>J,$JF~NCNs$O! "variable 9TdEIjDY$7?'$N>pJs$,Ds6!$5l?bNH7F;HMQ5l$^$9(0J2<;2>H **rgbcolor variable (p. 42)**)! #

```
2 Ns:  x  y
3 Ns:  x  y  x_width
```

H"$NI}$O3 DN$&$A0lDNJ}K!$G7hDj$5l^$9!#F~NC%G!<%?$,3 NsL\$N%G!<%?$r;}$C$F$$$k>l9g$O!"$=l,H"$NI}$K%;%C%H5l$^$9!#$=$&GJ$/$F **set boxwidth** %3%^%s%I$GH"$NI}$,%;%C%H$5lF$$$?>l9g$O!"$=l,;;Hol$^$9!#$=$NIAiGbJ$$>l9g!"H"$NI}$O!"NY@\$9$kH"$,$/$CD/h&$K<+F0E*$K7W;;5l$^$9!#



H"$NCf?H$O8=:_NEIjDV$7%9%?%$$k (fillstyle) $K=>$CFEIjDV5l$^$9!#>\:Y$O!"0J2<;2>H **set style fill (p. 171)**!#7$7$EIjD$V$7%9%?%$$k$rplot %3%^%s%I>e$G;XDj9k$3H$bG-$^$9!#EIjD$V$7%9%?%$$k, **empty** $N>l9g$O!"H"OEIjDV5l$^$;$s!#EI$jDV$7%9%?%$$k, **solid** $N>l9g$O!"H"$O8=:_$NIA2h?'$G%Y%?EI$j5l$^$9$,!"fillstyle %Q%i%a!<%?$rDI2C9k$3H$GEIjDV7L)EY$r@)8f$G$-$^$9!#0 $OGX7J?'!"1 $OIA2h?'$=NbNKJj$^$9!#EIjD$V$7%9%?%$$k, **pattern** $N>l9g$O!"H"$O8=:_$NIA2h?'$G!"$"$k%Q%?!<%s$GEIjDV7$^$9!#

Nc:

%G!<%?U%!%$%k$rEIjDV7$?H"$GIA2h$7!"H"F1;N$r>/$7?bD>J}8~$K%9%Z!<%9$r6u$1$k (K@%0%i%U):

```
set boxwidth 0.9 relative
set style fill solid 1.0
plot 'file.dat' with boxes
```

%Q%?!<%sGNEIjD$V$7%9%?%$$k$NH"$Gsin $Hcos $N%0%i%U$rIA2h:

```
set style fill pattern
plot sin(x) with boxes, cos(x) with boxes
```

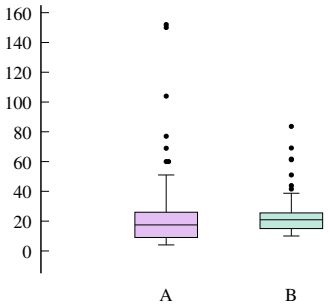
sin $O%Q%?!<%s0 $G!"cos $O%Q%?!<%s1 $GIA2h$5l^$9!#DI2C$5lkIA2h$O=PNO%I%i%$%P$,%5%]!<%H$9$k%Q%?!<%s$r=[4DE*$K;HMQ$7$^$9!#

$=$l$>$l$N%G!<%?=89g$GL@<(E*KEIjDV$7%9%?%$$k$r;XDj:

```
plot 'file1' with boxes fs solid 0.25, \
     'file2' with boxes fs solid 0.50, \
     'file3' with boxes fs solid 0.75, \
     'file4' with boxes fill pattern 1, \
     'file5' with boxes fill empty
```

Boxplot

boxplot $O!"CM$NE}7WE*$JJ,I[$rI=8=9k0lHIE*$JJ}K!$G$9!#;MJ,0L6-3&$O!"1/4 $NE@$,Bh0l;MJ,0L6-3&0J2<NCMr;}Dh$&$K!"1/2 $NE@$,BhFs;MJ,0L6-3&(%a%8%"%s)0J2<NCMr;}Dh$&$K!"Ey$H7hDj$5l^$9!#Bh0l;MJ,0L$HBh;0;MJ,0L$N4V$NNN0h$r0C$`h&$KH"$rIA2h$7!"%a%8%"%sCM$NH3mK$O?eJ?@~$rIA$-$^$9!#H"$R2O!"H"$+$i%f!<%6;XDj8B3&$^$G1dD9$5$l$^$9!#$=$liN8B3&$N30$K$"$kE@$O!"$RHDRH$DIA2h$5l^$9!#



Nc:

```
# x :BI8$O 1.0!"y $O 5 NsL\$NCM$N$H$3$m$K boxplot $rG[CV
plot 'data' using (1.0):5


# >e$HF1$8$@$,!"HCOC30$NE@$O1#$7!"boxplot $NI}$r 0.3 $K$9$k
set style boxplot nooutliers
plot 'data' using (1.0):5:(0.3)
```

%G%U%)%k%HGO!"using ;XDjKh$k2 NsL\$Ny N9YFNCMKBP9kboxplot $r1 D@$1@8@.7^$9!#7+ $7!"DI2C$N(4 $DL\$N) Ns$r;XDj$9kH!"$=$NNsNCMr$"$k0x;RJQ?t$NN%;6E*$J%l%Y%kCMG"kH8+$J$7!"$= $NN%;6CM$N%l%Y%kNCMN?t$@$1$N boxplot $rIA2h$7$^$9!#$=$liN boxplot $N4V3V$O%G%U%)%k%HGO1.0 $G$9 $,!"$3lO **set style boxplot separation** $GJQ99$G$-$^$9!#%G%U%)%k%H$G$O!"0x;RJQ?t$NCM$O!"3F boxplot $N2<($^$?$O>e) $NL\@9$j$N%i%Y%k$KI=<(7^$9!#

Nc

```
# 'data' $N 2 NsL\$O "control" $+ "treatment" $N$$:$l$+$NJ8;zNs$G
# 0J2<$NNc$O!"$=$N0x;RKh$N 2 $D$N boxplot $r@8@.$9$k
plot 'data' using (1.0):5:(0):2
```

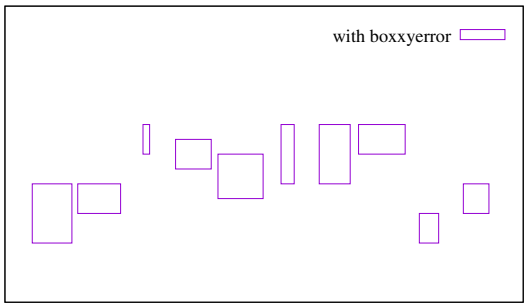
$=$NH"$N%G%U%)%k%H$NI}$O **set boxwidth** <**width**> $G@_Dj$G$-$^9,!"plot %3%^%s%I$N **using** Kh$k3 HVL\$N%*%W%7%g%sNsGb;XDjG-$^$9!#1 HVL\$H3 HVL\$NNs(x :BI8$HI}) $ODL>o%G!<%?Ns$GOJ$/Dj?t$H7FM?$($^$9!#

%G%U%)%k%HGO!"H"R2$OH"$NC<$+$i!"y NCM,;MJ,0IHOOO$N1.5 G\$NCf$K<}$^OF$$$F:G$bN%$l$F$$$kh&$JE@$^$G1dD9$5l^$9!#%G%U%)%k%H$G$O!"HOOO3O$NE@(outlier) $O1_(pointtype 7) GIA+l^$9!#H"$R2NC<$NK@$NI}$O **set bars** $^$?$O **set errorbars** $r;H$C$F@)8f$G$-$^$9!#

3liN%G%U%)%k%H$N@-<A$O **set style boxplot** %3%^%s%I$GJQ99$G$-$^$9!#0J2<;2>H: **set style boxplot (p. 170)**, **bars (p. 128)**, **boxwidth (p. 117)**, **fillstyle (p. 171)**,**candlesticks (p. 55)**!#

Boxxyerror

boxxyerror IA2h%9%?%$%k$O2<!85$N%G!<%?IA2h$GN_MxMQ2DG=$G$9!#3l$O!"**xyerrorbars** %9%?%$%k$,@~J,$N8r:9$GI=8=$9kH3m$rD9J}7A$GI=8=9k3H$r=|$1$P!"$[$\F1$8$G$9!#3l$O!"F~NO%G!<%?$N4Ns!"$^$?$O6Ns $r;HMQ$7$^$9!#M>J,$JF~NONs$O!"variable 9TdEIjDY$7?'$N>pJs$,Ds6!$5l?bNH7$F;HMQ$5l^$9(0J2<;2>H: **rgbcolor variable (p. 42)**)!#




```
4 Ns:  x  y  xdelta  ydelta
6 Ns:  x  y  xlow  xhigh  ylow  yhigh
```

H"$NI}$H9b5O **xyerrorbars** %9%?%$%kF1MMx, y $N8m:9$+$i7hDj$5l^9D$^$j!"xlow $+$i xhigh $^$G$H ylow $+$i yhigh $^$G!"$^$?$O x-xdelta $+$i x+xdelta $^$G$H y-ydelta $+$i y+ydelta $^$G!#3liO2?Ns$N%G!<%?$,M?$($ilF$$$k$+$KhC$F7h$^j^$9!#

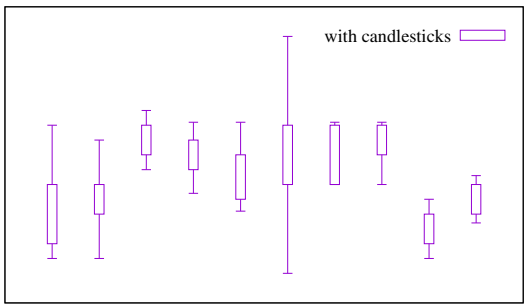
6 Ns$N7A<0$N%3%^%s%I$O!"G$0U$Nx, y $NI}$ND9J}7A$r=q$/4JC1$JJ}K!$rDs6!7^$9!#

F~NONs$rDI2C(5,7 NsL\) 9k$H!"$=li$O3F%G!<%?E@Kh$Nvariable color >pJs(0J2<;2>H: **linecolor (p. 41)**, **rgbcolor variable (p. 42)**) G"kH7F;Hol$^$9!#

H"$NFbIt$O8=:_NEIjDV$7%9%?%$%k(fillstyle) $K=>$CFEIil^$9!#\:Y$O!"0J2<;2>H: **set style fill (p. 171)**, **boxes (p. 52)**!#plot %3%^%s%I>e$G?7$7$$EIjD$V$7%9%?%$%k$r;XDj9k3HbG$-$^$9!#

Candlesticks

candlesticks %9%?%$%k$O!"6bM;%G!<%?$N2 <!85$N%G!< %?IA2h!"$*$h$SE}7W%G!<%?$NR2IU$-$NK@%0%i%U$r@8@. 9kNK;H$($^$9!#5-9f$O!"?eJ?J}8~KOx $rCf?4$H$7!" ?bD>J}8~$K$O3+;OCM(open) $H=*CM(close) $r6-3&$H9k D9J}7A$,;H$ol^$9!#$=7F!"$=$Nx :BI8NH3m$KD9 J}7A$NFCZs$+$i:G9bCM(high) $^$G$H!"D9J}7A$ND l$+ $i:G0BCM(low) $^$G$N?bD>@~$,0z$+$l$^$9$,!"$3$N?bD> @~$O:G9bCM$H:G0BCM$,F~lBXoCF$bJQ9$5l^$;$s!#



4pK\E*$K5 Ns$N%G!<%?$,I,MW$G$9:

```
6bM;%G!<%?:   date  open  low  high  close
H"$R$2IA2h:   x  box_min  whisker_min  whisker_high  box_high
```

D9J}7A$NI}$O%3%^%s%I**set boxwidth** $G@)8f$G$-$^$9,!"0JA0$Ngnuplot XN8eJ}8_49@-H7$F!"boxwidth %Q%i%a!<%?$,@_Dj5l$F$$$J$$>l9g$O**set errorbars <width>** $G@)8f$5lkh&KJCF$$^$9!#

3lNBeojK!"H"$R$2(box-and-whisker) $N%0%k!<%W2=$K4X9kL@<(E*$JI}$N;XDj$r!"DI2C$N6HVL\$N%G!< %?$G;XDj$G$-$^$9!#$=$NI}$O!"x :BI8$HF1$8C10L$GM?$(J1lP$$$1$^$;$s!#

F~NCNs$rDI2C(6 NsL\!"$^$?$O6 NsL\$,%G!<%?$NI}$H7F;Hlk>l9g$O7 NsL\) 9k$H!"$=li$O3F%G!<%?E@ Kh$Nvariable color >pJs(0J2<;2>H:**linecolor (p. 41)**, **rgbcolor variable (p. 42)**) H7$F;H$ol^$9!#

%G%U%)%k%HGO!"1tD>@~J,NFCZsHD lKO?bD>$K8r$o$k?eJ?@~$O0z$+$l$^;$s!#$=$l$r0z$-$?$>l9g!"Nc$($PE57?E*JNcOH"$R$2?^(box-and-whisker plot) GN;HMQG9$,!"IA2h%3%^%s%I$K%-!<%o!<%I **whiskerbars** $rDI2C$7F/$@$5$$!#%G%U%)%k%HGO!"?eJ?@~$OH"(candlestick) $N?eJ?I}0lGU$K0z$+$l$^$9$,!"$=lOA4BN$N I}$KBP9k3d9g$r;XDj$9k3HGJQ9G-$^$9!#

6bM;%G!<%?$NDL>o$N47=,GO!"(3+;OCM) < (=*CM) $N>l9g$OD9J}7A$O6u$G!"(=*CM) < (3+;OCM) $N>l9g$OEI$j DY$5l^$9!#8=:_$Nfillstyle $K"empty" $r%;%C%H$7$F$$$k>l9g$O!"<B:]$K3&Jj$^$9!#0J2<;2>H: **fillstyle (p. 171)**!#fillstyle KEIjDY$7!"$^$?$O%Q%?!<%s$r%;%C%H$7$F$$$k>l9g$O!"3+;OCM!"=*CM$K4X78J/!"9Y$F $NH"$K$=$l$,;H$ol^$9!#0J2<;2>H: **set errorbars (p. 128)**,**financebars (p. 58)**!#$^$?!"0J2<$b;2>H$7$F $/$@$5$$!#candlestick

$Hfinance

$N%G%b!#

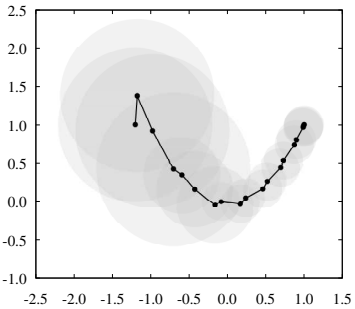
Cm0U:Cfl{CM$rI=$9$?$a$N5-9f$JIrDI2C7?$>l9g!"0J2<$NNc$N%h$&$K!"$R$2IU$-$NK@%0%i%U$KB>$NIA2h%3 %^%s%I$rDI2C9kI,MW$,$"j^$9:

```
# %G!<%?Ns:   X ':G>.CM' '1/4 0L$NCM' 'Cfl{CM' '3/4 0L$NCM' ':GBgCM'
set errorbars 4.0
set style fill empty
plot 'stat.dat' using 1:3:2:6:5 with candlesticks title 'Quartiles', \
     ''         using 1:4:4:4:4 with candlesticks lt -1 notitle

# $R$2$N>e$K?eJ?@~$rH<$&IA2h$G!"?eJ?@~$NI}$rA4BNI}$N 50% $K$9$k
plot 'stat.dat' using 1:3:2:6:5 with candlesticks whiskerbars 0.5
```

0J2<;2>H: **set boxwidth (p. 117)**, **set errorbars (p. 128)**, **set style fill (p. 171)**, **boxplot (p. 53)**!#

Circles



circles **set style circle** **set style fill (p. 171)**

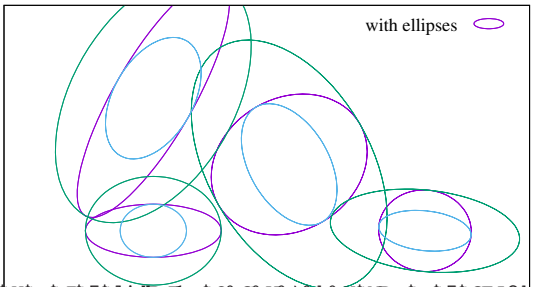
```
# LL@Q$, 3 NsL\$NCM$KHfNc$9$k$h$&$J1_$rIA2h
set style fill transparent solid 0.2 noborder
plot 'data' using 1:2:(sqrt($3)) with circles, \
     'data' using 1:2 with linespoints

# 1_$NBe$o$j$K%Q%C%/%^%s$rIA2h
plot 'data' using 1:2:(10):(40):(320) with circles

# %$%s%i%s%G!<%?$G1_%0%i%U$rIA2h
set xrange [-15:15]
set style fill transparent solid 0.9 noborder
plot '-' using 1:2:3:4:5:6 with circles lc var
0    0    5    0    30    1
0    0    5   30    70    2
0    0    5   70   120    3
0    0    5  120   230    4
0    0    5  230   360    5
e
```

pointstyle 7 variable **points** circles **set object circle (p. 154)**, **fillstyle (p. 171)**

Ellipses



ellipses (ellipse)

```
2 Ns: x y
3 Ns: x y major_diam
4 Ns: x y major_diam minor_diam
5 Ns: x y major_diam minor_diam angle
```

set style ellipse (p. 174) **set style ellipse (p. 174)** ellipse

0L$N8~$-$N3QEY$N;XDjH7$F;H$ol^$9!#BJ1_$O!"3,4,5 NsNCMOIiNCMH7F;XDj9k3H$G!"$=li$N%G%U%)%k%H$NCM$rMxMQ$7$FBJ1_$r=q$+$;k3HbG-$^$9!#

>eN9YF$N>19g$G!"variable color %G!<%?$r:G8e$NNs(3,4,5,6 NsL\) H7$FDI2C$G$-$^$9!#>\:Y$O0J2<;2>H: **colorspec (p. 41)**!#

%G%U%)%k%HGO!"<g<4D>7B$O?eJ?<4(x $^$?$O x2) $NC10L!"I{<4D>7B$O?bD><4(y $^$?$O y2) $NC10L$G$"$kH_J5l^$9!#$3lO!"x <4$Hy <4$N=L<\$,0[Jk>19g!"<g<4$HI{<4$NHf$O2sE>8e$K$O@5$7$/$OJi$J$$!"$H$$$&3H$r0ULH$7$F$$$^$9!#$7$+$7$3$N5sF0$O!"%-!<%o!<%I **units** $GJQ99$G$-$^$9!#

3l$K4X$7FO!"3 <dN'$NBeMQIJ$,$"$j$^$9: **units xy** $,IA2h;XDj$K4^$^$l$F$$$k>19g!"$=$N<4$O>e$K=RY?h&$K=L<\$5l^$9!#**units xx** H9kH!"D>7B$ON><4$H$b x <4$NC10L$G7W;;$5$l!"**units yy** $ON><4$H$b y <4$NC10L$G7W;;$5l^$9!#8e$N2 DO!"IA2h$N%5%$:$rJQ99$7Fb!"BJ1_$O@5$7$%"%9%Z%/%HHf$r;}A^$9!#

units $r>JN,$7$?>19g$O!"%G%U%)%k%H$N@_Dj$,;HMQ5l!"**units xy** HJj^9,!"3l$O!"**set style ellipse** $G:FDj5A2DG=$G$9!#

Nc(BJ1_$rM-8z$J@~<o$r<~4|E*$K;HMQ7FIA2h):

```
plot 'data' using 1:2:3:4:(0):0 with ellipses
```

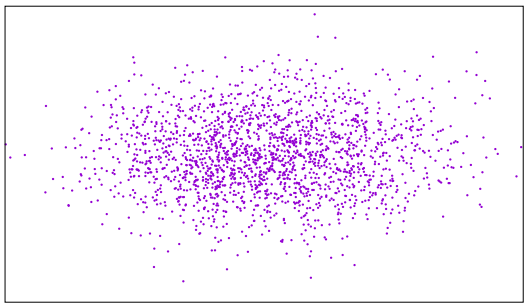
0J2<$b;2>H: **set object ellipse (p. 153)**, **set style ellipse (p. 174)**, **fillstyle (p. 171)**!#

Dots

dots %9%?%$%k$O3FE@$K>.$5$J%I%C%H$rIA2h7^$9!#$3lO$?$/5s$NE@$+iJ$k;6I[?^$NIA2h$KJXMx$G$7g$&!#2<!85IA2hGO1 Ns!"$^$?$O2 Ns$NF~NO%G!<%?$,!"3<!85IA2h$G$O3 Ns$N%G!<%?$,I,MW$G$9!#

=PNO7A<0KhCF$O(post, pdf JI)!"%I%C%HNBg-5O linewidth $rJQ99$9k3HG@)8fG-k3Hb$"$j$^$9!#

```
1 Ns:   y          # x $O9THV9f
2 Ns:   x  y
3 Ns:   x  y  z    # 3D $N$_ (splot)
```



Filledcurves

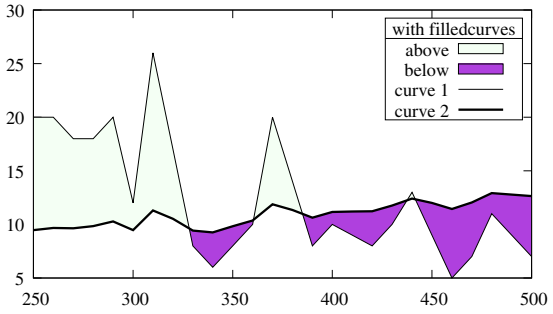
%9%?%$%k **filledcurves** $O2<!85IA2h$GN_MxMQ7^$9!#$3lO3<dN'$N0[$J$k;XDj$,2DG=$G$9!#:G=i$N2<dN'$O1DN4X?tIA2h!"$"$k$$$O(x,y) 2 Ns$NF~NO%G!<%?$bNG!"8e$G>R2p$9kh$&$K%*%W%7%g%s$G99$J$k;XDj$,G-$^$9!#

=q<0:

```
plot ... with filledcurves [option]
```

$3$3$G!"%*%W%7%g%s$O0J2<N&AN$$:l+$G$9:

```
[closed | {above | below}
{x1 | x2 | y | r}[=<a>] | xy=<x>,<y>]
```



:G=iNbNO **closed** $G!"$3lO6J@~$=$l<+?H$rJDB?3Q7A$H8+J7$^$9!#F~NO%G!<%?$,2Ns$N>19gKO3l$,%G%U%)%k%H$G$9!#

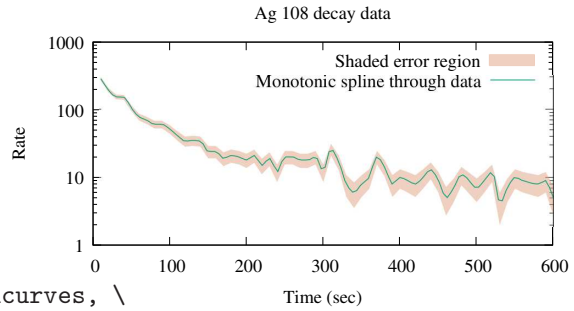
2<dN'L\$O;XDj5l$?<4!"$"$k$$$O?eJ?@~!"?bD>@~!"M?$($il?E@JI$H!"6J@~$H$N4V$K:nil$kNN0h$rEIjDV7$^$9!#

```
filledcurves closed    ... CzEYJD6J@~$G0O$^$l$kNN0h
filledcurves x1        ... x1 <4
```

```
filledcurves x2        ... x2 <4 (y1, y2 <4$bF1MM)
filledcurves y=42      ... D>@~ y=42, $9$J$o$A x <4$HJ?9T
filledcurves xy=10,20 ... x1,y1 <4$G$NE@ 10,20 (@p7?$N$h$&$J7A>u)
filledcurves above r=1.5  6K:BI8$G$NF07B<4$N 1.5 $N30B&$NNN0h
```

3 <dN'L\$O!"x :BI8$N=89g$,F1$8$G$"$k2 DN6J@~$N4V$N NN0hrEIjDY7^$9!#$3$1$O!"(x, y1, y2) $N3 Ns$NF~NO %G!<%?$,I,MW$G$9!#F~NO%G!<%?$, 3 Ns0J>e$N>19g$K$O$3 1,%C%U%)%k%H$G$9!#2 NsL\$, y NCMG!"3 NsL\$,$=$N8m :9%G!<%?G"$k>19g$O!"IT3ND jNN0h$r1"1F$GI=8=9k3H $,$G$-$^$9!#$3$1$K; w$?3 <!85IA2h%9%?%$%k **zerrorfill** $b;2>H$7F/$@$5$$!#

```
3 Ns:  x  y  yerror
```




```
plot $DAT using 1:($2-$3):($2+$3) with filledcurves, \
     $DAT using 1:2 smooth mcs with lines
```

above $H **below** %*%W%7%g%s$O

```
... filledcurves above {x1|x2|y|r}=<val>
```

$*$h$S

```
... using 1:2:3 with filledcurves below
```

$N7A$N%3%^%s%I$KE,MQ2DG=$G$9!#$IAi$N>19g$G$b!"$3$1$i$N%*%W%7%g%s$OEIjDV7NN0h$r!"6-3&@~!"$^$?$O6-3&6J@~$NJRB&$K@)8B7^$9!#

Cm0U: 3NIA2h%b!<%I$OA4$F$N=PNO7A<0$G%5%]!<%H$5$1kH$O8B$j$^$;$s!#

3 Ns$N%G!<%?IA2h$G$O!"x= $H y= $N%-!<%o!<%I$OL5;k7^$9!#

%G!<%?%U%!%$%k$+iIA+1?6J@~NEIjDV7r3HBg9k$H!"2?$bJ/JC$?$j@5$7$/$J$$NN0hKJk3H,$"$j$^$9$,!"$=1O gnuplot $,!"NN0h$GOJ$/E@$d@~$r%/%j%C%T%s%0$7$F$$k$+$i$G$9!#

<x>, <y>, <a> $,IA2hNN0h$N30K"$k>19g!"$=1i$O%U%N6-3&$X0\F0$5$1$^$9!#hC$F!"%*%W%7%g%s xy=<x>,<y> $r;XDj$7$?>19g$N<B:]NEIjDV$7NN0h$O!"xrange $dyrange $K0MB8$7$^$9!#

EIjDY7$NB0@- (fill properties)

with filledcurves GNIA2h$O!"fillstyle (solid/transparent/pattern) $dfillcolor $r;XDj$9k3HG5i$K%+%9%?%^%s%:$G$-$^$9!#plot %3%^%s%I$Gfillstyle (**fs**) $r;XDj$7$J1$1$P!"8=:_$N%G%U%)%k%H$Nfill %9%?%$%k$r;HMQ$7$^$9!#0J2<; 2>H: **set style fill (p. 171)**!#plot %3%^%s%I$Gfillcolor (**fc**) $r;XDj$7$J1$1$P!"DL>o$N@~<o (linetype) $N?'Ns$K=>$$^$9!#

fillstyle $NB0@-$N{{no}border} $O!"filledcurves $N%b!<%I%G%)%k%H$N **closed** G"$k>19g$K<u$1IU$1$^$9!#Nc:

```
plot 'data' with filledcurves fc "cyan" fs solid 0.5 border lc "blue"
```

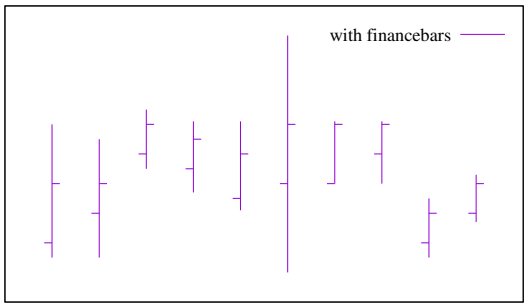
Financebars

financebars %9%?%$%k$O6bM;%G!<%?$N2<!85$N%G!<%?IA2hGN_MxMQ2DG=$G$9!#$3$1$O!"IU$H!"4 DNy :BI8(6b3[) rI,MWH7^$9!#

```
5 Ns:   date  open  low  high  close
```

F~NONs$rDI2C(6 NsL\) $9%k$H!"$=$1iO3F9TKh$Nvariable color >pJs(0J2<;2>H: **linecolor (p. 41)**, **rgbcolor variable (p. 42)**) H7$F;H$o1^$9!#

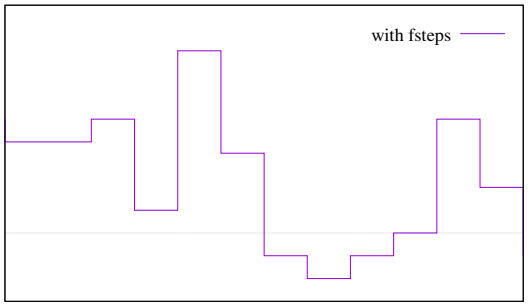
5-9f$O! "?eJ?J}8~$KO=$Nx :BI8$KCV$+$l! "?bD>J}8~KO :G9bCM(high) $H:G0BCM(low) $rC<$H9k@~J,$,;H$ol^ $9! #$=7F! "$=$N@~J,$K?eJ?:8B&$N9o$_$,3+;OCM(open) $N=j$K! "?eJ?1&B&$N9o$_$,=*$jCM(close) $N=j$KD-$^$9! # $=$N9o$_$ND9$5$O**set errorbars** $GJQ99$G$-$^$9! #5-9f $O:G9bCM$H:G0BCM$,F~$lBXoCFbJQoj$^$;$s! #0J2< ;2>H: **set errorbars (p. 128)**,**candlesticks (p. 55)**! # 0J2<$b;2>H$7F/$@$5$$! #6hM;%G!<%?%G%b!#



Fsteps

fsteps %9%?%$%k$O2<!85IA2hGN$_MxMQ2DG=$G$9! #3$l$O 2 K\$N@~J,GNYj9g$&E@$rDJ$.$^$9: 1 K\L\$O(x1,y1) $+$i(x1,y2) $^$G! "2 K\L\$O(x1,y2) $+$i(x2,y2) $^$G! # F~NCNs$N>r7o$O! "**lines** $d**points** KBP9kbNHF1$8$G $9! #**fsteps** $H**steps** $NOc$$$O! "**fsteps** $O! "@^$l@~$r@h$K y J}8~$K=q$$$F$+$i<!$K x J}8~$K=q$/$N$KBP$7! "**steps** $O@h$K x J}8~$K=q$$$F$+$i<!$K y J}8~$K=q$-$^$9! #

0J2<$b;2>H**steps** %G%b!#

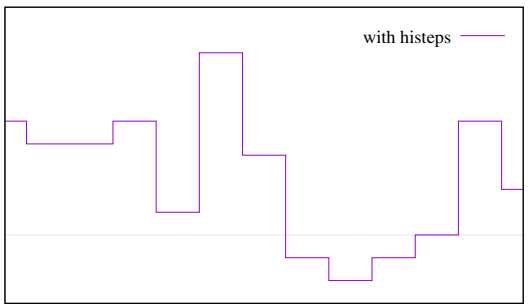


Fillsteps

fillsteps %9%?%$%k$O! "**steps** H[$\F1$8G9$,! "6J@~$H y=0 HN4V$NNN0h$r8=:_$N fillstyle GEIjDY7^$9! #0J 2<;2>H: **steps (p. 66)**! #

Histeps

histeps %9%?%$%k$O 2<!85IA2hGN$_MxMQ2DG=$G$9! # 3l$O%R%9%H%0%i%'$NIA2hGNMxMQ$r0U?^7F$$$^$9! # y NCMO! "x NCMrCf?4KCV/$H9M$(! "x1 GNE@$O ((x0+x1)/2,y1) $+$i((x1+x2)/2,y1) $^$G$N?eJ?@~$H$7 $FI=8=$5l^$9! #C<$NE@GO! "$=$N@~O=$Nx :BI8$,Cf ?4KJkh$&$K1dD9$5$l$^$9! #NY$j9g$&E@F1;N$N?eJ?@~ $NC<$O! "$=$NN><T$NJ?6QCM$NH3mG$N1tD>@~! "$9Jo $A((x1+x2)/2,y1) $+$i((x1+x2)/2,y2) $N@~J,$G7kPl $^$9! #F~NCNs$N>r7o$O! "**lines** $d**points** KBP9kbNH F1$8$G$9! #



autoscale $,M-8z$G$"$k>19g! "x $NHC0O$O! "$=$N1dD9$5$l$??eJ?@~$NHC0OGOJ/! "%G!<%?E@$NHC0O$,A*Br5l $^$9! #hC$F! "C<$NE@$K4X$7FO$=$N?eJ?@~$OH>J,$7$+IA$+lJ$$$3HKJj$^$9! #0J2<$b;2>H**steps** %G%b!#

Histograms

%9%?%$%k **histograms** $O2<!85IA2h$GN_M-8z$G$9! #3l$O! "%G!<%?$N3FNsNUBS$+$iJ?9T$JK@%0%i%U$r:n j^$9! #**plot** %3%^%s%I$N3FMWAG$O! "$=lK4X9kL\@9jNCM$dK^Nc(key) $N%?%$%H%k$,IUB0$9k+bCNl$^$; s,! "C10l$NF~NC%G!<%?%r;XDj$9kI,MW,$"$j$^$9(Nc$($PF~NO%U%!%$%k$N1 DNNs)! #8=:_$O! "4<dN'$N%R%9 %H%0%i%'7A<0$N%9%?%$%k$r%5%]!<%H$7$F$$$^$9! #

```
set style histogram clustered {gap <gapsize>}
set style histogram errorbars {gap <gapsize>} {<linewidth>}
set style histogram rowstacked
```

```
set style histogram columnstacked
set style histogram {title font "name,size" tc <colorspec>}
```

%G%U%)%k%H$N%9%?%$%k$O**set style histogram clustered gap 2** $KBP1~$7$F$$$^$9!#$3$N%9%?%$%kGO!"JB Ns$K;XDj$5l?%G!<%?NCMN=89g$O!"A*Br$5l?%G!<%?NsN=N=l>lN=xNs(9THV9f) $KBP1~$9$kx:BI8 $N>l=j$K!"3F!9H"$N%0%k!<%W$H7F8GailFCV$+$l$^$9!#hC$F!"<n> 8D$N%G!<%?Ns$rJBNs$K;XDj7?>l 9g!":G=i$N8G$^jO x=1 $rCf?4$H9k<n> 8D$NH"$N8G$^$j$+$iJj!"$=$N3F!9$N9b$5$O!"$=$N<n> %G!<%? Ns3F!9$N:G=i(1 9TL\) NCM,<hil$^$9!#$=$N8e$K>/$76uGr(gap) $,6u$1il!"<!$K3F%G!<%?Ns$N<!(2 9TL\) NCMKBP1~9kH"$N8G$^j, x=2 $rCf?4$H7FCV$+$l$^$9!#0J2<F1MM$G$9!#%G%U%)%k%H$N6uGr(gap) I}$N2 $O!"H"$N8G$^$jF1;N$N4V$N6uGr$,!"H"2 DNI}KEy7$$3Hr0UL#7^$9!#F1$8NsKBP9$kH"$OA4$FF1$8?'$^ $?$OF1$8%Q%?!<%s$GM?$($il^$9(0J2<;2>H: **set style fill (p. 171)**)!#

H"$N8G$^j=l>lO!"%G!<%?%U%!%$%k$N1 DN9T$+$iF@il$^$9!#$=$Nh&$JF~NO%U%!%$%k$N3F9T$N:G=i$N 9'L\$,8+=P$7(%i%Y%k) Gk3H$ONI/$"k3HG$9!#$=NNsK$"$k8+=P$7(%i%Y%k) $O!"**using** $K**xticlabels** %*%W%7%g%srDlk3H$G!"$=lKBP1~9kH"$N8G$^jN?2<$Nx<4$Klh$C$?H3mKCV/3H$,$G$-$^$9!#

errorbars %9%?%$%k$O!"3F%(%s%H%jKBP7$FDI2C$NF~NONsrI,MWH9k0J30$O**clustered** %9%?%$%kKHFb NI$/;w$F$$$^$9!#:G=i$NNs$O!"**clustered** %9%?%$%k$N>l9g$HA4$/F1MM$KH"$N9b$5(y $NCM) H7$FJ];}$5l^$9!#

```
2 Ns:       y yerr          # @~$O y-yerr $+$i y+err $X?-$S$k
3 Ns:       y ymin ymax     # @~$O ymin $+$i ymax $X?-$S$k
```

8m:9@~$N8+$?L\$O!"8=:_$N**set errorbars** NCMH<linewidth> %*%W%7%g%s;XDj$G@)8f$G$-$^$9!#

@Q$_>e$27?$N%R%9%H%0%i%'$b2 DN7A<0$,%5%]!<%H$5lF$$$^$9!#$=li$O%3%^%s%I**set style histogram {rowstacked|columnstacked}** $GA*Br$G$-$^$9!#$3li$N%9%?%$%kK*$$F!"A*Br5l$?Ns$N%G!<%?NCMO @Q$_>e$2il$?H"$H7F=8ail^$9!#@5$NCM$O!"y=0 $+$i>e$NJ}$X@Q$_>e$2il!"INCMO2<$X8~$+CF@Q $_>e$2il$^$9!#@5NCMHIiNCM,:.8CF>19g$O!">e8~$-$H2<8~$-$NN>J}$N@Q$_>e$2$,@8@.$5l^$9!#%G %U%)%k%H$N@Q$_>e$2%b!<%I$O**rowstacked** $G$9!#

%9%?%$%k**rowstacked** $O!"$^$::G=i$KA*Br5l$?Ns$N3F9TNCMrx<4N=l>lN0LCV$KG[CV$7$^$9:1 9TL\ NCMOx=1 $NH"!"2 9TL\$N$Ox=2!"0J2<F1MM$HJj$^$9!#2 HVL\0J9_$KA*Br$5l?Ns$KBP1~$9$kH"$O!"$=$l iN>e$K@Q$_=EMilF9T$-$^$9!#$=7F7k2LH7$F!"x=1 KG$-$kH"$N@Q$_=EMO!"3FNs$N:G=i$NCM(1 9T L\$NCM) $+$iJj!"x=2 $NH"$N@Q$_=E$M$O3FNs$N2 9TL\$NCM!"JINh$&$KJj$^$9!#F1$8Ns$KBP9kH"$OA4 $FF1$8?'$^$?$OF1$8%Q%?!<%s$GM?$(il$^$9(0J2<;2>H: **set style fill (p. 171)**)!#

%9%?%$%k**columnstacked** $bF1MM$G9,!"3AiO3FH"$N@Q$_>e2O(3F9T$N%G!<%?$N$?$aKi$J$$$3HKJj$^$9!#:G=i$K;XDj$5l?Ns$N3F9T$N%G!<%?$,<h$il^$9!#x=1 $NH"$N@Q$_>e$2$r@8@.$7!"2 HVL\$K;XDj7?Ns$N 3F9T$N%G!<%?$,<h$il^$9!#x=2 $NH"$N@Q$_>e$2!"JINh$&$KJj$^$9!#3N%9%?%$%k$G$O!"3FH"$N?'$O!"%L %s%HV9f$GOJj^$9(9THV9f$+$i7hDj$5l^$9!#

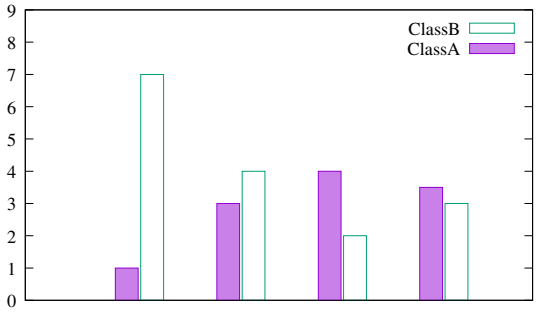
H"$NI}$O%3%^%s%I**set boxwidth** $GJQ99$G$-$^$9!#H"$NEIjD$V$7%9%?%$%k$O%3%^%s%I**set style fill** $G@_Dj G-$^$9!#

histograms $Ox<4$O>o$Kx1<4$r;H$$^9,!"y<4$K4X$7$FO y1<4$+y2<4$+$rA*BrG-$^$9!#plot L?Na$,!" histograms $HB>$N%9%?%$%k$NIA2h$NN>J}$r4^$'>19g!"histogram GJ$J}$O!"x1<4$r;H$&$+x2<4$r;H$&$+$r A*BrG-$^$9!#

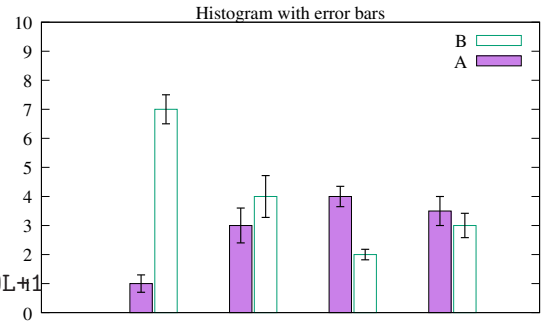
Nc

F~NO%U%!%$%k$O!"2, 4, 6, ... NNsK%G!<%?$r;}$A!"3, 5, 7, ... NNsK8m:9I>2A$r;}$DH7$^$9!#0J2<NNcO!"2 NsL\!"4 NsL\$NCM$rH"$N8G$^$j7?(clustered; %G%U%)%k%H %9%?%$%k) $N%R%9%H%0%i%'$H7FIA2h7^$9!#$3$3$G$O!" plot %3%^%s%I$G7+jUV7(iteration) $r;HMQ$7$F$$$^9N $G!"G$0U$N8D?t$N%G!<%?Ns$r0l$D$N%3%^%s%I$G=hM}G-$^$9!#0J2<;2>H: **plot for (p. 104)**!#

```
set boxwidth 0.9 relative
set style data histograms
set style histogram cluster
set style fill solid 1.0 border lt -1
plot for [COL=2:4:2] 'file.dat' using COL
```

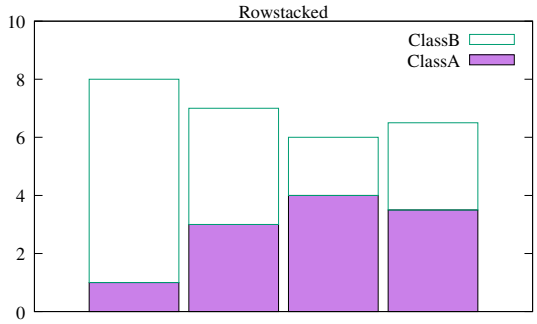


```
plot for [COL=2:4:2] 'file.dat' using COL:xticlabels(1)
```

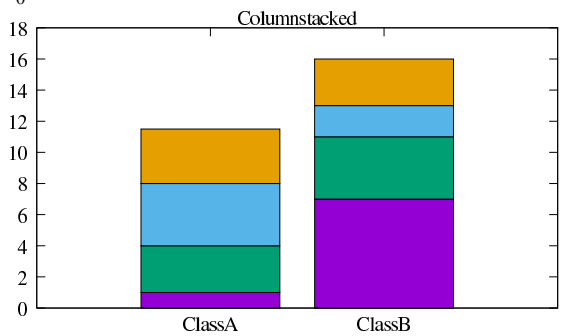



```
set errorbars fullwidth
set style fill solid 1 border lt -1
set style histogram errorbars gap 2 lw 2
plot for [COL=2:4:2] 'file.dat' using COL:COL+1
```

```
set style histogram rowstacked
plot 'file.dat' using 2, '' using 4:xtic(1)
```




```
set style histogram columnstacked
plot 'file.dat' using 2, '' using 4
```




```
set style histogram columnstacked
plot '' u 5:key(1)              # 1
plot '' u 5 title columnhead    #
```

Newhistogram

```
newhistogram {"<title>" {font "name,size"} {tc <colorspec>}}
             {lt <linetype>} {fs <fillstyle>} {at <x-coord>}
```

newhistogram

```
set style histogram  cluster
plot newhistogram "Set A", 'a' using 1, '' using 2, '' using 3, \
     newhistogram "Set B", 'b' using 1, '' using 2, '' using 3
```

%i%Y%k "Set A" $H "Set B" $O!"$=l>lN%R%9%H%0%i%'NAHN2<!"x <4$NA4$F$N%i%Y%k$N2<$N0LCV$K8=ol $^$9!#

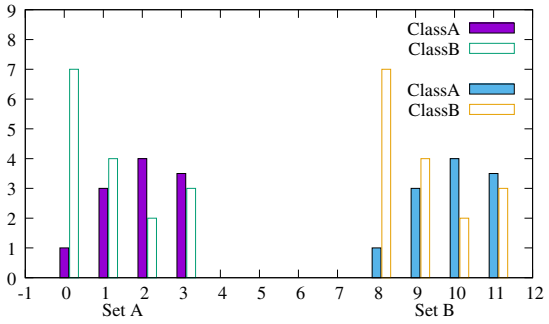
%3%^%s%I newhistogram $O!"%R%9%H%0%i%'$N?'IU1r6/@)E*$K;XDj$7$??'(linetype) $G;O$akNKb;H$($^$9!# %G%U%)%k%H$G$O!"?'$NHV9f$O%R%9%H%0%i%'$N6-3&r^$?$$G5($bO"B3E*$KA}2C$7B3$1$^$9!#<!NNcO!"J#?t $N%R%9%H%0%i%'$KF1$8?'IU$1$r;\$7$^$9!#

```
plot newhistogram "Set A" lt 4, 'a' using 1, '' using 2, '' using 3, \
     newhistogram "Set B" lt 4, 'b' using 1, '' using 2, '' using 3
```

F1MM$K!"<!$N%R%9%H%0%i%'$r;XDj$7$?fillstyle $G;O$a5;k3H,2DG=$G$9!#$=$Nfillstyle $r **pattern** $K%;%C %H$7$?>19g!"EI$jDY7K;HMQ$5$1$k%Q%?!<%sHV9f$O<+F0E*$KA}2C$5$1$F$$$-$^$9!#

%*%W%7%g%s **at <x-coord>** $O!"$=$N8e$N%R%9%H%0%i%'$N x :BI8$N0LCV$r<x-coord> $K@_Dj$7$^$9!#Nc:

```
set style histogram cluster
set style data histogram
set style fill solid 1.0 border -1
set xtic 1 offset character 0,0.3
plot newhistogram "Set A", \
     'file.dat' u 1 t 1, '' u 2 t 2, \
     newhistogram "Set B" at 8, \
     'file.dat' u 2 t 2, '' u 2 t 2
```



3N>19g!"2 $DL\$N%R%9%H%0%i%'$N0LCV$Ox=8 $+$i;O$^$j$^$9!#

J#?tNNsKEO$k<+F0E*$J7+jJV7 (automated)

0lDN%G!<%?%U%!%$%k$N?$/5$sNNs+$i!"0l$D$N%R%9%H%0%i%'$r@8@.7?$>19g!"plot $N7+$jJV$7(iteration) 5!G=$r;H$&$HJXMxG7g&!#0J2<;2>H**plot for (p. 104)**!#Nc:($P!"3 NsL\$+$i8 NsL\$^GN%G!<%?$r@Q$_>e 2?7A$N%R%9%H%0%i%'$r@8@.9kNc:

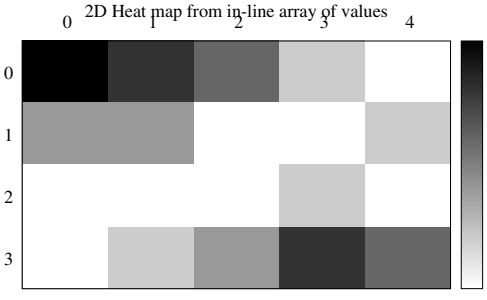
```
set style histogram columnstacked
plot for [i=3:8] "datafile" using i title columnhead
```

Image

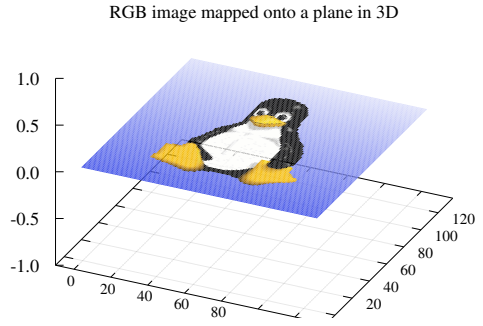
IA2h%9%?%$%k **image**, **rgbimage**, **rgbalpha** $O!"$$$:lb0lMM$KI8K\E@$r<hC?3J;R>u%G!<%?CM$r!"2<!85!" $^$?$O3<!85f$N$"$kJ?LL>e$K<M1F$7$^$9!#F~NO%G!<%?O!"4{K"$k%S%C%^%C%W2hA|%U%!%$%k(PNG Nh$& $JI8=`E*$J%U%)!<%^%C%H$+$iJQ49$7$?bNGh$$) $+!"C1=c$J?tCMG[Ns$G$9!#

3N?^$O!"%9%+%i!<CM$NG[Ns$+$i29EYJ,I[$r@8@.$7$?Nc $G$9(LuCm ?^$,I=<($5$1$F$$$k>19g)!#8=:_$N%Q%1%C%H $r!"3F%9%+%i!<CM$+$iBP1~$9$k%T%/%;%k$N?'XN3d$jEv FK;HMQ7^$9!#

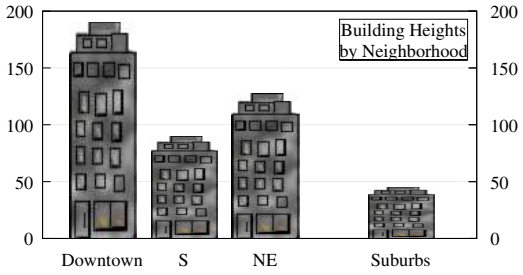
```
plot '-' matrix with image
5 4 3 1 0
2 2 0 0 1
0 0 0 1 0
0 1 2 4 3
e
e
```



F~NO2 <!852hA|$N3F%T%/%;%k(%G!<%?E@) $O! "IA2h%0%i%U Cf$G$OD9U}7A! "$^$?$OJ?9TO;LIBNHJj^$9! #2hA|$N3F %G! <%?E@$N:BI8$O! "U?9TO;LIBN$NCf?4$r7hDj7^$9! #$9$J oA! "M x N 8D$N%G! <%?=89g$OM x N %T%/%;%k$N2hA|$r @8@.7^$9! #$3$1$O! "M x N 8D$N%G! <%?=89g$, (M-1) x (N-1) MWAG$r:n@.9kpm3d $N9=B$$H$OO [$Jj^$9! #%P%$ %J%j2hA|%G! <%?$N3J;R$NAv::J}8~$O! "DI2C%-! <%o! <%I$G$5 iK@)8f2DG=$G$9! #0J2<;2>H: **binary keywords flipx (p. 90),keywords center (p. 90), keywords rotate (p. 90)**! #



3F%T%/%;%k$Nx $Hy NBg-5r<($9$3HG! "2hA|%G! <%? $r2 <!85IA2h:BI87OFb$NFCDj$ND9U}7A$K<}$^$kh&$K?- =L$9k3H,G-$^$9! #0J2<;2>H:**binary keywords dx (p. 90), dy (p. 90)**! #1&$N2hA|$r@8@.9kNK$O! "F1$8 F~NO2hA|$r! "$=1>$1 dx, dy, origin $r;XDj$7$FJ#?t2s G[CV$7$^$7$?! #F~NO PNG 2hA|$G$"$k%S%k$N3($O50x128 %T%/%;%k$G$9! #9b$$%S%k$O! "**dx=0.5 dy=1.5** $G3d$jEv FFIA2h$7! "Dc$$%S%k$O! "**dx=0.5 dy=0.35** H7$F$$^ $9(LuCm ?^$,I=<($5$1$F$$k>19g)! #



%9%?%$%k **image** $O! "%0%1%$%9%1! <%k(3%?'3,D4)! "$^$? $O%+%i! <%Q%1%C%HCM$r4^sG$$k%T%/%;%k$NF~NO$r=hM}7^$9! #$hCF2 <!85IA2h(**plot** %3%^%s%I) GO3 Ns $N%G! <%?(x,y,value) $r! "3 <!85IA2h(**splot** %3%^%s%I) GO4 Ns$N%G! <%?(x,y,z,value) $,I,MW$KJj$^$9! #

%9%?%$%k **rgbimage** $O! "@V! "NP! "@D$N3 DN?'@.J,(RGB) $G5-=R$5$1$?%T%/%;%k$NF~NO$r=hM}7^$9! #$h$C $F **plot** GO5 <!85%G! <%?(x,y,r,g,b) $,! "**splot** GO6 <!85%G! <%?(x,y,z,r,g,b) $,I,MW$KJj$^$9! #@V! "NP! " @D$N3F@.J,$O[0:255] $NHC0CFb$K$"$k$H2>Dj$5$1$^$9! #

%9%?%$%k **rgbalpha** $O! "@V! "NP! "@D$NRGB @.J,$K2C$($F! "%"%k%U%!CM(F)2a%Q%i%a! <%?) $N>pJs$b4^s@ %T%/%;%k$NF~NO$r=hM}7^$9! #$hCF! "**plot** GO6 <!85%G! <%?(x,y,r,g,b,a) $,! "**splot** GO7 <!85%G! <%?(x,y,z,r,g,b,a) $,I,MW$KJj$^$9! #@V! "NP! "@D! "$*$h$S%"%k%U%!$N3F@.J,$O[0:255] $NHC0CFb$K$"$k$H2>Dj$5$1 $^$9! #

F)L@2=(transparency)

IA2h%9%?%$%k **rgbalpha** $O! "F~NO%G! <%?$N3F%T%/%;%k$,[0:255] $NHC0CFb$N%"%k%U%!CM$r;}$C$F$$$kI,MW$,$" j^$9! #alpha = 0 $N%T%/%;%k$O40A4$JF)L@$G! "$=$N2<(1|) $NIA2hMWAG$rA4$/JQ$($^$;$s! #alpha = 255 $N%T %/%;%k$O40A4$JIIF)L@$G$9! #$9YF$N=PNO7A<0$O! "$3$1$i2 DNN>6KC<JCMr%5%]! <%H7^$9! #0 < alpha < 255 $N%T%/%;%k$OH>F)L@$G! "H>F)L@$r%5%]! <%H7F$$$J$=PNO7A<0$G$O! "$=NCMr0 $+255 $N$$:1+$K4]$a $^$9! #

Image pixels

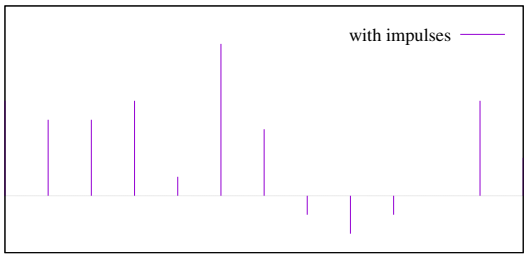
=PNO7A<0KhCF$O! "2 <!85$ND9U}7ANN0hFbGN2hA|%G! <%?IA2h$N! "%G%P%$%9$d%i%$%V%i%j$K0MB8$7$?:GE,2= %k! <%A%s%r;HMQ$7$F$$$^$9! #$3$1$O! "Nc$($P%/%j%C%T%s%0$d?-=L$,$&$^$/J$+C?$j! "1o$,7g1kJI! "K>$^ 7/J$$=PNO$r@8@.$9k3H,$"$j$^$9! #%-! <%o! <%I**pixels** $O! "$=Nh$&$J%k! <%A%sNBeojK! "2hA|$r1 %T%/%;%k$:DIA2h9kh&$J0lHE*$J%3! <%I$r;HMQ$9kh$&gnuplot $K;X<($7$^$9! #3NIA2h%b! <%IGO! "IA 2hOCY/! "HFbBg-$J=PNO%U%!$%k$r@8@.$7$^$9$,! "$I$N=PNO7A<0$G$b6&DIE*$J8+$?L\$r:n@.7F$/$1kk$G 7g$&(%*%W%7%g%s **pixels** $O! "0JA0$NgnuplotでのIA2h$N**failsafe** $H8F$P1F$$$^7?)! #Nc:

```
plot 'data' with image pixels
```

Impulses

impulses %9%?%$%k$O!"2<!85IA2hGOy=0 $+$i3FE@$N y NCMX$N!"3<!85IA2hGOz=0 $+$i3FE@$Nz NCMX$N!" ?bD>$J@~J,$rI=<(7^$9!#y $dz NCMOIiNCMGb$h$$ 3H$KCm0U$7F/$@$5$$!#%G!<%?$NDI2CNs$r3F?bD>@~J, $N?'$N@)8f$KMxMQ$G$-$^$9!#$3$N%9%?%$%k$r3<!85IA2h $G;HMQ$9$k>19g!"B@$$@~(linewidth > 1) $rMxMQ$9kH$h $j8z2IE*$G7g$&!#$=lO3<!85$NK@%0%i%U$K;w$?$b$N KJj^$9!#

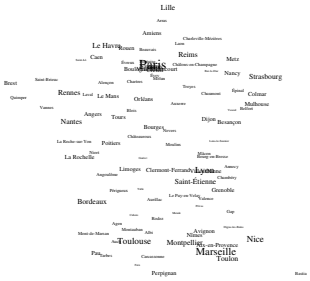
```
1 Ns:  y
2 Ns:  x  y     # [x,0] $+$i [x,y] $X$N@~ (2D)
3 Ns:  x  y  z  # [x,y,0] $+$i [x,y,z] $X$N@~ (3D)
```



Labels

%9%?%$%k **labels** $O!"%G!<%?%U%!%$%k$+$i:BI8$HJ8;zNs rFI_9~$_!"$=$NJ8;zNsr=$N2<!85!"$^$?$O3<!85 :BI8KCV-$^$9!#$3lO4pK\E*$K3Ns!"$^$?$O4Ns$NF~ NO$rI,MWH7$^$9!#5i$KM>J,$JF~NONs$O!"J8;zNs$N2s E>3Q(%-!<%o!<%I **rotate variable**) $dJ8;z?'(0J2<;2>H: **textcolor variable (p. 42)**) Nh$&$J!"E@Kh$KJQF0$9 $kB0@-CM$,;XDj5l$?$H$_$J5l$^$9!#

```
3 Ns:  x  y  string    # 2 <!85HG
4 Ns:  x  y  z  string # 3 <!85HG
```



%U%)%s%H!"?'!"2sE>3Qd=$NB>$NIA2h%F%-%9%H$NB0@-$CDI2C%*%W%7%g%sH7$F;XDj2DG=$G$9(0J2<;2>H: **set label (p. 140)**)!#<!NNcO!"F~NO%U%!%$%k$N1NsL\$+$i<h$C$?;T$NL>A0$+$i:nil$kJ8;zNs$r!"4,5NsL\$+ $i<h$C$?CO?^:BI8$KIA2h7^$9!#%U%)%s%H%5%$%:$O!"3NsL\$NCM$+$i7W;;7F$$$F!"3N>19gO=lO?M8}$r 0UL#$7$F$$$^$9!#

```
CityName(String,Size) = sprintf("{/=%d %s}", Scale(Size), String)
plot 'cities.dat' using 5:4:(CityName(stringcolumn(1),$3)) with labels
```

%U%)%s%H%5%$%:$r!"8D!9$N;I$NL>A0KBP7F0[Jk%5%$%:$K9go;J/$F$$$$JiP!"%3%^%s%IObCH4JC1 $G$9:

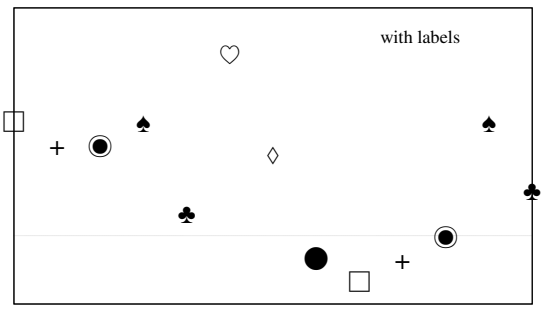
```
plot 'cities.dat' using 5:4:1 with labels font "Times,8"
```

labels $K **hypertext** $,$D$$F$$k>19g!"$=$NJ8;zNs$O%^%&%9$,$=$l$KBP1~$9$kE@$N>eKMh?H-K@$18=$o l^$9!#0J2<;2>H: **hypertext (p. 142)**!#3$N>19g$O%$%Q!<%F%-%9%H$NCV$->l=j$H$7F5!G=$9$kE@$r:nk?$a K=$N%i%Y%k$N**point** B0@-$rM-8z$K9kI,MW$,$"j^$9:

```
plot 'cities.dat' using 5:4:1 with labels hypertext point pt 7
```

%9%?%$%k **points** G"i+8aDj5A5l$F$$$kE@$N5-9f $,E,@Z$G$J$$!"$"$k$$$O==J,GJ$$>19g!"$=$NBeoj$H 7F%9%?%$%k **labels** $r;H$&3HbG-$^$9!#Nc$($P!"0J 2<;2CC10lJ8;zH7$FA*Br$5lkAH$rDj5A$7!"3NsL\$N%G!< %?CM$KBP1~$9k=$N0l$D$r%0%i%U$N3FE@$K3d$jEvFkNc $G$9(LuCm 0J2<;$N%5%s%W%k$N<UTF-8 J8;zNs> $NItJ, KO!"85!9!"4]$KCfE@5-9f$d""!"!\!"%H%i%s%W5-9fJI$N UTF-8 J8;zNs$,JBsG$$^9,!"3NF|K\8lLuHON>N) 7J$$?$a<h$j=|$$F$$^$9):

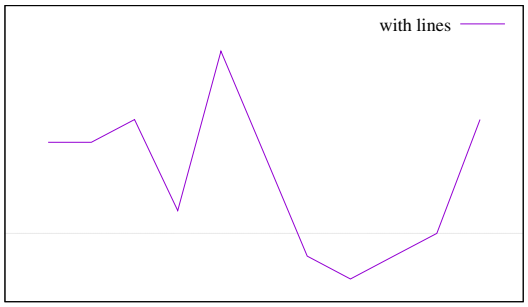
```
set encoding utf8
symbol(z) = "<UTF-8 J8;zNs>"[int(z):int(z)]
splot 'file' using 1:2:(symbol($3)) with labels
```



0J2<;$O!"4NsL\$NCM$r2DJQCM$N2sE>3Q$H$7!"5NsL\$NCM$rJ8;z?'("tc") H9$k%i%Y%k$N;HMQNc$G$9!#2DJQCM$N ?';XDj$O!"><$K **using** ;XDj$N:G8eNNs+$i<h$k3H$KCm0U$7F/$@$5$$!#

```
plot $Data using 1:2:3:4:5 with labels tc variable rotate variable
```

Lines



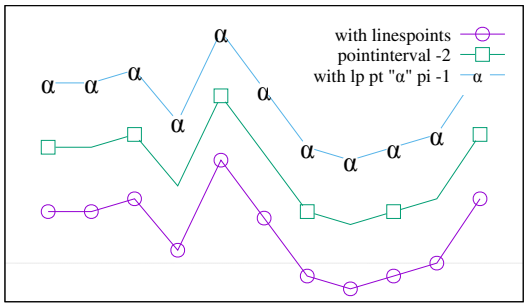
lines %9%?%$%k$ONY@\$9$kE@$r??D>$J@~J,$G7kS^$9!#$3lO!"2 <!85IA2hGb!"3 <!85IA2hGb;HMQG-!"4pK\E*KO!"1 Ns$+2 Ns$+3 Ns$+$NF~NO%G!<%?rI,MWH7^$9!#M>J,$JF~NONs$O!"@~$N?'$NJQ99$JIN>pJs$,Ds6!$5l?bNH7$F;HMQ$5l^$9(0J2<;2>H: **rgbcolor variable (p. 42)**)!#

2 <!85("using" ;XDj$J$7) $N>l9g
    1 Ns: y # 9THV9fKh$k0EL[$N x
    2 Ns: x y

3 <!85("using" ;XDj$J$7) $N>l9g
    1 Ns: z # x $C0EL[$N9THV9f!"y $O index $+$i
    3 Ns: x y z

0J2<$b;2>H: **linetype (p. 142)**, **linewidth (p. 172)**, **linestyle (p. 172)**!#

Linespoints



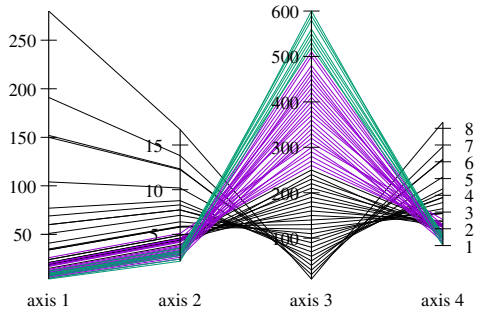
linespoints %9%?%$%k(>JN,7A **lp**) $O!"NY@\$9$kE@$r??$CD>$0$J@~J,$G7k$S!"$=$N8e$G:G=iKLaC$F3FE@$K>.5J5-9frIA-$^$9!#E@5-9f$O!"**set pointsize** $G7h$^$k%G%U%)%k%H$NBg$-$5GIA-$^$9$,!"plot %3%^%s%I>e$GE@$N%5%$%:$r;XDj$7$?$j!"$"$k$$$OF~NO%G!<%?$NDI2ONs$G8DJL$NE@%5%$%:$r;XDj$9k3HbG-$^$9!#DI2C$NF~NONs$O!"8DJL$N@~$N?'JI$N>pJs$rDs6!9kNK$b;H$ol^$9!#0J2<;2>H: **lines (p. 65)**, **points (p. 66)**!#

%0%i%UN9YF$NE@$K5-9f$N0u$rD1k+H]$+$r@)8f9k2 DN%-!<%o!<%I **pointinterval** (>JN,7A **pi**), **pointnumber** (>JN,7A **pn**) $,$"j^$9!#

pi N $"$k$$$O **pi -N** $O!"N 8DKh$K1 D@$15-9f$rCV$/$h$&gnuplot $K;X<($7$^$9!#IiNCMr;XDj9k$H!"5-9f$N2<$N@~J,$NItJ,$r>C$7$^$9!#$=$N>C$9ItJ,$N%5%$%:$O **set pointintervalbox** $G@)8f$G$-$^$9!#

pn N $"$k$$$O **pn -N** $O!"%G!<%?E@$N$&$A N 8D$@$1%i%Y%kIU$1$9kh$&gnuplot $K;X<($7$^$9!#E@O=$N%G!<%?A4BN$KEOCF6QEy$J4V3V$K<hj^$9!#**pi** F1MM!"Ii$NCM$r;XDj$9kH!"5-9f$N2<$N@~J,$NItJ,$r>C7^$9!#

Parallelaxes

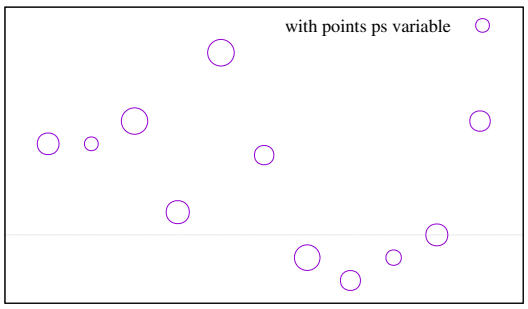


J?9T:BI8IA2h(parallel axis plot, parallel coordinates plot Hb8FPl$k) $O!"B?<!85%G!<%?$NAj4X$r;k3P2=$7$^$9!#3FF~NONs$O!"JL!9$N%9%1!<%k$N=D<4$K3djEvFil$^$9!#F~NO1 9T$+$iFI$_9~$s$@$=l>lNNsNCMO!"1 $DL\$N<4$+$i2 $DL\$N<4$X!"2 $DL\$N<4$+$i3 $DL\$N<4XH@~J,$G7k$Pl^$9!#$9Jo$AJ?9T:BI8IA2hCf$G$O!"F~NO$N3F9T$,$=l>$lFHN)$7$?@^$l@~KJj^$9!#$=li$r?t<oN'$KJ,N'7F?'$r3d$jEvFk3HOh$/9T$ol^9,!"$=$l$O!"$=NJ,N'H<4HN4V$N4X78$r;k3PE*$KD4::$9k3Hr2DG=K7$^$9!#%G%U%)%k%HGO!"gnuplot $O<+F0E*$K8D!9$N<4$NHO0O!"%9%1!<%k$rF~NO%G!<%?$+$i7hDj$7$^$9$,!"DL>o$N **set axis range** %3%^%s%IKhCF$=$l$r%+%9%?%^%$%:9k3H$b2DG=$G$9!#0J2<;2>H: **set paxis (p. 156)**!#

J?9T<4$N:GBg8D?t$O!"gnuplot $N%3%s%Q%$%k;~$K8GDj$5$l!"$=$N:GBgCM$O!"**show version long** $GI=<($5l^$9!#

Points

points %9%?%$%k$O3FE@$K>.$5$J5-9f$rI=<(7^$9!#$=$N5-9f$N%G%U%)%k%HNBg-5rJQ99$9$kKO%3%^%s%I **set pointsize** $,;H$($^$9!#%G%U%)%k%H$NE@<o$O!"@~<o$HF1$8bNKJj^$9!#0J2<;2>H: **linetype (p. 142)**!#plot %3%^%s%I$K **using** ;XDj$,$J$$>19g$O!"F~NO%G!<%?Ns$O2>Dj$5$1$?J}K!$G2r<a$5$1$^$9!#0J2<;2>H: **style lines (p. 65)**!#



:G=i$N8 DNE@<o$O!"$9YF$N=PNO7A<0$G6&DLG9$,!"hjB?$/$NE@<o$r8DJL$K%5%]!<%H9k=PNO7A<0b"j^$9!#8=:_$N=PNO7A<0$N@_DjGINh$&$JE@<o$,MQ0U$5$1$F$$$k$+$r8+kK$O!"%3%^%s%I **test** $r;HMQ$7F/$@$5$$!#$^?!"2<$NNcNh$&$K7F!"G$0U$N0u;z2DG=J8;z$rE@<oHV9f$NBeoj$K;HMQ$9k3HbG-$^$9!#hjD9$$J8;zNs$O!"IA2h%9%?%$%k **points** GOJ/**labels** $r;H$($P=PNO$G$-$^$9!#

```
plot sin(x) with points pt "#"
```

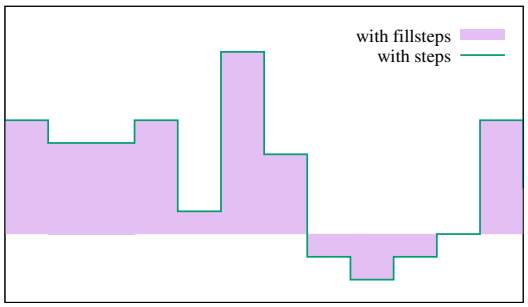
E@<oH7$F!"G$0U$N UTF-8 J8;z$r;HMQG-$^$9!#0J2<;2>H: **utf8 (p. 127)**!# plot %3%^%s%I>e$G%-!<%o!<%I **pointtype**, **pointsize**, **linecolor** $r;H$&:]!"HV9fNBeojK%-!<%o!<%I **variable** $rDI2C$9k3H,G-$^$9!#3$N>19g!"3FE@$NBP1~9kB0@-CM$rF~NO%G!<%?$NDI2CNs$+$i<hF@7^$9!#2DJQ(variable) pointsize CM$O!">o$K **using** ;XDj$GM?$(i1$k:G=i$NDI2CNs$+$i<h$j!"2DJQ color CM$O!">o$K:G8e$NDI2CNs$+$i<hj^$9!#:#$NH3mO!"%9%?%$%k **linespoints** $NIA2h$G@~$HE@$N?'$rJL!9$K;XDj9k3HOG$-$^$;$s!#3FE@KBP7$F3$D$NB0@-$r9Y$F;XDj$9$k>19g$O!"F~NO%G!<%?Ns;XDj$N=gHV$O0J2<Nh$&$KJj$^$9!#

```
plot DATA using x:y:pointsize:pointtype:color \
     with points lc variable pt variable ps variable
```

Cm0U: !V%f!<%6Dj5AJQ?t!W$NJ}$N variable $K4X$9$k>pJs$K$D$$F$O!"0J2<;2>H: **variables (p. 36)**!#

Steps

steps %9%?%$%k$O2<!85IA2hGN$_MxMQ2DG=$G$9!#$3lO2K\$N@~J,GNYj9g$&E@$rDJ$.$^$9:1K\L\$O(x1,y1)$+$i(x2,y1)$^$G!"2K\L\$O(x2,y1)$+$i(x2,y2)$^$G!#F~NONs$N>r7o$O!"**lines** $d**points** KBP9kbNHF1$8$G$9!#**fsteps** $H**steps** $NOc$$$O!"**fsteps** $O!"@^$l@~$r@h$Ky J}8~$K=q$$$F$+$i<!$Kx J}8~$K=q$/$N$KBP$7!"**steps** $O@h$Kx J}8~$K=q$$$F$+$i<!$Ky J}8~$K=q$-$^$9!#6J@~$H%Y!<%9i%$%s$G"$k y=0 HN4V$NNN0h$rEIjDY9KO!"**fillsteps** $r;HMQ$7F/$@$5$$!#0J2<$b;2>H**steps** %G%b!#



Rgbalpha

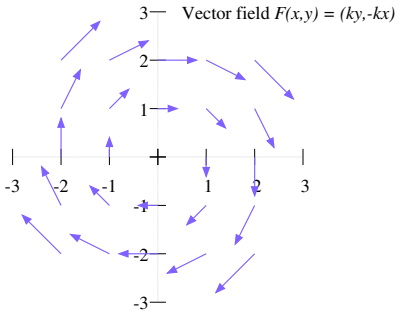
0J2<;2>H: **image (p. 62)**!#

Rgbimage

0J2<;2>H: **image (p. 62)**!#

Vectors

2 <!85$N **vectors** %9%?%$%k$O (x,y) $+$i (x+xdelta,y+ydelta) $^$G$N%Y%/%H%k$r=q$-$^$9!#3 <!85$N **vectors** %9%?%$%k$bF1MMG9$,!"%G!<%?$O4pK\E*$K6 NsI,MW$G$9!#$$$:lN>l9g$b!"F~NONs$rDI2C (2D GO5 NsL\!"3D GO7 NsL\) 9k$H!"$=li$O3F%G!<%?E@Kh$N variable color >pJs (0J2<;2>H: **linecolor (p. 41)**, **rgbcolor variable (p. 42)**) H7$F;H$ol^$9!#3F%Y%/%H%k$N@hC<KO>.5JLp@h$b=q$+l^$9!#




```
4 Ns:  x  y  xdelta  ydelta
6 Ns:  x  y  z  xdelta  ydelta  zdelta
```

%-!<%o!<%I "with vectors" $O!"$=$N8e$m$K!"%$%s%i%$%s$N arrow %9%?%$%k;XDj$d!"$"$i$+$8$aDj5A$5lF$$$k arrow %9%?%$%k$N;2>H!"$"$k$$$ONs$+$i3F%Y%/%H%kKBP9kI,MWJ arrow %9%?%$%k$N%$%s%G%C%/%9$rFI$`$h$&$J;XDj$rH<$&3H$,$G$-$^$9!#Cm0U: "arrowstyle variable" $r;HMQ$9$k>l9g!"BP1~$9$k%Y%/%H%k$,IA2h5l$k:]$KO=l, arrow $NB0@-CM$9YFrKdakNG=$N plot %3%^%s%IFb$KB>$N@~B0@-$d arrow %9%?%$%k;XDj$r3N%-!<%o!<%I$H:.:_$5$;$k3HOG$-$^$;$s!#

```
plot ... with vectors filled heads
plot ... with vectors arrowstyle 3
plot ... using 1:2:3:4:5 with vectors arrowstyle variable
```

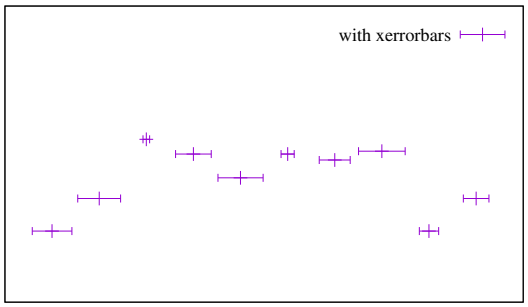
Nc:

```
plot 'file.dat' using 1:2:3:4 with vectors head filled lt 2
splot 'file.dat' using 1:2:3:(1):(1):(1) with vectors filled head lw 2
```

vectors %9%?%$%k$r;HCF$N splot $O **set mapping cartesian** N_$G%5%]!<%H$5lF$$$^$9!#**set clip one** $H **set clip two** $O2 <!85$N%Y%/%H%k$NIA2h$K1F6A$rM?$($^$9!#0J2<;2>H: **set clip (p. 118)**, **arrowstyle (p. 169)**!#

Xerrorbars

xerrorbars %9%?%$%k$O2 <!85$N%G!<%?IA2h$N$_$GMxMQ2DG=$G$9!#**xerrorbars** $O!"?eJ?$N8m:9;X<(@~(error bar)$,I=<($5lk0J30$O**points** $HF1$8$G$9!#3FE@(x,y) K*$$$F (xlow,y) $+$i (xhigh,y) $^$G!"$^$?$O (x-xdelta,y) $+$i (x+xdelta,y) $^$G$N@~J,$,0z$+$l$^$9$,!"$3li$O$$$/DN%G!<%?Ns$,M?$(ilk+KhCFJQoj$^$9!#8m:9;X<(@~$NC<$N9o$_$N0u$N8+$?L\$O!"**set errorbars** $G@)8f$G$-$^$9!#$3$N%9%?%$%k$O4pK\E*$K!"3 Ns$+4 Ns$N%G!<%?$,I,MW$G$9:

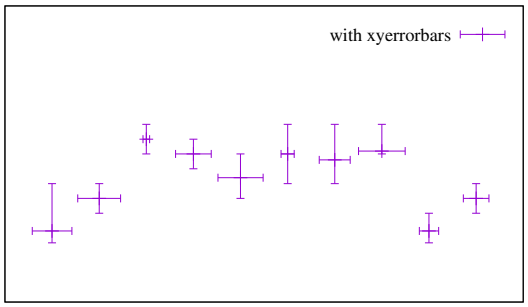



```
3 Ns:  x  y  xdelta
4 Ns:  x  y  xlow  xhigh
```

F~NONs$rDI2C (4,5 NsL\) 9k$H!"$=li$OE@$N variable color >pJsH7$F;H$ol^$9!#

Xyerrorbars

xyerrorbars %9%?%$%k$O2 <!85$N%G!<%?IA2h$N$_$GMx MQ2DG=$G$9!#**xyerrorbars** $O!"?eJ?!"?bD>$N8m:9;X<(@~ (error bar) $bI=<($5$1$k0J30$O**points** $HF1$8$G$9!#3F E@(x,y) K*$$$F(x,y-ydelta) $+$i(x,y+ydelta) $^$G$H (x-xdelta,y) $+$i(x+xdelta,y) $^$G!"$^$?$O(x,ylow) $+ $i(x,yhigh) $^$G$H(xlow,y) $+$i(xhigh,y) $^$G$N@~J, $,0z$+1^9,!"$3$1iO$$$/DN%G!<%?Ns$,M?$(i1 k+KhCFJQoj$^$9!#8m:9;X<(@~$NC<$N9o$_$N0u$N 8+$?L\$O!"**set errorbars** $G@)8f$G$-$^$9!#$3$1$O4 Ns $+!"6 Ns$N%G!<%?$,I,MW$G$9!#




```
4 Ns:  x  y  xdelta  ydelta
6 Ns:  x  y  xlow  xhigh  ylow  yhigh
```

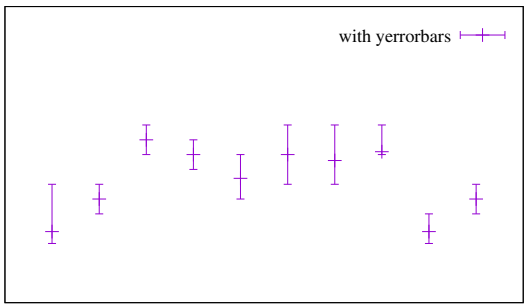
%G!<%?$,!"%5%]!<%H$5$1$F$$J$$:.9g7?$N7A<0$GM?$($i1?>19g!"**plot** %3%^%s%I$N**using** %U%#%k%?$r;HCF E,@Z$J7A$KD>5J$$H$$1$^$;$s!#Nc$($P%G!<%?$,(x,y,xdelta,ylow,yhigh) $H$$$&7A<0G"$k>19g!"0J2<$N$h $&$K7^$9:

```
plot 'data' using 1:2:($1-$3):($1+$3):4:5 with xyerrorbars
```

F~NCNs$rDI2C(5,7 NsL\) 9k$H!"$=1i$O3F%G!<%?E@Kh$N variable color >pJsH7$F;H$o1^$9!#

Yerrorbars

yerrorbars ($^$?$O**errorbars**) %9%?%$%k$O2 <!85$N%G!< %?IA2hN_$GMxMQ2DG=$G$9!#**yerrorbars** $O!"?bD>$N8m:9 ;X<(@~(error bar) $,I=<($5$1$k0J30$O**points** $K;w$F$$ $^$9!#3FE@(x,y) K*$$$F(x,y-ydelta) $+$i(x,y+ydelta) $^$G!"$^$?$O(x,ylow) $+$i(x,yhigh) $^$G$N@~J,$,0z$+ 1^9,!"$3$1iO$$$/DN%G!<%?Ns$,M?$(i1k+$K hCFJQoj^$9!#8m:9;X<(@~$NC<$N9o$_$N0u$N8+$?L\ $O!"**set errorbars** $G@)8f$G$-$^$9!#



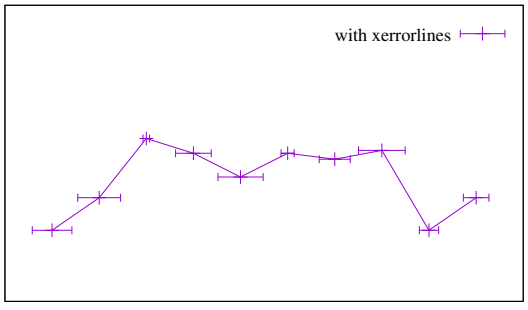

```
2 Ns:  [0EL[$N x]  y  ydelta
3 Ns:  x  y  ydelta
4 Ns:  x  y  ylow  yhigh
```

F~NCNs$rDI2C(4,5 NsL\) 9k$H!"$=1i$OCE@$N variable color >pJsH7$F;H$o1^$9!#

0J2<$b;2>Herrorbar %G%b!#

Xerrorlines

xerrorlines %9%?%$%k$O2 <!85$N%G!<%?IA2h$N$_$GMxMQ 2DG=$G$9!#**xerrorlines** $O**linespoints** $K;w$F$$^$9%,!" ?eJ?$N8m:9@~$,IA$+1kk3H,0c$$^$9!#3FE@(x,y) $G!" %G!<%?Ns$N8D?t$K1~$8$F(xlow,y) $+$i(xhigh,y) $^$G!"$^ $?$O(x-xdelta,y) $+$i(x+xdelta,y) $^$G$N@~J,$,IA$+$1 $^$9!#8m:9@~$NC<$N9o$_$N0u$N8+$?L\$O!"**set errorbars** $G@)8f$G$-$^$9!#4pK\E*$K$O!"3 Ns$+4 Ns$N%G!<%?$,I, MW$G$9:

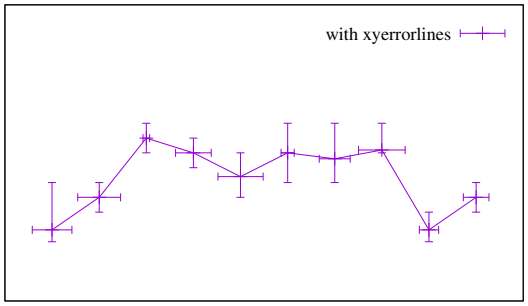



```
3 Ns:  x  y  xdelta
4 Ns:  x  y  xlow  xhigh
```

F~NCNs$rDI2C(4,5 NsL\) 9k$H!"$=1i$OCE@$N variable color >pJsH7$F;H$o1^$9!#

Xyerrorlines

xyerrorlines %9%?%$%k$O 2 <!85$N%G!<%?IA2h$N$_$GMx MQ2DG=$G$9!#**xyerrorlines** $O**linespoints** $K;w$F$$^$9 $,!"?eJ?$H?bD>$N8m:9@~$bIA$+$1k3H,0c$$^$9!#3F E@(x,y) $G!"%G!<%?Ns$N8D?t$K1~$8$F!"(x,y-ydelta) $+$i (x,y+ydelta) $^$G$H (x-xdelta,y) $+$i (x+xdelta,y) $^ $G!"$"$k$$$O(x,ylow) $+$i (x,yhigh) $^$G$H(xlow,y) $+ $i (xhigh,y) $^$G$N@~J,$,IA$+$1$^$9!#8m:9@~$NC<$N9o$_ NOuN8+$?L\$O!"**set errorbars** $G@)8f$G$-$^$9!#$3$1 $O!"4 Ns$+6 Ns$NF~NO%G!<%?$,I,MW$G$9!#




```
4 Ns:  x  y  xdelta  ydelta
6 Ns:  x  y  xlow  xhigh  ylow  yhigh
```

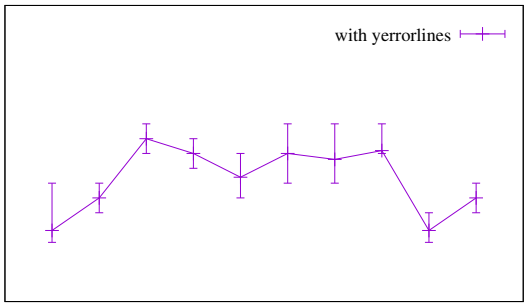
%G!<%?$,!"%5%]!<%H$5$1$F$$J$$:.9g7?$N7A<0$GM?$(B$i1?>19g!"**plot** %3%^%s%I$N **using** %U%#%k%?$r;HCF E,@Z$J7A$KD>5J$$$H$$1$^$;$s!#Nc$(B$P%G!<%?$,(x,y,xdelta,ylow,yhigh) $H$$$&7A<0G"$k>19g!"0J2<$N$h $&$K7^$9:

```
plot 'data' using 1:2:($1-$3):($1+$3):4:5 with xyerrorlines
```

F~NONs$rDI2C(5,7 NsL\) 9k$H!"$=1i$O3F%G!<%?E@Kh$N variable color >pJsH7$F;H$o1^$9!#

Yerrorlines

yerrorlines ($^$?$O **errorlines**) %9%?%$%k$O 2 <!85$N %G!<%?IA2hN_$GMxMQ2DG=$G$9!#**yerrorlines** $O **linespoints** $K;w$F$$^9,!"?hD>$N8m:9@~$,IA$+$1k3H,0c$$^$9!#3FE@(x,y) $G!"%G!<%?Ns$N8D?t$K1~$8$F(x,y-ydelta) $+$i (x,y+ydelta) $^$G!"$^$?$O (x,ylow) $+$i (x,yhigh) $^$G$N@~J,$,IA$+$1$^$9!#8m:9@~$NC<$N9o$_$N0u$N8+$?L\$O!"**set errorbars** $G@)8f$G$-$^$9!#$3$1$O!" 3 Ns$+4 Ns$NF~NO$,I,MW$G$9!#




```
3 Ns:  x  y  ydelta
4 Ns:  x  y  ylow  yhigh
```

F~NONs$rDI2C(4,5 NsL\) 9k$H!"$=1i$OE@$N variable color >pJsH7$F;H$o1^$9!#

0J2<$b;2>H!#% (%i!<%P!<$N%G%b

Zerrorfill

=q<0:

```
splot DATA using 1:2:3:4[:5] with zerrorfill {fc|fillcolor <colorspec>}
          {lt|linetype <n>} {<line properties>}
```

IA2h%9%?%$%k**zerrorfill** $O!"2 <!85$NIA2h%9%?%$%k$N0lDNJQ<oNh$&&$JbN$G$9!#$3$1$O!"2 DN4X?t$N4V!" $^$?$OF1$8x KBP7$F2 DNy :BI8$NE@$rM?$(FF@$i1k%G!<%?$,$^$l@~$N4V$NNN0h$rEIjDY7$^$9!#$3$1 $O!"4 Ns$+5 Ns$NF~NO$,I,MW$G$9!#

```
4 Ns:  x  y  z  zdelta
5 Ns:  x  y  z  zlow  zhigh
```

zlow $H zhigh $N4V$NNN0hrEIjDY$7!"$=$N8e z NCMNH3mK@~rIA-$^$9!#%G%U%)%k%HGO!"$=$N@~$HEI jDY7KOF1$8?'$r;H$$^9,!"$=$N?'$Osplot %3%^%s%I>e$GJQ9G-$^$9!#EIjDY7$N@_Dj$O!"Bg0hE*$J fill style $N1F6A$b<u1^$9!#0J2<;2>H**set style fill**!#

splot %3%^%s%I$KJ#?t$N6J@~$r;XDj$7$?>l9g$O!"8e$KIA$$?6J@~$,!"A0$N9YFN6J@~$rl#$7F7$^$&2DG=@-$,$"j^$9!#8+$k?MB&$N<jA0$N6J@~N_$,l#$9h&$KE,@Z$J?<$5=g$NUBY+$($r9T$&$K$O!"%3%^%s%I **set pm3d depthorder** $r;HMQ$7F/$@$5$$!#;DG0J,$i!"$3lOz NCMKBP1~9k9YFN@^l@~$rIA$$?8e$K!"$9YF$NNN0h$NEIjDY7$r9T$$^$9!#$hCF!"@^$l@~$r8+$($kh&K7$F!"$+$DNN0h$NEIjDY7$N?<$5=gNUBY$+$($r9T$&KO!"NN0hNEIjDY7OItJ,E*$KF)2a(transparent) 5;k+!"%Y%?EI$j(solid fill) NBeojK%Q%?!<%sEI$j(pattern fill) $r;HMQ$9kH$$$$+b7l^$;$s!#

0J2<$N:G=i$N2 DNNcNEIjDY$7NN0h$O!"F1$8$bNKJj$^$9!#

```
splot 'data' using 1:2:3:4 with zerrorfill fillcolor "grey" lt black
splot 'data' using 1:2:3:($3-$4):($3+$4) with zerrorfill
splot '+' using 1:(const):(func1($1)):(func2($1)) with zerrorfill
splot for [k=1:5] datafile[k] with zerrorfill lt black fc lt (k+1)
```

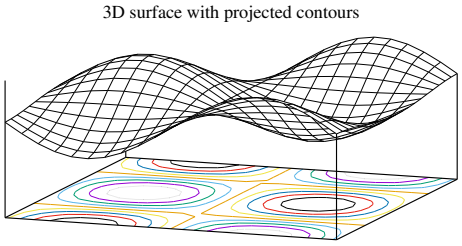
3NIA2h%9%?%$%k$O!":t%0%i%U(fence plot) $r:n@.$9kN$K;H$&3HbG$-$^$9!#0J2<;2>H **fenceplots (p. 71)**!#

3 <!85IA2h (3D plots)

3 <!85%0%i%U$O!"%3%^%s%I **plot** GOJ/%3%^%s%I **splot** $r;H$C$F@8@.$7$^$9!#B?$/$N2 <!85IA2h%9%?%$%k(points, images, impulse, labels, vectors) $O!"z :BI8%G!<%?Ns$rDI2C;XDj9l$P3 <!85$G$b;H$($^$9!#2 <!85<M1F%0%i%UN_,M_$7$$>l9gGb!"**splot** %3%^%s%I$r;H$C$F@8@.$7J1lP$$$1$J$$IA2h7?(pm3d coloring, surfaces, contours) bCfKO"j^$9!#

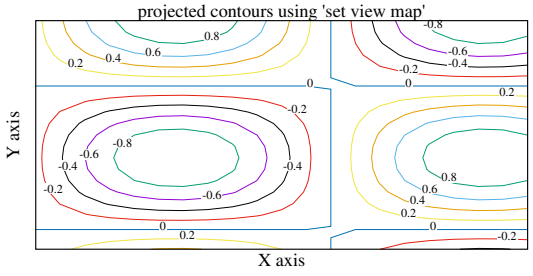
6JLLIA2h (Surface plots)

IA2h%9%?%$%k **splot with lines** $d **splot with surface** $O$$:lb6JLL$r3J;R@~$G@8@.7^$9!#6JLL$NEIjDY7$O!"%9%?%$%k **splot with pm3d** $G9T$&3H,G-$^$9!#6JLL$CDI>o!"$=l, 3 <!85$N6JLL$G$"$kHOC-jo$+$kh&$JE,@Z$J;kJ}8~$+$iI=<(5l$^$9!#0J2<;2>H **set view (p. 181)**!#$=$N>l9g!"X, Y, Z <4O9YFIA2hFb$KI=<($5l^$9!#B <!85E*$J:x3P$O!"1#@~=hM}$d!"6JLIMWAG$N?<$5@NsKh$j!"$h$jA}I}$5l^$9!#0J2<;2>H **hidden3d (p. 133)**, $*$h$S **set pm3d (p. 156)** $N%*%W%7%g%s$G$"$k **depthorder (p. 158)**!#%3%^%s%I **splot** $O!"Dj?t$NZ CMKBP9$kEy9b@~$r7W;$7IA2h$9k3HbG-$^$9!#3l$iNEy9b@~$O!"6JLL$=$l<+BN$N>e$K=q$/$3HbG-$^$9$7!"XY J?LL$X<M1F9k3HbG$-$^$9!#0J2<;2>H **set contour (p. 121)**!#



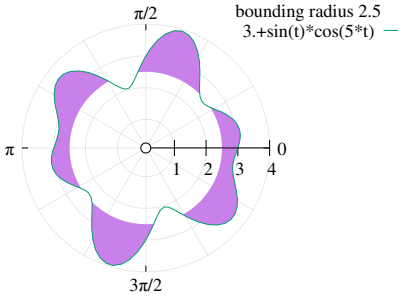
2 <!85<M1F (set view map)

%3%^%s%I **splot** $NFCJL$J>l9gH7$F!"IA2h$NZ J}8~$N<M1F$Khk!"Z :BI8$N2 <!856JLL$X$NCO?^:n@.(map) $,$"j^$9!#0J2<;2>H **set view map (p. 181)**!#3NIA2h%b!<%I$O!"Ey9b@~$NIA2h$d29EYJ,I[$r@8@.9kNKMxMQG-$^$9!#3N?^$OIA2h%9%?%$%k **lines** $r0lEY!"**labels** $r0lEYIA2h$7$?Ey9b@~$r<(7F$$^$9(LuCm ?^$,I=<(5l$F$$k>l9g)!#



6K:BI8IA2h (Polar plots)

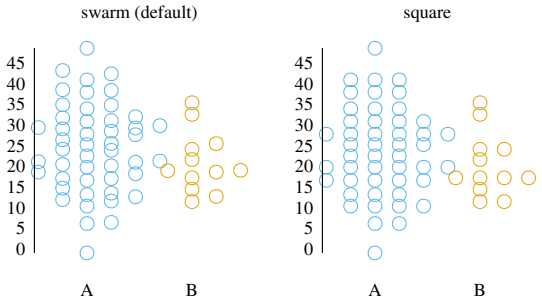
6K:BI8IA2h(polar) $O!"plot %3%^%s%I$rF~NC9kA0$K8=:_ $N:BI87C$r6K:BI8$KJQ99$9k3HKhC$F@8@.$7$^$9!#%* %W%7%g%s**set polar** $O!"F~NC$9$k2<!85:BI8$r<x>,<y> NBeojK<3Q>,<H>7B> $H2r<a$9k3Hrgnuplot $K;X<($7$^$9!#9YFGOJ$$$G$9,!"B?$/$N2<!85IA 2h%9%?%$%k$,6K:BI8%b!<%I$G$b5!G=$7$^$9!#?^$O!"IA2h %9%?%$%k**lines** $H**filledcurves** NAH_9go;$r<($7$F $$$^$9!#(LuCm ?^$,I=<(5l$F$$$k>l9g) 0J2<;2>H**set polar (p. 165)**, **set rrange (p. 167)**, **set size square (p. 168)**, **set theta (p. 177)**, **set ttics (p. 180)**!#



%S!<%9%&%)!<%`IA2h (Bee swarm plots)

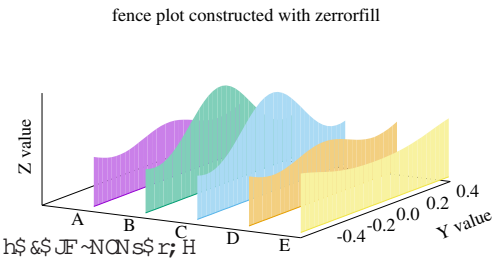
%S!<%9%&%)!<%`(bee swarm) %0%i%U$O!"MI$i$.(jitter) $r E,MQ$7$F=EJ#E@$rJ,N%$9$k$3$H$K$h$jF@$i$l$k7k2I$G$9!# $=$NE57?E*$JNc$O!"3FE@$Kx :BI8$r7hDj$9$k2 $D0J>e$N %+%F%4%j$K$h$C$FI=$o$5$l$ky $NCM$NJ,I[$NHf3S$G$9!#=E $J$j$NH=Dj4p=`$d!"jitter $G;HMQ$9$k0\F0%Q%?!<%s$r@)8f 9kJ}K!$K4X$7FO!"0J2<;2>H: **set jitter (p. 136)**!#$3 $N?^$N%0%i%U$O!"0[$J$k jitter $N@_Dj$KBP9kF1$8 plot %3%^%s%I$KhC$F:n$il?bN$G$9!#

```
'plot $data using 1:2:1 lc variable'
```



:t%0%i%U (Fence plots)

:t%0%i%U(fence plot) $O!"U#?t$N2<!85%0%i%U$r!"$=$NY :BI8$OB7$(!"$=l>lr6hJL9k$?$a$KX $K1h$CFO$: i7$?7A$G7k9g7?bNG$9!#EZBfNCM+$i8D!9$N%0%i%U $NZ :BI8$^GN4V$NNN0h$rEIjDY9$3$H$G!"Y J}8~$N@0 Ns$HZ :BI8$N9b5N0c$$$N8+$?L\$r6/D4$7$^$9!#gnuplot G3$N7A<0$N%0%i%U$r=q$/KO$$/D+$NJ}K!$,$"$j$^ $9!#:G$bC1=cJN$O!"5 Ns$N7A<0$N**zerrorfill** %9%?%$%k $rMxMQ$9$kJ}K!$G$9!#i $GE:;z2=$5l?J#?t$N6J@~z



= Fi(y) $,$"kH$-!"'splot with zerrorfill' $G0J2<$Nh&$JF~NCNs$r;H

$($P:t%0%i%U$r=q$/3H$,$G$-$^$9:

```
i y z_base z_base Fi(y)
```

Part III

%3%^%s%I (Commands)

3N%;%/%7%g%sGO **gnuplot** $,<u$1IU1k%3%^%s%I$r%"%k%U%!%Y%C%H=g$KJBYF$$$^$9!#$3$N%I%-%e%a%s%H$r;f$K0u:~$7$?$bNOA4FN%3%^%s%I$r4^$s$G$$$^9,!"BPOC7?$G;2>H$G$-$k%I%-%e%a%s%H$NJ}$O40A4GO$J$$$2DG=@-$,$"j^$9!#<B:]!"$3$N8+=P$7$N2<$K2?$N%3%^%s%I$bI=<($5$1$J$$%7%9%F%`$,$"j^$9!#

$[$HsI$N>19g!"%3%^%s%IL>$H$=$N%*%W%7%g%s$O!"J6$io7$/$J$$HOOO$G>JN,$9k3H,2DG=$G$9!#9JoA!"**"plot f(x) with lines"** NBeojK"**p f(x) w li"** H9k3H,G-$^$9!#

=q<0$N5-=R$K$*$$$F!"Cf%+%C%3({}) $CDI2C;XDj$G$-$k0z?t$r0UL#$7!"=DK@(|) $O8_$$$KGSB>E*$J0z?t$r6h@ZkbNH7^$9!#

Break

%3%^%s%I **break** $O!"**do**, **while** J8$N7+jJV7<B9TItJ,$N%+%C%3Fb$GN_0UL#$r;}$A$^$9!#3N%3%^%s%I$O!"$=$NCf%+%C%3Fb$N;DjNL?Na$r%9%-%C%W$7!"7+jJV7$rCfCG$7!"$=$NJD$8%+%C%3$N<!$NJ8$+$i<B9T$r:F3+7^$9!#0J2<$b;2>H: **continue (p. 74)**!#

Cd

cd %3%^%s%I$O%+%l%s%H%G%#%l%/%H%j$rJQ99$7$^$9!#

=q<0:

```
cd '<%G%#%l%/%H%jL>>'
```

%G%#%l%/%H%jL>$O0zMQId$K0O$^$l$F$$$J1lPJj^$;$s!#

Nc:

```
cd 'subdir'
cd '..'
```

%P%C%/%9%i%C%7%e(\) $OFs=E0zMQIdFb(") GOFCJL$J0UL#$r;}CF7^$&$?aK%(%9%1!<%W9kI,MW$,$"j^9N$G!"Windows %f!<%6KOC10l0zMQId$r;H$&$3Hr4+a^$9!#Nc$($P!"

```
cd "c:\newdata"
```

GO<:GT7^9,!"

```
cd 'c:\newdata'
cd "c:\\newdata"
```

Ji4|BTDLjKF0$/$G7g$&!#

Call

call %3%^%s%I$O!"FI$_9~$'%U%!%$%kL>$N8e$m$K!"9 D^GN%Q%i%a!<%?$rM?$(k3H,G-k3Hr=|1P **load** %3%^%s%I$HEy2A$G$9!#

```
call "inputfile" <param-1> <param-2> <param-3> ... <param-9>
```

gnuplot $N0JA0$N%P!<%8%g%sGO!"$=$N%Q%i%a!<%?J8;zNs$NFbMF$r!"FCJL$J5-9f$0, $1, ..., $9 $r%^%/%m$Nh&$KCV49$9k3HGI=8=7F$$$^7?!#3N;EAH$_$O!"8=:_$OHs?d>)$G$9(0J2<;2>H: **call old-style (p. 73)**)!#

8=:_$N gnuplot $O!"J8;zNsJQ?t ARG0, ARG1, ..., ARG9 $H!"@0?tJQ?t ARGC $rDs6!$7$^$9!#**call** %3%^%s%I$r<B9T$9kH!"ARG0 KOF~NO%U%!%$%kL>$,!"ARGC KO%Q%i%a!<%??t$,@_Dj$5$l!"ARG1 $+$i ARG9 KO%3%^%s%I%i%$%s$KJBYil?%Q%i%a!<%?NCM,FI$_9~$^l^$9!#

DL>o%Q%i%a!<%?J8;zNsCMH7$FJ]B8$5lkNG!"$=$l$r%^%/%mE83+$7$F;2>H$9k3HbG-$^$9(8E$$7A<0$N=q<0$NN`;w)!#7+$7!"B?$/$N>19g!"$=li$OB>$NJQ?t$HF1MM$KMxMQ9kJ}$,$h$j<+A3$G7g$&!#

Nc (Example)

```
0J2<$r call $9$k$H:
    MYFILE = "script1.gp"
    FUNC = "sin(x)"
    call MYFILE FUNC 1.23 "This is a plot title"
8F$S=P$5$l$?%9%/%j%W%HFb$G$O0J2<$N$h$&$K$J$j:
    ARG0 $O "script1.gp"
    ARG1 $OJ8;zNsCM "sin(x)"
    ARG2 $OJ8;zNsCM "1.23"
    ARG3 $OJ8;zNsCM "This is a plot title"
    ARGC $O 3
$=$N%9%/%j%W%HFb$G$O0J2<$N$h$&$J$b$N$r<B9T$G$-$k:
    plot @ARG1 with lines title ARG3
    print ARG2 * 4.56, @ARG2 * 4.56
    print "This plot produced by script ", ARG0
```

3NNc$N ARG1 $O%^%/%m$H7F;2>H7J1l$P$$$1$^$;s,!"ARG2 $O%^%/%m;2>H$G$b(?tCMDj?t$KJk)!"JQ?tN^$^$G$b(J8;zNs"1.23" $,<B?tCM$K<+F0E*$KJQ49$5l?8e$NF1$8?tCMKJ$k) 9=$o$J$$$3HKCm0U7F$/$@$5$$!#

%7%'%k%9%/%j%W%H$G gnuplot $r%3%^%s%I%i%$%s%*%W%7%g%s **-c** D-$G<B9T$9k3HG!"3l$HF1$8$3$H$rD>@\9T$&3HbG$-$^$9:

```
gnuplot -persist -c "script1.gp" "sin(x)" 1.23 "This is a plot title"
```

Old-style

0J2<$O!"8E$$%P!<%8%g%s$N gnuplot $G;H$olF$$$?call $N;EAH$_$N5-=R$G9,!"8=:_$OHs?d>)$G$9!#

```
call "<input-file>" <param-0> <param-1> ... <param-9>
```

F~NO%U%!%$%kL>$O0zMQId$G0O$^J1lPJj$^$;$s!#F~NO%U%!%$%k$N3F9T$rFI$_9~$`:]$K!"0J2<$NFCJL$JJ8;zNs$rAv:7^$9: $0 $1 $2 $3 $4 $5 $6 $7 $8 $9 $#!#$=l,8+D+C?$i!"V$+?t;z!WNNsO **call** %3%^%s%I%i%$%s$NBP1~9k%Q%i%a!<%?KCV-49$($^$9!#0zMQId$O%3%T!<$;$:!"J8;zNsJQ?tCV49$O9T$$^$;$s!#J8;zNs $# $O%Q%i%a!<%?$KCV-49($^$9!#$=$NB>$NJ8;z$,8emK$D$$F$$k $ $O!"%(%9%1!<%W%7!<%1%s%9$H7F=hM}7^$9!#Nc$($P1 8D$N $ $r;H$&KO $$ H7$^$9!#

Nc:

```
%U%!%$%k'calltest.gp' $O0J2<$N9T$r4^$s$G$$$k$H$9$k$H:
   print "argc=$# p0=$0 p1=$1 p2=$2 p3=$3 p4=$4 p5=$5 p6=$6 p7=x$7x"
```

```
<!$N9T$rF~NO$9$k$H:
   call 'calltest.gp' "abcd" 1.2 + "'quoted'" -- "$2"
```

```
0J2<$N$h$&$KI=<($5$l$k$G$7$g$&:
   argc=7 p0=abcd p1=1.2 p2=+ p3='quoted' p4=- p5=- p6=$2 p7=xx
```

Cm0U: J8;z $ $O!"gnuplot <+?H$N%G!<%?NsMQ$N=q<0$HVD$+$j$^$9$7!"Unix 7O$N%7%'%k$N4D6-JQ?t$r;2>H9k $ HbVD$+$j$^$9!#FCJL$JJ8;zNs$# $O!"gnuplot $N%P!<%8%g%s 4.5 $+$i 4.6.3 $^$G$O!"4V0c$($F%3%a%s%HJ8;zNs$N6h@Z$jJ8;z$H7F2r<a5l$F$$$^7?!#J8;zNsCV49GO0zMQId$OL5;k$5lkNG!"J8;zNsDj?t$O4JC1$K2ulF7^$$$^$9!#

Clear

clear %3%^%s%I$O!"**set terminal** $d **set output** $GA*Br$7$?2hLL!"=PNOAuCV$r%/%j%"7^$9!#%O!<%I%3%T!<AuCV$KBP7F$ODL>o2~%Z!<%8$r9T$$^$9!#

$$/D+$N=PNOAuCV$O **clear** %3%^%s%IGO **set size** $GDj5A$5l?IA2hNN0hN_$r>C5n$7$^$9!#$=$N$?a!"**set multiplot** HHbK;HMQ9k3H$GA^F~?^$r0l$D:n$k3H$,$G$-$^$9!#

Nc:

```
set multiplot
plot sin(x)
set origin 0.5,0.5
set size 0.4,0.4
clear
plot cos(x)
unset multiplot
```

set multiplot (p. 149), **set size (p. 168)**, **set origin (p. 155)**

Continue

continue **do**, **while** **break (p. 72)**

Do

```
do for <iteration-spec> {
     <commands>
     <commands>
}
```

do <iteration-spec> **iteration (p. 40)**

```
set multiplot layout 2,2
do for [name in "A B C D"] {
    filename = name . ".dat"
    set title sprintf("Condition %s",name)
    plot filename title name
}
unset multiplot
```

while (p. 201), **continue (p. 74)**, **break (p. 72)**

Evaluate

evaluate

```
eval <string expression>
```

```
set_label(x, y, text) \
  = sprintf("set label '%s' at %f, %f point pt 5", text, x, y)
eval set_label(1., 1., 'one/one')
eval set_label(2., 1., 'two/one')
eval set_label(1., 2., 'one/two')
```

substitution macros (p. 48)

Exit

```
exit
exit message "%(%i!<%a%C%;!<%8J8;zNs"
exit status <@0?t$N%(%i!<%3!<%I>
```

exit $H **quit** $NN>%3%^%s%I$O END-OF-FILE J8;z(DL>o Ctrl-D) F1MM!"8=:_$NF~NO%9%H%j!<% '!"$9Jo$AC<Kv$NBPOC$d&Q&$%WF~NO!"%U%!%$%kF~NO(%Q&$%W) $+$i$NF~NO$r=*N;5;$^$9!#F~NO%9%H%j!<% '$,F~$l;R(3,AXE*$J**load** $N%9%/%j%W%H$G) KJCF$$k>19g!"FI$_9~$_$O?F$N%9%H%j!<% '$G7QB3$5l^$9!#%H%C%W%l%Y%k$N%9%H%j!<% '$,JD$8ilkH!"%W%m%0%i% 'O=$l<+?H=*N;$7$^$9!#

%3%^%s%I **exit gnuplot** $O!"D>$A$K!"L5>r7o$K!"$=$7FNc(F~NO%9%H%j!<% '$,B?CJ3,$K%M%9%H5l$F$$$F$b!"gnuplot $r=*N;$5$;$^$9!#$=$N>19g!"3+$+lF$$?A4FN=PNO%U%!%$%k$O$-$l$$$K40A4$J7A$GOJD8il$J$$2DG=@-$,$"j^$9!#;HMQNc:

```
bind "ctrl-x" "unset output; exit gnuplot"
```

%3%^%s%I **exit error "error message"** $O!"5?;w%W%m%0%i% '%(%i!<$r9T$$$^$9!#BPOC7?%b!<%I$G$O!"$=$N%(%i!<%a%C%;!<%8$rI=<(($7!"$9YN%M%9%H5l$?%k!<%W$d call $rCfCG$7$F%3%^%s%I%i%$%s$K5"$j$^$9!#HsBPOC7?%b!<%IGO!"%W%m%0%i% '$r=*N;$7$^$9!#

gnuplot $,=*N;$7%7%'%k$N@)8f$KLa$k>19g!"$=NUVjCM$O0ULi#$N$J$$bNKJk3H$,$"j^9,!"3N%3%^%s%I$r0J2<$Nh&$K<B9T$9lP!"%7%'%k$KFCDj$NCMrJV9$3$H$,2DG=$G$9!#

```
exit status <value>
```

>\:Y$O!"0J2<;2>H: **batch/interactive (p. 24)**!#

Fit

%3%^%s%I **fit** $O!"Marquardt-Levenberg K!Kh$kHs@~7A:G>.<+>hK!(NLLS) $rMQ$$F!"%G!<%?E@$N=89g$K%f!<%6$,M?$(($k<0$rEvFOa^$9!#FHN)JQ?t$O12 $^$G5v5l$F$$F!"=>B0JQ?t$O>o$K1 DG!"G$0U8D?t$N%Q%i%a!<%?rEvFOak3H,G-$^$9!#5i$KD12C$G!"%G!<%?E@$N=E$_IU$1MQ$K8m:9I>2A$rF~NO$9k3Hb2DG=$G$9!#

fit $N:G$b4pK\E*$J;HMQK!$O!"0J2<$NC1=o$JNc$,<($7$F$$$^$9:

```
f(x) = a + b*x + c*x**2
fit f(x) 'measured.dat' using 1:2 via a,b,c
plot 'measured.dat' u 1:2, f(x)
```

=q<0:

```
fit {<ranges>} <expression>
    '<datafile>' {datafile-modifiers}
    {{unitweights} | {y|xy|z}error | errors <var1>{,<var2>,...}}
    via '<parameter file>' | <var1>{,<var2>,...}
```

HC0O(xrange, yrange Ey) $O!"Ev$FOa$K;HMQ$9$k%G!<%?E@$r@)8B9kL\E*$G;H$&3H$,$G$-!"$=$NHC0O$rD6$($?%G!<%?OL5;k7^$9!#$=$N=q<0$O **plot** %3%^%s%IF1MM

```
[{dummy_variable=}{<min>}{:<max>}],
```

$G$9!#0J2<;2>H: **plot ranges (p. 102)**!#

<expression> $O!"DL>o$O$"$i$+$8af!<%6Dj5A5l$?f(x) $^$?$Of(x,y) $N7A$N4X?tG9$,!"**gnuplot** $GM-8z$JIs$J?t<0$G$b;XDj$G$-$^$9!#$?$@$7<B?tCM4X?tGJ1l$P$$$1$^$;$s!#FHN)JQ?t$NL>A0$O!"%3%^%s%I **set dummy** $G@_Dj$9k+!"fit $NHC0O;XDjItJ,(<rangse>) $G@_Dj$7$^$9(0J2<$r;2>H)!#%G%U%)%k%H$G$O!":G=i$N2 DOx, y HJj^$9!#$5iK!"$=$N?t<0$O!"Ev$FOa$N:n6H$Khj7hDj9kCM$r;}$D1 $D0J>e$NJQ?t(%Q%i%a!<%?) $K0MB8$9Y-$G$9!#

<datafile> $O **plot** %3%^%s%I$HF1MM$K07$ol^$9!#**plot datafile** $N=$>~;R(**using**, **every**,...) $O!"**smooth** $r=|$$F!"A4$F **fit** $K;H$&3H$,$G$-$^$9!#0J2<;2>H:**plot datafile (p. 91)**!#

%G!<%?U%!%$%k$NFbMF$O!"plot %3%^%s%I$K;HMQ9kNHF1$8 **using** ;XDj$r;H$&$3HG=@Fp$K2r<a$5$;$k3H$,$G$-$^$9!#Nc$($P!"FHN)JQ?t x $r2 NsL\$H3 NsL\$NOBH7$F@8@.$7!"z NCMr6 NsL\$+$i<h$j!"=E$_$r1$H$7?$$>19g$O0J2<$Nh&K7$^$9:

```
fit ... using ($2+$3):6
```

using ; XDj$,$J$$>19g! "fit $C0EL[$KFHN)JQ?t$O1 D@1H2>Dj7^$9!#%U%!%$%k<+?H! "$^$?$O using ; XDj$,1 Ns$@1N%G! <%?$r; }$D>19g! "$=$N9THV9f$rFHN)JQ?tCMH7$F;HMQ7^$9! #**using** ; XDj$rM?$ ($?>19g! ":GBg12 8D(; XDj$7$F%3%s%Q%$%k7F$$lP5iK$=$l0J>e) $NFHN)JQ?t$rMxMQG-$^$9! #

%*%W%7%g%s **unitweights** (3l$,%G%U%)%k%H) $O! "$9YF$N%G! <%?E@$,Ey$7$$=E$_$r; }DH$_$J7^$9! #$3$l $O! "%-! <%o! <%I **error** $r; HMQ$9k3HGJQ99G-! "3l$O%G! <%?%U%!%$%k$+$i1 $D0J>e$NUQ?t$N8m:9I>2A$rFI$_9~$_! "$=$N8m:9I>2A$rBP1~$9$kJQ?tCM$NI8=`JP:9s H_$J$7! "3F%G! <%?$K1/s**2 $N=E$_$r7W; ;$9kN$K ; HMQ$7$^$9! #

FHN)JQ?t$N8m:9I>2A$K$*$$$F! "$=$N=E$_$K$O! "'M-8zJ,; 6K!" (effective variance method; Jay Orear, Am. J. Phys., Vol. 50, 1982) $K=>$C$F! "$5iKEvFO$a4X?t$NHyJ,78?tr+1^$9! #

%-! <%o! <%I **errors** KO! "$=$N8emK! "F~NO$,$I$NUQ?t$N8m:9G"kN$+$r< ($9%3%s%^6h@Z$j$N1 $D0J>e$NUQ ?tL>$N%j%9%H$,IU$-$^$9! #=>B0JQ?tz $O>o$K$=$NCfKJ1l$P$$$1$^$;s,! "FHN)JQ?t$OI,?\G$O$"$j$^$;$s! # $=$N%j%9%H$N3FJQ?t$KBP$7! "%U%!%$%k$+$i$=$NJ,$N! "3FJQ?t$N8m:9I>2A$r; }$DDI2CNNsrFI$_9~$_$^$9! #7+$j JV$7KJj^9,! "**using** ; XDjKh$j=@Fp$J2r<a$,2DG=$KJj$^$9! #hC$F! "FHN)JQ?t$N?t$C0EL[$K! "**using** ; XDjFbNNsN?t$+$i1 $r0z$$F(=>B0JQ?tJ,)! "5i$K**errors** ; XDjFb$NUQ?t$N8D?t$r0z$$??tKJk3HKCm 0U7F$/$@$5$$! #

NcH7$F! "2 DNFHN)JQ?t$,$"$j! "$=7F1 $DL\$NFHN)JQ?t$H=>B0JQ?t$N8m:9%G! <%?$,$"$k>19g$O! "**errors x,z** ; XDj$H5 Ns$N**using** ; XDj$r; H$&3HKJj^9,! "$=$l$Ox:y:z:sx:sz Nh$&$K2r<a5l$^$9(x, y $OFH N)JQ?t! "z $,=>B0JQ?t! "sx, sz $Ox, z $NI8=`JP:9)! #

errors ; XDjNAdCH7?N,5-K!$b2,3 MQ0U$5lF$$$^$9: **yerrors** (FHN)JQ?t$,1 Ns$"$kEvFO$aMQ)! "**zerrors** ($h$j0lHL$N>19g) $O! "$$:lb**errors z** $HF1CM$G! "1 Ns$@$1DI2C$N=>B0JQ?tMQ$N8m:9Ns$,$"k3Hr0UL#$7 $F$$$^$9! #

xyerrors $O! "FHN)JQ?t$O1 Ns$G! "$=$NFHN)JQ?t$H=>B0JQ?t$NN>J}$N2 Ns$N8m:9Ns$,DI2C5lk3Hr0UL#$7 $^$9! #3N>19g! "x $Hy $N8m:9$O Orear $NM-8zJ,; 6K! (effective variance method) $G=hM}$5l^$9! #

yerror $H **xyerror** $N7A<0$*hS2r<a$O! "$=l>$l2 <!85IA2h%9%?%$%k$N **yerrorlines** $H **xyerrorlines** $K F1Ey$GS"k3HKCm0U7F$/$@$5$$! #

%3%^%s%I **set fit v4** $r; HMQ$9kH! "fit $N%3%^%s%I=q<0$O **gnuplot** %P! <%8%g%s4 0JA0$H8_49$N=q<0KJj^ $9! #$=$N>19g! "**using** KO! "FHN)JQ?t$,2 $D0J>e$JiP! "FHN)JQ?t$N?t$h$j2 $D(z $Hs) B?$$;XDj$,I,MW$G! " **gnuplot** $O! "**using** ; XDj$GM?$ (il$?Ns$N?t$K1~$8$F! "0J2<$N=q<0$K=>$$^$9:

```
z                           # FHN)JQ?t$O 1 $D (9THV9f)
x:z                         # FHN)JQ?t$O 1 $D (Bh 1 Ns)
x:z:s                       # FHN)JQ?t$O 1 $D (A4It$G 3 Ns)
x:y:z:s                     # FHN)JQ?t$O 2 $D (A4It$G 4 Ns)
x1:x2:x3:z:s                # FHN)JQ?t$O 3 $D (A4It$G 5 Ns)
x1:x2:x3:...:xN:z:s         # FHN)JQ?t$O N 8D (A4It$G N+2 Ns)
```

3l$O! "2 $D0J>e$NFHN)JQ?t$G fit r9$k>19g! "z-8m:9s $rM?$ (kI,MW,$"$k3H$r0UL#$9k3HKCm0U7F $/$@$5$$! #=E$_$r1 K7$?$^$>19g$O! "$=$l$r! "Nc$ ($Px:y:z:(1) Nh$&$J=q<0$r using $K; XDj$9k3HGL@<(E*$KM?$ (kI,MW,$"$j$^$9! #

2>JQ?tL>$O! "2<$G>R2p9kh&$KHC0O; XDj$G; XDj9k3H$GJQ99$G$-$^$9! #:G=i$NHC0O$O **using** ; XDj$N:G=i$N bN$KBP1~$7! "0J2<F1MM$G$9! #=>B0JQ?tG"$kz $NHC0O; XDj$bG-$^$9$,! "$=lO! "f(x,...) NCMr$=$NHC0O30 K7F7$^$&h&$J%G! <%?E@$,! "; D:9$r:G> .2=$9k3HK$O4sM?$7J>19g$KM-8z$G$9! #

J#?t$N%G! <%?=89g$bJ#?t$N1 JQ?t4X?t$KF1; ~KEvFOak3Hb! "y $r'2>JQ?t' H9lP2DG=$G$9! #Nc$ ($P %G! <%?9THV9f$r; H$$! "2 JQ?t4X?tXNEvFO$a! "$H9l$P$$$$G7g$&! #DJ2<; 2>H: **fit multi-branch (p. 81)**! #

via ; XDj; R$O! "%Q%i%a! <%?$N:GE,2=$r! "D>@\9T$&$+! "$^$?$O%Q%i%a! <%?%U%!%$%k$r; 2>H9k3HKhCF9T$& $+$r; XDj7^$9! #

Nc:

```
f(x) = a*x**2 + b*x + c
g(x,y) = a*x**2 + b*y**2 + c*x*y
set fit limit 1e-6
fit f(x) 'measured.dat' via 'start.par'
fit f(x) 'measured.dat' using 3:($7-5) via 'start.par'
```

```
fit f(x) './data/trash.dat' using 1:2:3 yerror via a, b, c
fit g(x,y) 'surface.dat' using 1:2:3 via a, b, c
fit a0 + a1*x/(1 + a2*x/(1 + a3*x)) 'measured.dat' via a0,a1,a2,a3
fit a*x + b*y 'surface.dat' using 1:2:3 via a,b
fit [*:*][yaks=*:*] a*x+b*yaks 'surface.dat' u 1:2:3 via a,b

fit [][][t=*:*] a*x + b*y + c*t 'foo.dat' using 1:2:3:4 via a,b,c

set dummy x1, x2, x3, x4, x5
h(x1,x2,x3,x4,s5) = a*x1 + b*x2 + c*x3 + d*x4 + e*x5
fit h(x1,x2,x3,x4,x5) 'foo.dat' using 1:2:3:4:5:6 via a,b,c,d,e
```

H?I |$N8D! 9$N%9%F%C%W$N8e$G! "EvFOaN8=:_$N>uBV$K$D$$$F$N>\:Y$J>pJs$,2hLL$KI=< (5l$^$9! #$=$7:G=i $H:G8e$N>uBV$K4X$9$kF1$8>pJs$, "fit.log" $H$$$&%m%0%U%!%$%k$K$b=q$-=P5l$^$9! #3N%U%!%$%k$OA0NEvF Oa$NMzNr$r>C5J$$$h$&$K>o$KDI2C$5lF$$$-$^$9! #3l$OK>$'Ji:o=|! "$"$k$$$OJL$JL>A0$KG-$^$9! # %3%^%s%I **set fit logfile** $r;H$C$F%m%0%U%!%$%k$NL>A0$rJQ9$9$k3HbG$-$^$9! #

set fit errorvariables $r;HMQ$7$?>19g! "3FEv$FOa%Q%i%a! <%?$N8m:9$O=$N%Q%i%a! <%?$H;w$?L>A0("_err" $,DI2C$5l?L>A0) $NJQ?t$KJ]B8$5$l$^$9NG! "$=$N8m:9r=$N8e$N7W;;$NF~NO$H7F;HMQ9k3H$,$G$-$^$9! #

set fit prescale H7$?>19g! "Ev$FOa%Q%i%a! <%?$r! "$=li$N=i4|CM$+$i%9%1! <%kJQ4$9$7$^$9! #$3lKhj! "8D! 9$N%Q%i%a! <%?$NBg$-$5K+Jj0c$$,$"$kh&$J>19g$G$b! "Marquardt-Levenberg %k! <%A%s$,$hjAa/! "hj?.Mj@-N"kCMK<}B+5;ilkh$&$KJj$^$9! #

EvFOaNH?I|$O Ctrl-C (wgnuplot GO Ctrl-Break) $r2!$9$3$H$GCfCG$G$-$^$9! #8=:_$NH?I|$,@5>c$K=*N;7?8e! "0J2<$N$$:l+$rA*$V3H$,$G$-$^$9:(1) Ev$FOa$r;_$a$F8=:_$N%Q%i%a! <%?NCMr:NMQ9k(2) EvFOarB39T9k(3) **set fit script** $+! "4D6-JQ?t **FIT_SCRIPT** $G;XDj$7$? **gnuplot** %3%^%s%I$r<B9T9k! #$=$N%G%U%)%k%H$O **replot** $G! "$b$7%G! <%?$HEvFO$a4X?t$r0lDN%0%i%UK"i+8aIA2h7F$"$l$P! "8=:_$NEvFOaN>uBV$rI=< ($9k3H,G-$^$9! #

fit $,=*N;$7$?8e$O! ":G8e$N%Q%i%a! <%?$NCM$rJ]B8$9kN$K **save fit** %3%^%s%I$r;H$$^$9! #$=NCMO:F$S%Q%i%a! <%?$NCMH7$F;H$&3H$,$G$-$^$9! #>\:Y$O! "0J2<;2>H: **save fit (p. 111)**! #

%Q%i%a! <%?$ND4@0 (adjustable parameters)

via $O%Q%i%a! <%?$rD4@a9k$?$a$N2 DNJ}K!$r;XDjG-$^$9! #0lDO%3%^%s%I%i%$%s$+$iD>@\;X< (9kbN$G! "b&0lDO%Q%i%a! <%?$U%!%$%k$r;2>H7F4V@\E*$K9T$&bN$G$9! #3N2 DO=i4|CM$N@_Dj$G0cC?J}K! $r<h$j$^$9! #

D4@0$9$k%Q%i%a! <%?$O! "**via** %-! <%o! <%I$N8emK%3%s%^$G6h@Z$il?JQ?tL>$N%j%9%H$r=q$/$3HG;XDjG-$^$9! #Dj5A5l$F$$$J$$JQ?t$O=i4|CM1.0 H7$F:n$il^$9! #7+$7EvFOaO! "JQ?t$N=i4|CM$,$"i+8aE,@ZJCMK@_Dj$5lF$$$kJ}$,B?J,B.$/<}B+9kG7g&! #

%Q%i%a! <%?%U%!%$%k$O8D! 9$N%Q%i%a! <%?$r! "8DJL$K1 9T$K0lD:$D! "=i4|CM$r<!Nh$&$J7A$G;XDj$7$F=q$-$^$9! #

```
JQ?tL> = =i4|CM
```

'#' $G;O$^$k%3%a%s%H9T$d6u9T$b5v$5l^$9! #FCJL$J7A<0H7$F

```
JQ?tL> = =i4|CM        # FIXED
```

$O! "$3$NJQ?t$,8GDj5l$?%Q%i%a! <%?$G$"$k3H$r0UL#$7! "$=$lO3$N%U%!%$%k$G=i4|2=$5l^9,! "D4@a$O 5l$^$;$s! #$3lO! "**fit** $G%l%]! <%H$5lkJQ?tNCfG! "Il$,8GDj$5l?JQ?tG"k+$rL@<($9kN$KM-MQ$G 7g$&! #$J$*! "**# FIXED** $H8@$&%-! <%o! <%I$O87L)$K3N7AGJ$/$FOJj^$;$s! #

Fit $N35N, (fit beginners_guide)

fit $O! "M?$(il$?%G! <%?E@$rM?$($il?%f! <%6Dj5A4X?tKbCHhNI/EvFOakh&$J%Q%i%a! <%?$r8+Dl$k NK;Hol$^$9! #$=$NEvFOaO! "F1$8>l=jGNF~NO%G! <%?E@$H4X?tCMHN<+>h8m:9! "$"$k$$$O;D:9(SSR:Sum of the Squared Residuals) NOBr4p$KH=Dj$5l^$9! #$3NNIOOL>o&V(%+%$) <+>h$H8FPl$^$9! #3N%"%k%4%j%:%'SSR $r:G>.2=$9k3Hr7h$&$H7^$9! #$b$&>/$7>\$7$/8@$&$H! "%G! <%?8m:9($^$?$O1.0) $N=E$_D-;D:9$N<+>hOB(WSSR) $N:G>.2=$r9TCF$$$^$9! #>\:Y$O! "0J2<;2>H:**fit error_estimates (p. 78)**! #

3l$,!"(Hs@~7A) :G>.<+>hEv$FOaK!$H8F$Plkf (sG$9!#Hs@~7A$,2?$r0UL#$7$F$$kN+$r8+$k$?$a$NNc $r>R2p$7$^$9$,!"$=$NA0$K$$/D+$N2>Dj$K$D$$F=RYF$*$-$^$9!#$3$3GO4JC1N?$a!"1 JQ?t$N%f!<%6!<Dj5A4X?t$Oz=f(x), 2 JQ?t$N4X?t$Oz=f(x,y) Nh$&$K$7!"$$$:lb=>B0JQ?tH7$Fz $rMQ$$$k3HK7$^$9!#%Q%i%a!<%?HO **fit** $,D4@0$7$FE,@Z$JCM$r7hDj$9$k%f!<%6Dj5AJQ?t$G!"4X?t$NDj5A<0Cf$NL$CN?t$G$9!#$3$3$G8@$&!"@~7A@-/Hs@~7A@-$H$O!"=>B0JQ?t z $H **fit** $,D4@0$9$k%Q%i%a!<%?$H$N4X78$KBP9kbNG"$j!"z $HF HN) JQ?t x ($^$?$Ox $Hy) HN4X78N3HGO"j^$;$s(?t3XE*$K=R$YkH!"@~7A:G>.<+>hLdBjGO!"EvFO$a4X?t$N%Q%i%a!<%?Kh$k2 3, ($=7F99$K9b3,$N) F34X?t$O0!"$H$$&3HKJj^$9)!#

@~7A:G>.<+>hK!(LLS) GO!"%f!<%6Dj5A4X?t$OC1=c$J4X?tNDBG$"$j!"$=$l$>$l$C0l$D$N%Q%i%a!<%?$NDj?tG\ $GB>$N%Q%i%a!<%?$r4^$^$J$$9'KJj^$9!#Hs@~7A:G>.<+>hK!(NLLS) GOhjJ#; ($J4X?t$r07$$!"%Q%i%a!<%?$O?'$s$J;H$o$lJ}$r5l$^$9!#%U!<%j%(5i?t$O@~7A$HHs@~7A$N:G>.<+>hK!$N0c$$rI=$90l$DNNcG$9!#%U!<%j%(5i?t$G$C0l$D$N9'$O

```
z=a*sin(c*x) + b*cos(c*x).
```

Nh$&$KI=5l$^$9!#b7!"a $H b $,L$CN$J%Q%i%a!<%?$G c $CDj?t$@H9lP%Q%i%a!<%?$NI>2A$O@~7A:G>.<+>hLdBjKJj^$9!#$7$+$7!"c $,L$CN$J%Q%i%a!<%?$JiP$=$l$OHs@~7ALdBj$KJj$^$9!#

@~7A$N>19g!"%Q%i%a!<%?$NCM$OHf3SE*4JC1$J@~7ABe?t$ND>@\K!$KhC$F7hDj$G$-$^$9!#$7$+$7$=$Nh&$JLLS $OFC<1$J>19gG"$j!"'gnuplot' $,;HMQ$9$kH?I|K!$O!"bAms$=$l$b4^$a$F!"$h$j0lHIE*$JNLLS LdBj$r2r $/$3H,G-$^$9!#**fit** $O8!:w$r9T$&$3HG:G>.CM$rC5$=$&$H7^$9!#H?I|$N3F%9%F%C%W$O!"%Q%i%a!<%?$7$?$CMNAHKBP7FWSSR $r7W;;$7$^$9!#Marquardt- Levenberg $N%"%k%4%j%:%'$O<!$N%9%F%C%W$N%Q%i%a!<%?NCMrA*Br7^$9!#$=7F$=$lO"M?$($?4p='!"9JoA!"(1) EvFOa,"<}B+7?"(WSSR $N AjBP8m:9$,$"$k8B3&CMhj>.5/JC$?>19g!#0J2<;2>H:**set fit limit (p. 128)**)!"$^$?$O(2) $"$i$+$8$a@_Dj 5l$?H?I|?t$N8B3&$KC#7?>19g(0J2<;2>H: **set fit maxiter (p. 128)**)!"$N$$$:l+$rK~$?9^$GB3$1il $^$9!#%-!<%\!<%I$+$i$=$NEvFOaNH?I|$OCfCG$G$-$^$9$7!"$=$l$KB3$$FCf;_$9k$3HbG-$^$9(0J2<;2>H: **fit (p. 75)**)!#%f!<%6JQ?t FIT_CONVERGED $O!"D>A0$Nfit %3%^%s%I$,<}B+$Khj=*N;7?>19g$O1 $r;}$A!"$=$l0J30$NM}M3$GCfCG7?>19g$O0 $r;}$A$^$9!#FIT_NITER $O!"D>A0$NEvFOaG9Tol$?7+$jUV$7 $N2s?t$r;}A^$9!#

EvFOaK;Hol$k4X?t$O7P7P$"$k%b%G%k($^$?O"$kM}O@) $r85$K7F$$F!"$=$l$O%G!<%?$N?6Iq$r5-=R 7?$j!"$"$k$$$OM=B,7h$&$H7^$9!#$hCF **fit** $O!"%G!<%?$,$=$N%b%G%kKIl/$i$$$&$^$/EvFO$^$C$F $$kN+$r7hDj$9k?$a!"$=7F8D!9$N%Q%i%a!<%?$NH0O0$rI>2A$9k?aK!"%b%G%k$N<+M3$J%Q%i%a!<%?NCMr5aakNK;Hol$^$9!#0J2<;2>H:**fit error_estimates (p. 78)**!#

$=$&GJ1l$P!"6J@~$KhkEvFOaK$*$1$k54X78$KA*Pl$F$$$^$9($=lO=J,$JI=8=NO$H:G$b/$J$$?t$N%Q%i%a!<%?$r;}$A!"%G!<%?N798~$r5-=R7=$&$J4X?tH7$F7P83$K4p$E$$$FA*PlkG 7g$&)!#

7+$7!"$b7"J?$,A4$F$N%G!<%?$7E@rDLkh&$J3j$i$+$J6J@~$rM_$7$$$J$i**fit** GOJ/!"$'7m**plot** $N**smooth** %*%W%7%g%s$G$=$l$r9T$&Y-G7g&!#

8m:9I>2A (error estimates)

fit K*$$$F"8m:9" $H$$&MQ8l$O2 DN0[JC$?J8L.$GMQ$$il^$9!#0l$D$O%G!<%?$7E@$Q%i%a!<%?$7$G$9!#

%G!<%?8m:9$O!"U?J};D:9$N=E$_IU$-$NDBWSSR!"$9Jo$A&V<+>h$r7hDj9k;]8D!9$N%G!<%?E@$NAjBPE*$J=E$_ $r7W;;$9kN$KMQ$$$il^$9!#$=li$O%Q%i%a!<%?($^$9!#$=lO!"EvFOai l?4X?t$+$i$N8D!9$N%G!<%?E@$NJP:9$,:G=*E*JCMKM?$($k1F6ANBg-5r7hDj9k3HKhj^$9!#@53N$J %G!<%?8m:9I>2A$,M?$(il$F$$k>19gKO!"%Q%i%a!<%?9I>2AEy$N**fit** $,=PNO$9$k>pJs$OhjLr$KN)$D$G 7g$&!#

statistical overview GO**fit** $N=PNO$N$$/D+$r@bL@$7!"'practical guidelines' KBP9$kGX7J$r=RYF$$$^$9!#

E}7WE*$J35MW (statistical overview)

Hs@~7A:G>.<+>hK!(Non-Linear Least-Squares; NLLS) $NM}O@$O!"8m:9$N@55,J,I[$NE@$+$i0lHIE*$K5-=R$5$l $F$$$^$9!#$9Jo$A!"F~NO%G!<%?$OM?$($il?J?6QH=$NJ?6Q$KBP9kM?$($il?I8=`JP:9$r;}$D%,%&%9(@5 5,)J,I[$K=>$&&Jl=8CD$+$i$NI8K\$H2>Dj$5$l$^$9!#=-J,Bg$-$$I8K\!"$=$7$FJl=8CD$NI8=`JP:9rCNk3H$KBP 7F$O!"&V<+>hJ,I[E}7W$rMQ$$$F!"DL>o!V&V<+>h!W$H8F$PlkCM$rD4$Yk3HKhj!VEvFOaNNI$5!W$r=R

Yk3H$,$G$-$^$9! #8:$i5l$?<+M3EY$N&V<+>h (&V<+>h$N<+M3EY$O! "%G! <%?E@$N?t$+iEvFOail$k%Q%i%a! <%?$N8D?t$@$10z$$$??t) $, 1.0 G"$k>l9g$O! "%G! <%?E@HEvFOail$?4X?tHNUJP:9$N=E$_D-<+>hOB$,! "8=:_$N%Q%i%a! <%?CM$KBP9k4X?t$HM?$ (il$?I8=`UP:9$K$h$C$FFCD'IU$1$i$l$?Jl=8CD$N! "%i%s%@%`$J%5%s%W%kKBP9$k<+>hOB$H$,A4$/F1$8$G$"$k3H$r0ULH$7$^$9! #

J,;6 = Am7WG"$k?t$ (>e$2E}7W3XF1MM! "Jl=8CD$NI8=`UP:9$,Dj?t$GJ>l9g! "3FE@$O4QB,$5lkJP:9NOBH4|BT5l$kJP:9$NOB$rHf3S$9kH$-$K8DJL$K=E$_E1$5$lkY$-$G$9! #

:G=*CJ3,$G**fit** $O'stdfit'! "$9Jo$A;D:9$NRMS (<+>hJ?6QJ?J}:,) $G5a$ailkEvFOa$NI8=`UP:9$H! "%G! <%?E@$,=E$_E1il$F$$k>l9g$K' 8:$i5l$?&V<+>h' Hb8FPl$k;D:9$NU,;6$r%l%]! <%H7^$9! #K+M3EY (%G! <%?E@$N?t$+iEvFOa%Q%i%a! <%?$N?t$r0z$$$?bN) O3li$NI>2A$G;HMQ5l$^$9! #J<Ji! "%G! <%?E@$N;D:9$N7W;;$G;H$olk%Q%i%a! <%?$OF1$8%G! <%?$+$iF@ilkbN@$+$i$G$9! #%G! <%?E@$,=E$_$r;}$D>l9g! "**gnuplot** $O$$o$f$kp-CM$r7W;;$7$^$9! #$=$lO=$N<+M3EY$H7k2L$N&V<+>hCM$KBP9k&V<+>hJ,I [$NN_@QJ,I [4X?tCM$r1$+$i0z$$?CM$G$9! #0J2<;2>H: **practical_guidelines (p. 79)**! #3liNCM$O0J2<$NUJQ?t$KBeF~$5l^$9:

```
FIT_NDF = <+M3EY$N?t
FIT_WSSR = =E$_$D$-;D:9$N<+>hOB
FIT_STDFIT = sqrt(WSSR/NDF)
FIT_P = p-CM
```

%Q%i%a! <%?$K4X$9$k?.Mj%l%Y%k$rI>2A9k3H$G! "Ev$FOa$+$iF@il$k:G>.$N&V<+>h$H! "MW5a$9$k?.Mj%l%Y%k$N&V<+>hNCMr7hDj9k?aN&V<+>h$NE}7W$rMQ$$$k3H$,=PMh$^$9! #$7$+$7! "$=$Nh&JCMr@8@.9k%Q%i%a! <%?NAHr7hDj9kKO! "AjEvN5iJ$k7W;;$,I,MWHJkG7g$&! #

fit $O?.Mj6h4V$N7hDjhj$`$7$m! ":G8e$NH?I|8e$NU,;6-6&J,;69TNs$+$iD>$A$KF@$i$l$k%Q%i%a! <%?$N8m:9I>2A$rJs9p$7$^$9! #$3$l$i$NI>2A$O! "I8=`UP:9$H7F7W;;5lkNIN;XDj$K4X$9$kE}7W>e$N>r7o$,! "0lHL$K$OHs@~7A:G>.<+>hLdBj$G$OJ]>Z$5lJ$$$NG9$,! "@~7A:G>.<+>hLdBj$G$NI8=`8m:9 (3F%Q%i%a! <%?$NI8=`UP:9) $HF1$8J}K!$G7W;;$5l^$9! #$=7F$=$N$?$a7NcKh$j! "$3li$O "I8=`8m:9" $H$+ "A26aI8=`8m:9" $H8F$PlF$$$^$9! #A26aI8=`8m:9$O0lHL$K3Z4Q2a$.! "?.Mj%l%Y%k$N7hDj$K$O;H$&Y-GO$"$j$^$;s,! "Dj@-E*$J;XI8$H7FOLrKN)DG7g$&! #

:G=*E*$J2r$O! "2r$NHO0O$K$*$1$k%Q%i%a! <%?$NAj4X$r< ($9Aj4X9TNs$b@8@.$7$^$9: $=$N<gBP3QMWAG! "9JoA<+8JAj4X$O>o$K1 $G! "A4$F$N%Q%i%a! <%?,FHN)$JiPHsBP3QMWAGO9YF0 $K6a$$CMKJj^$9! #4QA4$KB>$rJd$$$"$&2 DNUJQ?t$O! "Bg$-5,1 $G! "4X78$,@5$NAj4X$+Ii$NAj4X$+KhCF@5$+Ii$KJkId9f$r;}$DHsBP3QMWAG$r;}$A$^$9! #HsBP3QMWAGNBg-5,>.$5$$ [$I! "3F%Q%i%a! <%?$NI8=`UP:9$NI>2A$O! "A26aI8=`8m:9$K6a$/Jj$^$9! #

<BMQE*$J%,%$%I%i%s (practical guidelines)

8D! 9$N%G! <%?E@$X$N=E$_E1$N3d$jEvFN4pACrCNC$F$$$kJi! "$=$l$,B,Dj7k2L$KBP9khj>\$7$>pJs$r;HMQ5;h&H9kG7g$&! #Nc$ ($P! "4v$D$+$NE@$OB>$NE@hjEvFKJk$H$$$&3H$r9MN8$KF~lk3H$,2DG=$G$9! #$=7F! "$=$liO:G=*E*$J%Q%i%a! <%?$NCM$K1F6A$7$^$9! #

%G! <%?$N=E$_IU1O! ":G8e$NH?I|8e$N **fit** $NDI2C=PNO$KBP9k2r<a$N4pAC$rM?$ ($^$9! #3FE@$KF1Ey$K=E$_IU$1$r9T$J$&$K7F$b! "=E$_1 $r;H$&3Hhjb`$7$mJ?6QI8=`UP:9$rI>2A$9k3H,! "&V<+>h$,Dj5A$Khj$=$&G"kh$&$K! "WSSR $rL5<!85JQ?t$H9k3HKJj^$9! #

EvFO$aH?I|$N3FCJ3,$G! "Ev$FOa$N?J9T$NI>2A$K;H$&3H$,=PMh$k>pJs$,I=< ($5l^$9 ('*' Oh$j>.$5$$ WSSR $r8+$D1ilJ$+$C$?$3$H! "$=7F:F;n9T7F$$$k3H$r0ULH$7$^$9)! #sum of squares of residuals' (;D:9$N<+>hOB) $O! "'chisquare' (&V<+>h) Hb8FPl$^$9$,! "$3lO%G! <%?HEvFOa4X?tHN4V$N WSSR $r0ULH$7$F$$$F! "**fit** O3lr:G>.2=7h$&$H7^$9! #$3$NCJ3,$G! "=E$_IU$1$5$l$?%G! <%?$KhC$F! "&V<+>h$NCM$O<+M3EY (= %G! <%?E@$N?t-%Q%i%a! <%?$N?t) $K6aIU$/3H$,4|BT$5$1$^$9! #WSSR $OJd@5$5l?&V<+>hCM (WSSR/ndf; ndf = <+M3EY)! "$^$?OEvFOaI8=`UP:9 (stdfit = sqrt(WSSR/ndf)) $r7W;;$9kN$K;H$ol^$9! #$=li$O:G=*E*$J WSSR KBP7$F%l%]! <%H$5l^$9! #

%G! <%?$,=E$_IU$1$5lF$$$J1l$P! "stdfit $O! "%f! <%6$NC10LGN! "%G! <%?HEvFOa4X?t$NUJP:9$NRMS (<+>hJ?6QJ?J}:,) KJj^$9! #

b7BEEv$J%G! <%?8m:9$rM?$ (! "%G! <%?E@$,==J,B?$/! "%b%G%k$,@5$7$1$l$P! "Jd@5&V<+>hCM$O$ [$\1 KJj^$9 (>\:Y$O! "E,Ev$JE}7W3X$NK\$N'&V<+>hJ,I [' $N9 '$r;2>H7F$/$@5)! #3N>l9g! "3N35MW$K=q$+lF$$$k3H0J30$K! "%b%G%k$,%G! <%?KIl/$iNIJ/Ev$F$^$C$F$$$k$+$r7hDj9k$?$a$NDI2C$N;n83J}K!$,$$$/D+$" j^$9! #

Jd@5&V<+>h$,1 hjOk$+KBg-$/JC$?!"$=lOIT@5$J%G! <%?8m:9I>2A! "@55,J,I [7JJ%G! <%?8m:9! "%7

%9%F% >e$NB,Dj8m:9!"8IN)$7$?I8K\CM(outliers)!"$^$?$QNI$/$J$%b%G%k4X?t$JIN$?$aG7g&!#Nc$($P**plot 'datafile' using 1:($2-f($1))** JIH7$F;D:9$rIA2h9k3H$O!"$=li$N%7%9%F%'E*$J7 98~rCNk$?$a$N<j$,$+$jHJj^$9!#%G!<%?E@$H4X?t$NN><T$rIA2h9k3H$O!"B>$N%b%G%k$r9M$($?$a$N<j$,$+$jHJkG7g$&!#

F1MM$K!"1.0 hj>.$5$$Jd@5&V<+>h$O!"WSSR $,!"@55,J,I[$9$k8m:9$r;}$D%i%s%@%'$J%5%s%W%k$H4X?t$KBP7F4|BI5lkbNhjb>.$5$$$3Hr0UL#7^$9!#%G!<%?8m:9I>2A$,Bg$-$9$.$kN+!"E}7WE*$J2>Dj$,@5$7$/$J$$$N$+!"$^$?$O%b%G%k4X?t$,0lHIE*$9$.$F!"Fb:_E*7 98~$K2C$($FFC<l$J%5%s%W%kKh$kJQF0$NEvFO%aKJCF$$$kNG7g$&!#:G8e$N>19g$O!"$h$j%7%s%W%k$J4X?tK9lP$&$^$/9T$/G7g&!#

EvFO%a$N p-CM$O!"<+M3EY$H7k2L$N&V<+>hCMKBP9$k&V<+>hJ,I[$NN_@QJ,I[4X?tCM$r1 $+$i0z$$?CM$G$9!#3l$O!"Ev$F$O%a$NNI5NbN5$7$rDs6!7^$9!#p-CM$NHC0O$O0 $+$i1 $^$G$G!"p-CM$,HF$b>.$5$$!"$"$k$$$O%HFbBg$-$$$>19g$O!"%b%G%k$,%G!<%?H=$N8m:9$rAcsH5-=R7F$$$J$$3Hr0UL#7^$9!#>e$G=RY?h&$K!"$3lO%G!<%?$KLdBj$,$"$k$+!"8m:9$+%b%G%k$KLdBj$,$"$k!"$^$?%O$=$liNAH$_9g$o$;$JN@m&$H;W$$$^$9!#p-CM$,>.$5$$$3HO!"8m:9$,2a>.I>2A$5lF$$kNG!"hC$F:G=*E*$J%Q%i%a!<%?8m:9$r%9%1!<%kJQ49$9Y-$@$m$&$H$$&3H$r0UL#$9kG7g$&!#0J2<b;2>H:**set fit errorscaling (p. 128)**!#

I8=`E*$J%(%i!<$r!"%Q%i%a!<%?NIT3ND j@-$K4X$9$k!"$"kh$j8=<BE*$JI>2A$K4X78IU$lk3$H!"$*hSAj4X9TNs$N=EMW@-$rI>2A9k3H$,$G$-$kh&KJ$kA0$K!"$"$J$?$O**fit** $H!"$=lrE,MQ7h$&$H9k$"$k<o$NLdBj$K47lF$*$/I,MW$,$"kG7g$&!#

fit $O!"BgDq$NHs@~7A:G>.<+>hK!$N<BAu$G$O6&DL$7$F!"5wN%$N<+>h(y-f(x))**2 $N=E$_IU$-$NOB$r:G>.2=$7h&H9k3HKCm0U7F$/$@$5$$!#$=$l$O!"x NCMN"8m:9" $r7W;$K4X7F$O%I$s$JJ}K!$bM?$($F$O%*$i:!"C1$Ky $K4X$9$kI>2A$N$_$G$9!#$^$?!"'8IN)E@"(@55,J,I[$N%b%G%kN+$i30$l$F$$k%G!<%?E@)$O>o$K2r$r0-2=$5$;$k2DG=@-$,$"j^$9!#

@)8f (control)

%3%^%s%I**fit** $N@_Dj$O!"**set fit** $G@)8f$7$^$9!#0JA0$N**gnuplot** $N%f!<%6JQ?t$O!"%P!<%8%g%s5 $GHs?d>)$HJC$F$$$^$9!#0J2<;2>H:**fit control variables (p. 80)**!#

gnuplot $N5/F0A0$K**fit** $K1F6A$rM?$($kh&$KDj5A$G$-$kB?$/$N4D6-JQ?t$,$"j^$9!#0J2<;2>H:**fit control environment (p. 81)**!#

@)8fJQ?t (control variables)

$3$3$G@bL@$9$k%f!<%6Dj5AJQ?t$O!"Hs?d>)$G$9!#0J2<;2>H:**set fit (p. 128)**!#

%G%U%)%k%HNbCH$b>.$5$$?t;z$N8B3&(1e-5) $O!"JQ?t

FIT_LIMIT

$GJQ99$G$-$^$9!#;D:9$NJ?J}<+>hOB$,2 DNH?I|%9%F%C%W4V$G!"3N?tCMhj>.$5$$?t7+JQ2=7J$+$C$?>19g!"Ev$F$O%a%k!<%A%s$O!"3l$r'<}B+$7$?'$H8+J7$^$9!#

H?I|?t$N:GBgCM$OJQ?t

FIT_MAXITER

$G@)8B$5l^$9!#0($^$?$OJ5A7J$$>19g)$O@)8BL5$7$r0UL#$7$^$9!#

99K=$N%"%k4%j%:%'$r@)8f7?$$>19g$G!"$+$D Marquardt-Levenberg %"%k4%j%:%'rNI/CNCF$$k>19g$O!"$5iK$=$l$K1F6A$rM?$($kJQ?t$,$"j^$9!#**lambda** (&K) $N:G=i$NCM$O!"DI>o ML 9INs$+$i<+F0E*$K7W;;5l$^$9$,!"$b7=lr"i+8aMQ0U7?CM$K%;%C%H$7$?$l$lP

FIT_START_LAMBDA

$K%;%C%H$7F/$@$5$$!#FIT_START_LAMBDA $r0 0J2<$K%;%C%H9k$H!"<+F0E*$K7W;;5lkh$&$KJj$^$9!#JQ?t

FIT_LAMBDA_FACTOR

$O!"&V<+>h2=$5l?4X?t$,A}2C!"$"$k$$$O8:>/9kKDlF**lambda** $,A}2C$"$k$$$O8:>/9k0x?t$rM?$($^$9!#FIT_LAMBDA_FACTOR $r0 H9kH!"$=lO%G%U%)%k%H$N0x?t10.0 $,;HMQ$5l^$9!#

fit KOFIT_ $+$i;O$^$kJQ?t$,B>$Kb"j^$9!#$j$^$9$+$i!"%f!<%6Dj5AJQ?tH7FO$=$Nh&$JL>A0$G;O$^$kJQ?t$O;H$o$J$$$h$&$K9kN,0BA4G7g&!#

JQ?t FIT_SKIP $H FIT_INDEX $O! "0JA0$NHG$N **gnuplot** $N! "**gnufit** $H8F$PlF$$?**fit** %Q%C%A$G;H$olF $$?bN$G! "8=:_$O;HMQ5l$F$$^$;$s! #FIT_SKIP $N5!G=$O%G! <%?%U%!%$%k$KBP9k**every** ;XDj;R$GMQ0U 5l$F$$^$9! #FIT_INDEX $OJ#?tEv$FOaK! (multi-branch fitting) $G;H$olF$$?bNG9$,! "1 JQ?t$NJ# ?tEvFO$aK!$O! ":#GO5?;w3 <!85EvFOaH7F9TJolF$$F! "$=$3GO;^$N;XDj$K$O2 JQ?t$H**using** $,;H$olF$$^$9! #0J2<;2>H: **fit multi-branch (p. 81)**!#

4D6-JQ?t (control environment)

4D6-JQ?t$O**gnuplot** $,N)$A>e$,$kA0$KDj5A$7J1lPJj$^$;$s! #$=$N@_DjJ}K!$O%*%Z%l!<%F%#%s%0%7%9%F %`$K0MB8$7$^$9! #

```
FIT_LOG
```

$O! "Ev$FOa$N%m%0$,=q$+$l$k%U%!%$%kL>($*$h$S%Q%9)$rJQ9$7$^$9! #%G%U%)%k%H$G$O! ":n6H%G%#%l%/%H%j>e $N"fit.log" HJCF$$$^$9! #$=$N%G%U%)%k%H$NCM$O%3%^%s%I**set fit logfile** $r;H$C$F>e=q$-G-$^$9! #

```
FIT_SCRIPT
```

$O! "%f!<%6$,CfCG7?8e$K<B9T$9$k%3%^%s%I$r;XDj7^$9! #%G%U%)%k%H$G$O**replot** G9$,! "**plot** $d**load** %3%^ %s%I$H9l$P! "Ev$FOa$N?J9T>u67$NI=<($r%+%9%?%^%$%:9kNKJXMxG7g&! #$=$N@_Dj$O! "**set fit script** $r;H$C$FJQ99$G$-$^$9! #

J#?tNEvFOa (multi-branch)

J#?tEvFO$aK! (multi-branch fitting) GO! "J#?t$N%G! <%?=89g$r! "6&DL$N%Q%i%a! <%?$r;}$DJ#?t$N1 JQ?t$N 4X?t$K! "WSSR $NAmOB$r:G>.2=9k3HKhCFF1;~KEvFOak3H,=PMh$^$9! #3F%G! <%?=89gKBP9$k4X ?t$H%Q%i%a! <%?(;^) $O'5?;wJQ?t' $r;H$&3H$GA*Br$G$-$^$9! #Nc$($P! "%G! <%?9THV9f(-1;'%G! <%?Ns' $NHV 9f)$^$?$O%G! <%?%U%!%$%kHV9f(-2) $r2 $DL\$NFHN)JQ?tH7$^$9! #

Nc: 2 DN;X?t8:?j7Az=f(x) $,M?$(il$F$$$F! "$=$l$>$l0[Jk%G! <%?=89g$r5-=R$7$F$$$k$,! "6&DL$7$?8:?j ;~4V$r;}$A! "$=$N%Q%i%a! <%?$NCM$rI>2A$9$k! #%G! <%?%U%!%$%k$,x:z:s $N7A<0$G$"$C$?$H9k$H! "$3$N>19g0J 2<$Nh&K9lP$h$$! #

```
f(x,y) = (y==0) ? a*exp(-x/tau) : b*exp(-x/tau)
fit f(x,y) 'datafile' using  1:-2:3  via a, b, tau
```

hjJ#;(JNcK$D$$$F$O! "%G%b%U%!%$%k"fit.dem" $G;H$olk"hexa.fnc" $r;2>H$7F/$@$5$$! #

b7=>B0JQ?t$N%9%1! <%k$K:9$,$"$k>19g! "C10L$N=E$_IU$1GO1 DN;^$,;YG[$7F7$^$&2DG=@-$,$"kN$G! " E,Ev$J=E$_IU$1$,I,MW$KJj$^$9! #3F;^$r%P%i%P%i%KEv$FOakN$KJ#?tEv$FOaK!$N2r$r=i4|CMH7$FMQ$$ kN$O! "A4BN$r9go;$?2r$N3F;^KBP9$kAjBPE*$J1F6A$K4X$9$kI=<($rM?$($k3HKJkG7g$&! #

=i4|CM (starting values)

Hs@~7AEvFOaO! "Bg0hE*$J:GE,CM(;D:9$N<+>hOB (SSR) $N:G>.CM$r;}$D2r) XN<}B+$OJ]>Z$O7^$;s,! " 6I=jE*$J6K>.CM$rM?$(k3HOG-$^$9! #$=$N%5%V%k! <%A%sO=lr7hDj9kJ}K!$r2?$b;}$A9g$o$;$F$$J$$ NG! "3l$,5/$3C?$+$I&$+$rH=CG9kNO"J?$N@UG$$HJj$^$9! #

fit $O! "2r$+$i1s$/$+$i;Oak$H<:GT$9k+bCNl$^$;s7! "7P7P$=$l$O5/$3$jF@$^$9! #1s$/$H$$&NO! " SSR $,Bg$-$/! "%Q%i%a! <%?$NUQ2=KBP7F=$NUQ2=$,>.5$$! "$"$k$$O?tCME*$KIT0BDj$JNN0h(Nc($P?tCM$, Bg$-$9$.$FIbF0>.?t$N7e$"Ul$r5/$3$9)$KE~C#7F7^CF! "$=$N7k2L"L$Dj5ACM(undefined value)" $N%a%C %;!<%8$+**gnuplot** $NDd;_$r0z$-5/$3$7$F7^$&$h$&$J>19g$r0UL#$7$^$9! #

Bg0hE*$J:GE,CM$r8+D1$k2DG=@-$r2~A1$9$kKO! ":G=iNCMr$=$N2r$K>/$J$/$Hb[$\6a$/$K<h$kY-G7$g $&! #Nc$($P! "$b$72DG=$JiP017eJ,NBg-5NHO0CFb$G! #:G=i$NCM$,2r$K6a$$$[$IIT@5$J2r$G=*N;$7F7$^$& 2DG=@-CDc/Jj$^$9! #:G=iNCMr8+D1$k0l$D$NJ}K!$O! "%G! <%?HEvFOa4X?t$rF1$8%0%i%U$N>e$KIA2h$7 FE,EvJ6a5KC#9k$^$G! "%Q%i%a! <%?NCMrJQ99$7$Freplot 9k3H$r7+jJV9$3HG$9! #$=$NIA2h$O! "IT @5$J6K>.CM$r8+D1$?$3HGEvFOa,=*N;7?$+$I&$+$r%A%'%C/9kNK$bM-MQ$G$9! #

bAms! "8+$?L\$,NI$$EvFOa,8+D+CF$b! "$=lO"$=$lhj$h$$" EvFO$a($"$k2~NI$5l?EvFO aNNI5N4p=`KhCFFCD'IU1il?E}7W3XE*$J0UL#$G! "$"$k$$$O=$N%b%G%k$NhjE,@Z$J2r$G$"$k! "$H$$ $&J*M}E*$J0UL#$G)$,B8:_7J$$3HN>ZL@KOJ^$;$s! #LdBjKhCF$O! "3F%Q%i%a! <%?$N0UL#N"$kHO 0O$r%+%P! <9kh&$JMM!9$J=i4|CM$N=89g$KBP7Ffit 9k3H$,K>$^$7$$$+bCNl$^$;$s! #

%R%s%H (tips)

$3$3GO! "**fit** $r:GBg8B$KMxMQ9k$?$a$K$$/D+3P$ (F*$/$Y$-%R%s%H$r>R2p7^$9! #$=li$OAH?%E*$GOJ $$N$G! "$=$NK\<A$,7_9~$ '$^$G2?2sbh$/FI$sG/$@$5$$! #

fit $N0z?t$N **via** KO! "2 DNBg$-$/0[JkL\E*N?aN2 DN7A<0$,$"j^$9! #**via "file"** $N7A<0$O! "%P%C %A=hM} (HsBPOC7?GN<B9T$,2DG=) $G:G$bNI$/;H$o$l! "$=$N%U%!$%kNCfG=i4 |CM$rM?$ (k3H,G-$^$9! #

via var1, var2, ... $N7A<0$OBPOC7?$N<B9T$GNI$/;H$o$l! "%3%^%s%I%R%9%H%j$N5!9=$,;H$C$F%Q%i%a! <%?%j%9%H $NJT=8$r9TJ! "EvFOar<B9T7?$j! "$"$k$$O?7$7$=i4 |CM$rM?$ ($F<!$N<B9T$r9T$JC?j7$^$9! #3l$O Fq$7$LdBj$KBP7FOFCKM-MQ$G! "A4$F$N%Q%i%a! <%?$KBP7F1EY$@$1EvFOarD>@\<B9T7F$b! "NI$=i4 | CMGJ1lP&$^$/$$+$J$$3H,5/3jF@k+iG$9! #$=lr8+D1kK$O! "$$/D+$N%Q%i%a! <%?$N$_$K BP7F2?2s$+H?I |$r9TJ! "**:** G=*E*KOA4FN%Q%i%a! <%?KBP9$k1EY$NEvFOa,$&$^$/$$/H3mK==J, 6a$/$Jk^G=lr7+jJV9$3$H$G$9! #

EvFOar9TJ&4X?t$N%Q%i%a! <%?4V$K6&DL$N0MB84X78$,$J$$3HO3NG'7F$*$$F$/$@$5$$! #Nc$ ($P! " a*exp(x+b) rEvFOa$K;H$CFO$$1$^$;$s! #$=lO a*exp(x+b)=a*exp(b)*exp(x) $@$+iG$9! #$hCF 3N>l9g$O a*exp(x) $^$?$O exp(x+b) $r;H$CF/$@$5$$! #

5;=QE*J*OC @dBPCM$,:G$bBg$-$$%Q%i%a! <%?$H:G$b>.$5$$%Q%i%a! <%?NHf,Bg$-$$$DxEvFOaN<}B+OCY/ Jj$^$9! #$=$NHf$,! "%^%7%s$NIbF0>.?t$N@:EY$N5U?t$K6a$$+! "$"$?O=$l0J>e$JiP! "$[$\$:CH<}B+7J $$+<}B+9kA0$K<B9T$,CfCG9kG7g&! #hCF=Nh$&$J>l9g$O! "$=$N4X?t$ND;5AGNc ($P 'parameter' $r'1e9*parameter' K9kH$+! "**:** G=iNCMr1e9 $G3d$kH+7F3lrHr1kh$&$K2~NI9k$+! "$"$?$O **set fit prescale** $G%Q%i%a! <%?$N=i4 |CM$K=>$CF=$N%9%1! <%kJQ4$9$rFbIt$Gdi$;$k5!G=$rMQ$$$k$+! "$N$$:l+ $,I,MW$G7g$&! #

b7! "4X?t$r! "Ev$FOa$k%Q%i%a! <%?$r78?tH9$k! "C1=c$J4X?t$N@~7A7k9g$G=q1kJi! "$=$lOHFb$$$$ NG@'Hs$=$&7F$/$@$5$$! #2?8NJi! "LdBj$,$bOdHs@~7AGO$J$$$N$G! "H?I |$O>/$J$$2s?t$G<}B+$9kG7g $&! #$b7+7?i?C?0l2sG9$ '$+$b7l$^$;$s! #

<B:]$N<B83$N9V5AGO%G! <%?2r@OKBP9$k$$/D+$N;X<($,M?$ (il! "$=$l$G%G! <%?$X$N:G=i$N4X?tNEvF$O a,9TJol^$9! #$b7+9k$H! "4pA0M}O@$NJ#?t$NB&LI$KRHD:$DBP1~9kJ#?t2s$N%W%m%;%9$,I,MW$+$b CNl^$;s,! "$=$7F=li$N4X?t$NEvFOaN%Q%i%a! <%?$+$iK\Ev$KM_7+C?>pJs$r<h$j=P$9G7g&! # 7+$7! "**fit** $r;H$ ($P! "5a$a$k%Q%i%a! <%?$N;kE@$+$iD>@\%b%G%k4X?t$r=q$/3HKh$j! "$=lO7P7P1 2s $G:Q$ 'NG$9! #;~! 9$OhjFq$7$$EvFO$aLdBj$N7W;;$3%9%H$,$+$+j^9,! "%G! <%?JQ4$9$b$+$JjN3d9g$GHr 1k3H$,=PMh$^$9! #b7$3l,! "EvFO$a4X?t$NC1=c2=$K4X7F! "A0$NCJMn$HL7=b$7Fk$H;W$&Ji! "$=$l $O@52r$G$9! #

"singular matrix" $N%a%C%;! <%8$O! "3N Marquardt-Levenberg %"%k%4%j%:%'$N%k! <%A%s$,! "<!$NH?I |$KBP$9 $k%Q%i%a! <%?$NCM$N7W;;$,=PMh$J$$$3Hr0UL#7^$9! #$3$N>l9g! "JL$J=i4 |CM$+$i;Oak$+! "4X?t$rJL$J7A$G =q$-D>$9$+! "$h$j4JC1$J4X?tK7F_F/$@$5$$! #

:G8e$K! "B>$NEvFO$a%Q%C1! <%8 (fudgit) $N%^%K%e%"%k$+$i! "$3li$NJ8=q$rMWLs9kh&$J$$$0zMQ$r>e$2 $^$9: "Nonlinear fitting is an art! (Hs@~7AEvFO$aK!$O7]=Q$@!)"

Help

help %3%^%s%I$O! "AH$_9~$_%X%k%W$rI=<(7^$9! #$"$k9 '$K$D$$$F$N@bL@$r;XDj7?$$$H$-$K$O! "<!$N=q<0$r ;H$C$F2<$5$$:

```
help {<9 'L\L>>}
```

b7<9 'L\L>> $,;XDj$5lJ$+$C$?>l9g$O! "**gnuplot** KD$$$F$N4JC1$J@bL@$,I=<($5l^$9! #;XDj$7$?9 'L\ KD$$$F$N@bL@$,I=<(5l$?8e! "$=lKBP9k:YL\$N%a%K%e! <$,I=<($5$l! "$=$N:YL\L>$rF~NO9k3H$G:YL\ KBP9$k%X%k%W$rB3$1$k3H$,G-$^$9! #$=7F! "$=$N:YL\$N@bL@$,I=<($5l?8e$K! "$5iJ$k:YL\L>$NF~NO $rMW5a$5lk$+! "$^$?$O1 $DA0$N9 'L\$N%l%Y%kXLaj$^$9! #3l$r7+$jJV9Hd,$F! "**gnuplot** $N%3%^%s%I%i %$%sXHLaj^$9! #

$^$?! "5?LdId(?) $r9 'L\$H7F;XDj9k$H! "8=:_$N%l%Y%k$N9 'L\$N%j%9%H$,I=<($5l^$9! #

History

%3%^%s%I **history** $O!"%3%^%s%IMzNr$N0lMw$rI=<($7$?$j!"J]B8$7$?$j!"0lMw$NCf$N%3%^%s%I$r:F<B9T7?j7$^$9!#3N%3%^%s%I$N5sF0$rJQ$($kKO!"0J2<;2>H: **set history (p. 135)**!#

history %3%^%s%I$G;O$^$kF~NO9T$O!"%3%^%s%IMzNrKOJ]B8$7$^$;$s!#

Nc:

```
history               # MzNrA4BN$rI=<(
history 5             # MzNrFb$ND>A0$N 5 $D$rI=<(
history quiet 5       # %(%s%H%jHV9f$J$7$GD>A0$N 5 $D$rI=<(
history "hist.gp"     # MzNrA4BN$r%U%!%$%k hist.gp $K=q$-=P$9
history "hist.gp" append # MzNrA4BN$r%U%!%$%k hist.gp $KDI2C$9$k
history 10 "hist.gp"  # D>A0$N 10 8D$r%U%!%$%k hist.gp $K=PNO
history 10 "|head -5 >>diary.gp" # %Q%$%W$GMzNr$r 5 $D=q$-=P$9
history ?load         # MzNrFb$N "load" $G;O$^$k$b$N$9$Y$F$rI=<(
history ?"set c"      # >e$HF1MM(J#?t$N81$O0zMQId$G0O$'
hi !reread            # "reread" $G;O$^$k:G$b?7$7$9T$r<B9T
hist !"set xr"        # >e$HF1MM(J#?t$N81$O0zMQId$G0O$'
hist !55              # 55 HVL\$NMzNr9'L\$N%3%^%s%I$r:F<B9T
```

If

?7$7$$=q<0:

```
if (<condition>) { <commands>;
       <commands>
       <commands>
} else {
       <commands>
}
```

0JA0$N=q<0:

```
if (<>r7o>) <%3%^%s%I9T> [; else if (<>r7o>) ...; else ...]
```

3N%P!<%8%g%s$Ngnuplot $O!"if/else $N%V%m%C%/7A<0$r%5%]!<%H$7F$$$^$9!#%-!<%o!<%I **if**, **else** $N8e$m$K3+;O+%C%3"{" $,B3$/>19g!""}" $G=*N;$9$k%V%m%C%/$^GN9YFNJ8(J#?t$NF~NO9T$b2D) $K>r7oE*$J<B9T$,E,MQ$5l^$9!#if %3%^%s%I$OF~$l;R$K9k3HbG$-$^$9!#

8E$7A<0$N1 9T$N if/else J8$b$^$@%5%]!<%H5l$F$$$^9,!"?7$7$%V%m%C%/7A<0$N=q<0$H$O:.$<FO$$1$^$;$s!#0J2<;2>H: **if-old (p. 83)**!#

If-old

gnuplot %P!<%8%g%s 4.4 $^$G$O!"if/else %3%^%s%I$NDIMQH00O$O1 9TFb$KN1$^$C$F$$$^7?$,!"8=:_$OJ#?t9T$rCf+%C%3{ } $G0O$s$G=q$/3H$,$G$-$^$9!#8E$7A<0$b0ll~;D$5lF$$$^9,!"$=$l$OCf+%C%3$N%V%m%C%/Fb$G;H$&3HOG$-$^$;$s!#

%-!<%o!<%I **if** $,"{" rHbJoJ$>19g$O!"<>r7o> $,??(%<%m$G$J$$) Ji$P<%3%^%s%I9T> $N%3%^%s%I(J#?t$b2D) $,<B9T$5$l!"56(%<%m) Ji$P%9%-%C%W$5l^$9!#$$:lN>19g$bF~NO9T$N:G8eKJk+!"**else** $,8=$lkH3m$^$G$=$l$,9T$ol^$9!#; $r;H$&$HF1$89T$KJ#?t$N%3%^%s%ICV$/$3H,2DG=G9$,!">r7oIU$-$N%3%^%s%I(**if** $N9=J8<+BN) O=3G$O=*iJ$$$3HKCm0U7F$/$@$5$$!#

Nc:

```
pi=3
if (pi!=acos(-1)) print "?Fixing pi!"; pi=acos(-1); print pi
```

$r<B9T$9kH!"

```
     ?Fixing pi!
     3.14159265358979
```

```
     if (1==2) print "Never see this"; print "Or this either"
```

```
     v=0
     v=v+1; if (v%2) print "2" ; else if (v%3) print "3" ; else print "fred"
```

For

plot, **splot**, **set**, **unset**

```
     for [intvar = start:end{:increment}]
     for [stringvar in "A B C D"]
```

```
     plot for [filename in "A.dat B.dat C.dat"] filename using 1:2 with lines
     plot for [basename in "A B C"] basename.".dat" using 1:2 with lines
     set for [i = 1:10] style line i lc rgb "blue"
     unset for [tag = 100:200] label tag
```

```
     set for [i=1:9] for [j=1:9] label i*10+j sprintf("%d",i*10+j) at i,j
```

iteration (p. 40), **do (p. 74)**

Import

import

```
     import func(x[,y,z,...]) from "sharedobj[:symbol]"
```

```
     # 4X?t myfun $r "mylib.so" $+ "mylib.dll" $+$i<h$j9~$s$G:n@.$9$k
     # gnuplot $G$OIA2h!"$^$?$O?tCM7W;;$GMxMQ2DG=
     import myfun(x) from "mylib"
     import myfun(x) from "mylib:myfun"    # >e$HF1MM

     # "theirlib.so" $+ "theirlib.dll" $GDj5A:Q$N4X?t theirfun $r:n@.
     # 0[$J$kL>A0$GMxMQ2DG=
     import myfun(x,y,z) from "theirlib:theirfun"
```

LD_LIBRARY_PATH $+ DYLD_LIBRARY_PATH

Load

load %3%^%s%I$O!"; XDj$5l?F~NC%U%!%$%k$N3F9T$r!"$=l,BPOCE*$KF~NC$5l?$+$Nh&$K<B9T$7$^$9!#**save** %3%^%s%IGD$/$il?%U%!%$%k$O!"**load** 9k3H$,$G$-$^$9!#M-8z$J%3%^%s%I$N=q$+l?%F%-%9%H%U%!%$%k$rD/lP!"$=$l$O!"**load** %3%^%s%I$KhC$F!"<B9T$9k3H,G-$^$9!#**load** Cf$N%U%!%$%kNCfK5i$K **load** $^$?$O **call** %3%^%s%I$,$"$CFb9=$$$^$;$s!#%3%^%s%ICf$N%3%a%s%H$K$D$$F$O!"0J2<;2>H: **comments (p. 26)**!#**load** 9kH-$K0z?t$rM?$($kJ}K!KD$$F$O!"0J2<;2>H: **call (p. 72)**!#

=q<0:

```
load "<F~NC%U%!%$%kL>>"
```

F~NC%U%!%$%kL>$C0zMQId$G0O$^J1lPJj$^$;$s!#

load %3%^%s%I$O!"I8=`F~NC$+$i$N%3%^%s%I$NF~NC$N?$a$K!"FCJL$J%U%!%$%kL>"-" $rMQ0U$7$F$$$^$9!#$3$l$O!"**gnuplot** $N%3%^%s%I%U%!%$%k$,!"$$/$D$+$N%3%^%s%I$rI8=`F~NC$+$i<u$1IU1k3H$r0UL#$7$^$9!#>\:YKD$$F$O!"0J2<;2>H: **batch/interactive (p. 24)**!#

Unix Nh$&$K popen 4X?t$r%5%]!<%H$9kh$&$J%7%9%F%`$G$O!"'<' $G;O$^$k%U%!%$%kL>$K$9$k$3$H$G!"F~NC%U%!%$%k$r%Q%$%W$+$iFI$_9~$`3H$,$G$-$^$9!#

Nc:

```
load 'work.gnu'
load "func.dat"
load "< loadfile_generator.sh"
```

gnuplot XN0z?tH7$FM?$(il$?%U%!%$%kL>$O!"0EL[$N$&A$K**load** %3%^%s%IKhCF<B9T5l$^$9!#3liO!";XDj5l$?=g$K%m!<%I5l!"$=$N8e**gnuplot** $O=*N;$7$^$9!#

Lower

0J2<;2>H: **raise (p. 109)**!#

Pause

pause %3%^%s%I$O!"%3%^%s%I$KB3$/G$0U$NJ8;zNs$rI=<(7?8e!";XDj5l$?;~4V$^$?$O!"2~9T%-!<$,2!$5lk$^$GBTA^$9!#**pause** %3%^%s%I$O!"**load** MQ$N%U%!%$%k$H6&$K;HMQ9k$H!"JXMx$KJkG7g&!#

=q<0:

```
pause <time> {"<string>"}
pause mouse {<endcondition>}{, <endcondition>} {"<string>"}
```

<time> $O!"G$0U$NDj?t$^$?$O<B?tCM$N<0$G$9!#**pause -1** $O2~9T%-!<$,2!$5$5lk$^$GBT$A!"0$r;XDj9k$H0l@ZBT$?$:!"@5$N?t$r;XDj$9kH$=$NIC?t$@$1BTA^$9!#**pause 0** $O **print** $HF1$8$G$9!#

;HMQ7F$$$k=PNO7A<0$, **mousing** (%^%&%95!G=) $r%5%]!<%H$7$F$$$k>19g!"**pause mouse** $O!"%^%&%9%/%j%C%/$,$"$k$+ ctrl-C $,2!$5lk$^$GBTDh$&$KJj$^$9!#$=$&GJ$$=PNO7A<0!"$^$?$O%^%&%95!G=$,M-8zKJCF$J$$>19g**pause mouse** $O**pause -1** $HF1$8$G$9!#

0l$D!"$"$k$$$OJ#?t$N=*N;>r7o (endcondition) $, **pause mouse** $N8e$KM?$($il?>19g!"$=$N$&A$NIN0lDG$b pause $O=*N;$7$^$9!#;XDjG-$k=*N;>r7o$O!"**keypress**, **button1**, **button2**, **button3**, **close**, **any** $N$$:l+$G$9!#pause $,%-!<F~NC$KhC$F=*N;$7$?>19g!"2!$5l?%-!<$NASCII %3!<%I$OMOUSE_KEY $KJ]B8$5$l!"J8;z$=$l<+?H$O!"1J8;zNJ8;zCMH7$FMOUSE_CHAR KJV5l^$9!#**keypress** $,=*N;>r7o$N0lDG$"$l$P!"%[%C%H%-!<(%-!<3d$jEv$F%3%^%s%I)$OL58zKJj^$9!#**buttons3** $,=*N;>r7o$N0lDG$"$l$P!"3HBg5!G=$OL58zKJj^$9!#

IN>19gGb%^%&%9$NBI8$OJQ?tMOUSE_X, MOUSE_Y, MOUSE_X2, MOUSE_Y2 $KJ]B8$5l^$9!#0J2<;2>H: **mouse variables (p. 45)**!#

Cm0U: **pause** %3%^%s%I$OOS XN%3%^%s%I$G"$jIA2h$N0lIt$GOJ$$$N$G!"0[$J$k=PNOAuCV$G$O0[$J$kF0:n$r9k2DG=@-$,$"j^$9!#($3lO!"%F%-%9%H%0i%U%#C%/%9$,!"$INh$&K:_$9k+Khj^$9!#)

Nc:

```
pause -1    # 2~9T%-!<$,2!$5$l$k$^$GBT$D
pause 3     # 3 IOBT$D
pause -1  "B3$l$k$K$O return $rBG$C$F$/$@$5$$"
pause 10  "$3$l$OH~$7$/$J$$$G$9$+ ? 3 <!$N spline $G$9"
pause mouse "A*Br$7$?%G!<%?E@>e$GG$0U$N%\%?%s$r%/%j%C%/$7$F$/$@$5$$"
pause mouse keypress "M-8z$J%&%#%s%I%&Fb$G A-F $NJ8;z$rF~NO$7$F$/$@$5$$"
pause mouse button1,keypress
pause mouse any "G$0U$N%-!<!"%\%?%s$G=*N;$7$^$9"
```

0!<oG"$k "pause mouse key" $O!"M-8z$JIA2h%&%#%s%I%&FbGNG$0U$N%-!<F~NOKhCF:F3+5l$^$9!#FCJL $J%-!<F~NO$^GBTDh&K7$?$S>19g$O!"0J2<$Nh&$J reread Khkk!<%W$r;H$&3H$,G-$^$9:

```
print "IA2h%&%#%s%I%&Fb$G Tab %-!<$rBG$D$HI|5"$7$^$9!#"
load "wait_for_tab"
```

%U%!%$%k "wait_for_tab" $O0J2<$Nh&JbNG$9:

```
pause mouse key
if (MOUSE_KEY != 9) reread
```

Plot

plot $O **gnuplot** $G?^$rIA$/$?aN4pK\E*$J%3%^%s%I$G$9!#$=lO4X?t$d%G!<%?$N!"B?$/$N<dN`$N%0%i%U=8=$rDs6!7^$9!#**plot** $O2<!85$N4X?t$d%G!<%?$rIA$/$N$K;H$o$l!"**splot** $O3<!85$N6JL$d%G!<%?$N2<!85Ej1FrIA-$^$9!#

=q<O:

```
plot {<ranges>} <plot-element> {, <plot-element>, <plot-element>}
```

3FIA2hMWAG(plot-element) $O!"Dj5A(definition) $+4X?t(function) $+%G!<%?(data source) $N$$:l+1 DK!"%*%W%7%g%s$NB0@-!"=$@5;RJI$,$D$$?bN$G$9:

```
IA2hMWAG (plot-element):
     {<iteration>}
     <definition> | {sampling-range} <function> | <data source>
     {axes <axes>} {<title-spec>}
     {with <style>}
```

3FIA2hMWAG$N%0%i%U=8=7A<O$O!"Nc$($P **with lines** $d **with boxplot** JINh$&$K%-!<%o!<%I **with** $G7hDj$7$^$9!#0J2<;2>H: **plotting styles (p. 52)**!#

IA2h9k%G!<%?$O!"1 DN4X?t$+$i@8@.5lkb$N(G^2pJQ?t%b!<%I(parametric) GO2 DN4X?t$+$i)!"$^$?$O0l$D$N%G!<%?%U%!%$%k$+$iFI$_9~$^lkbN!"$^$?$O;vA0$KDj5A5l$?L>A0IU$-%G!<%?%V%m%C%/$+$iFI$_9~$^lkbN!"$N$$:l+$G$9!#%3%s%^%G6h@Zk3HG!"J#?t$N%G!<%?%U%!%$%k!"%G!<%?%V%m%C%/!"4X?tJI$r1 DNplot %3%^%s%I$GIA2hG-$^$9!#0J2<;2>H: **data (p. 91)**, **inline data (p. 39)**, **functions (p. 102)**!#

4X?t!"JQ?t$ND j5A$NIA2hMWAG$O!"2hA|=PNO$r@8@.7^$;$s!#2<$N3 $DL\$NNc$r;2>H$7F/$@$5$$!#

Nc:

```
plot sin(x)
plot sin(x), cos(x)
plot f(x) = sin(x*a), a = .2, f(x), a = .4, f(x)
plot "datafile.1" with lines, "datafile.2" with points
plot [t=1:10] [-pi:pi*2] tan(t), \
     "data.1" using (tan($2)):($3/$4) smooth csplines \
              axes x1y2 notitle with lines 5
plot for [datafile in "spinach.dat broccoli.dat"] datafile
```

0J2<;2>H: **show plot (p. 156)**!#

<4 (axes)

<4 (axes) $O! "4 <dN '$NAH$,MxMQ$G$-$^$9; %-! <%o! <%I <axes> $O! "FCDj$ND>@~rI$N<4$K<\EY$r9g$o$;$k$+! " $H$$$&3H$rA*Br$9kN$K; H$o1^$9! #**x1y1** $O2<$N<4$H:8$N<4$r; XDj; **x2y2** $O>e$H1&$N<4$N; XDj; **x1y2** $O 2<$H1&$N<4$N; XDj; **x2y1** $O>e$H:8$N<4$N; XDj$G$9! #**plot** %3%^%s%I$G; XDj$5$1$?HOOC$O! "$3$N:G=i$N<4$NAH(2< $H:8) KN$_E,MQ$5$1$^$9! #

Binary

%P%$%J%j%G! <%?%U%!%$%k

%U%!%$%kL>$N8emK **binary** $N%-! <%o! <%I$rM?$ (J1$1$P$$1$^$;$s! #%U%!%$%k7A<0$K4X$9$k==J,>\:Y$J>pJs $O! "%f! <%6$,%3%^%s%I%i%$%s$+$iM?$ (k+! "$^$?$O%5%]! <%H$7$F$$k **filetype** $N%P%$%J%j7A<0$N%U%!%$%k$=$1 <+?H$+$iH4$-=P$5$1$k$+$9kI,MW,$"$j$^$9! #%P%$%J%j%U%!%$%kKO! "Bg$-$/2 DN7A<0! "binary matrix 7A <0$H binary general 7A<0$,$"$j$^$9! #

binary matrix 7A<0$O! "32 %S%C%H IEEE 5,3J$NIbF0>.?tCM(float) $,2 <!85G[Ns$N7AGJBS! "$=$1iN:BI8 CM$rI=$99THNs,DI2C$5$1$F$$$^$9! #plot %3%^%s%I$N **using** ;XDjK*$$F! "1 HVL\(column(1)) $O9TNs$N9T $N:BI8$r; 2>H$7! "2 HVL\(column(2)) ONsN:BI8$r; 2>H$7! "3 HVL\(column(3)) $O! "G[Ns$N$=$1iN:BI8$N>1 =j$KJ]B8$5$1$F$$$kCM$r; 2>H$7$^$9! #

binary general 7A<0$O! "G$0U8DNNsN%G! <%?$r4^$_! "$=$1iN>pJs$O%3%^%s%I%i%$%s$G; XDj$9kI,MW,$"$j $^$9! #Nc$ ($P **array**, **record**, **format**, **using** JI$G%5%$%:$d7A<0! "%G! <%?$N<!85$r; XDj$G$-$^$9! #B>$K$b! " %U%!%$%k%X%C%@FI$_Ht$P7?$j! "%(%s%G%#%"%s(endian) $rJQ99$9k?aNM-MQ$J%3%^%s%I$,$"$j$^$9$7! "G[CV! "%G! <%?$NJQ49$r9T$J$&%3%^%s%I$NAH$,$"j^$9! #$=1O! "0lMM$KI8K\2=$5$1$?%G! <%?$N>19g! "$=$N:BI8$, %U%!%$%k$K$O4^$^1J$$$3H,NI$/$"k+iG$9! #matrix %P%$%J%j%U%!%$%k$d%F%-%9%H%G! <%?$+$i$NF~NO$H0c $&$H3mG9$,! "general %P%$%J%j$O1,2,3 $H$$C$?**using** %j%9%H$G@8@.$5$1$kNsHV9f$r; Ho:! "Beoj$K1 NsL\$O%U%!%$%k$N1 NsL\! "$"$k$$$O **format** %j%9%H$G; XDj$5$1$?bN! "KJj^$9! #

5^6^$J binary %*%W%7%g%s$KBP9kBg0hE*$J%G%U%)%k%H$N@_Dj$b2DG=$G! "$=$1$O **(s)plot <filename> binary ...** %3%^%s%I$KM?$ ($k%*%W%7%g%s$HA4$/F1$8=q<0$G; XDj$G$-$^$9! #$=$N=q<0$O **set datafile binary ...** $G$9! #0lHIE*$J5,B'$H7F! "%G%U%)%k%H$N%Q%i%a! <%?$O%U%!%$%k$+$iH4$-=P$5$1$?%Q%i%a! <%?$G>e=q$-$5$1! " $=$1$O%3%^%s%I%i%$%ssG; XDj$5$1$?6&DL$J%Q%i%a! <%?$G>e=q$-$5$1$^$9! #

Nc$ ($P **array**, **record**, **format**, **filetype** $N **binary general** 7A<0$rFCDj$9kh$&$J%-! <%o! <%I$,2?$b$D$$$F $$J$1$1$P! "%G%U%)%k%H$N%P%$%J%j7A<0$O **binary matrix** $G$9! #

general %P%$%J%j%G! <%?$O! "FCJL$J%U%!%$%kL>'-' $r; H$C$F%3%^%s%I%i%$%ss+$iF~NO$9k3HbG-$^$9! #7+ $7! "$3$1$O%-! <%\! <%I$+$i$NF~NO$r0U?^7?bNGOJ/! "%Q%$%W$r; HCF%W%m%0%i%'$K%P%$%J%j7A<0$rJQ49 5;k?aNbN$G$9! #%P%$%J%j%G! <%?KO:G8e$rI=$95-9f$,$"j^$;sN$G! "gnuplot $O%Q%$%W$+$i%G! <%? rFI_9~$'>19g! "**array** ;XDj; R$G; XDj$7$??t$NE@?tKJk^$G%G! <%?$rFI$_9~$_B3$1$^$9! #>\:Y$K4X7F$O! " 0J2<;2>H:**binary matrix (p. 194)**, **binary general (p. 87)**! #

index %-! <%o! <%I$O! "%U%!%$%k%U%)! <%^%C%H$,1 DN%U%!%$%k$KD-1 DN6JL1$7$+5v5J$$?$a! "%5%]! < %H$5$1$^$;$s! #**every** $d **using** %U%#%k%?$O%5%]! <%H$5$1$^$9! #**using** $O! "%G! <%?$,$"$?$+$b>e$N3 DAHN7A GFI^1?$+$+Nh$&$KF/$-$^$9! #%P%$%J%j%U%!%$%k$N **splot** $N%G%b! #

General

%-! <%o! <%I **binary** $rC1FH$G; XDj7?>19g$O! "Hs0lMM$J3J; R$r7A@.$9$k:BI8>pJs$H! "3F3J; RE@GNCM$NN>J}$r ; }$D%P%$%J%j%G! <%?G"k3Hr0UL#$7(0J2<;2>H: **binary matrix (p. 194)**)! "B>$N7A<0$N%P%$%J%j%G! <%?$N >19g$O! "$=$N%G! <%?$N7A<0$r0UL#$9$kDI2C%-! <%o! <%I$r; XDj9kI,MW$,$"j^$9! #; DG0$J$,$i! "$3$1iNDI2C %-! <%o! <%I$N=q<0$OC1=cGO$"$j$^$;$s,! "$=1G$b general %P%$%J%j%b! <%I$O! "FC$KB?NL$N%G! <%?$r gnuplot KAwkh&$J%"%W%j%1! <%7%g%s$K<hCF$OM-MQ$G$9! #

=q<0:

```
plot '<file_name>' {binary <binary list>} ...
splot '<file_name>' {binary <binary list>} ...
```

general %P%$%J%j7A<0$O! "%U%!%$%k9=B$$K4X9k>pJs$K4XO"$9$k%-! <%o! <%I! "$9Jo$A **array**, **record**, **format**, **filetype** JI$r<binary list> Fb$KM?$ (k3HGM-8zKJj^$9! #$=$10J30$N>19g$O! "Hs0lMM$J matrix %P%$ %J%j7A<0$H8+$J7^$9! #(>\:Y$K4X7F$O! "0J2<;2>H: **binary matrix (p. 194)**! #)

Cm0U: 0JA0NHGN gnuplot GO! "%P%$%J%j%G! <%?MQ$N%-! <%o! <%I$N2r<a$K! "**plot** $H **splot** GO>/$70c$$$,$" j^7?! #$=$N0UL#$N0c$&2U=j$O! ":#8eNHGN gnuplot GO! "$=$N0lJ}$"$k$$$QN>J}$,JQ99$5lk2DG=@-$,$" j^$9! #

gnuplot $O! "Nc$ ($P PNG 2hA|$Nh&$K40A4$K<+8J5-=R5l$kI8= 'E*$J%P%$%J%j%U%!%$%k7A<0NFI_9~$_J}K! $r$$/D+CNCF$$^$9! #$=$N0lMw$O! "BPOC2hLL$G **show datafile binary** $HF~NC$9k3HG; 2>HG-$^$9! #$=$l$i0J30$NbNKD$$F$O! "35G0>e$O%P%$%J%j%G! <%?$O%F%~%9%H%G! <%?$HF1MM$K9M$ (k3H,G-$^$9! #3FE@KO! "**using** ; XDj$GA*Br$5lk>pJsNNs," j^$9! #**format** J8; zNs$r; XDj7J$+$C$?>19g! "gnuplot $O%P%$%J%j?tCM$N?t$r<**using list**> $GM?$ (il$k:GBg$NNsHV9fKEy7$/<h$j$^$9! #Nc$ ($P! "**using 1:3** H9kH3Ns$:$D%G! <%?$,FI$_<hil! "2 HVL\$NbN$OL5; k$7$^$9! #3FIA2h%9%?%$%k$K$O%G%U%)%k%H$N using ; XDj$," j^$9! #Nc$ ($P **with image** $O%G%U%)%k%H$G **using 1** $r! "**with rgbimage** $O%G%U%)%k%H$G **using 1:2:3** $r ; H$$^$9! #

Array

%P%$%J%j%U%!%$%k$NI8K\$NG[NsNBg-5r@_Dj7^$9! #:BI8$O gnuplot $,@8@.$7F/l^$9! #3FJ}8~$N<!85$r I=$9?t$r; XDj$7J1lP$$$1$^$;$s! #Nc$ ($P **array=(10,20)** $O! "2 <!85$G:G=i$N<!85J}8~(x) KO10 E@! "2 HVL\$N<!85J}8~(y) KO20 E@$NI8K\2=%G! <%?$," k3Hr0UL#7^$9! #%U%!%$%k$N=*N;$^$G%G! <%?$,B3$/$3Hr<(9NKIiNCM$r; H$ ($^$9! #%G! <%?<!85$, 1 $N>19g$O! "%+%C%3$O>JN,$G$-$^$9! #J#?t$N%G! <%?$N%5%$%:; XDj$rJ,N%$9kN$K! "%3%m%s$r; H$&$3H,G-$^$9! #Nc$ ($P **array=25:35** $O2 DN1 <!85%G! <%?$,%U%!%$%k NCfK$"$k3H$r0UL#7^$9! #

```
Cm0U:  gnuplot %P!<%8%g%s 4.2 $G$O array=(128,128) $H$$&=q<0$G
       $O$J$/!"array=128x128 $H$$&=q<0$r; HMQ$7$F$$^$7$?!#8E$$
       =q<0$O?d>)$5$l$F$$^;$s!#
```

Record

3N%-! <%o! <%I$O **array** $HF1$8=q<0$G! "F1$85!G=$rDs6!$7$^$9! #7+$7 **record** $O gnuplot $K:BI8>pJs$r<+F0@8@.5;$^$;$s! #$3lO! "$=$Nh&$J:BI8>pJs$,! "%P%$%J%j%G! <%?%U%!%$%kN"kNsK4^$^$l$F$$$k>19gN?aNbN$G$9! #

Skip

3N%-! <%o! <%I$O! "%P%$%J%j%U%!%$%k$N$"$k6h2h$N%9%-%C%W$r2DG=K7$^$9! #Nc$ ($P! "$=$N%U%!%$%k$,%G! <%?NN0h$N3+; C0ICV$NA0$K 1024 %P%$%H$N%X%C%@$r; }$Dh&$J>19g$K$O! "0J2<$Nh&K7$?$$H; W$&$G7g$&:

```
plot '<file_name>' binary skip=1024 ...
```

%U%!%$%k$KJ#?t$N%l%3! <%I$," $k>19g! "$=N=l>lKBP9k@hF,N:i70ICV$r; XDj$9k3H,G-$^$9! #Nc$ ($P! ":G=i$N%l%3! <%I$NA0$N 512 %P%$%H$r%9%-%C%W$7! "2 HVL\! "3 HVL\$N%l%3! <%I$NA0$N 256 %P%$%H$r%9%-%C%W9kKC0J2<Nh$&$K7^$9:

```
plot '<file_name> binary record=356:356:356 skip=512:256:256 ...
```

Format

%G%U%)%k%H$N%P%$%J%j7A<0$O! "C1@:EYIbF0>.?t (float) $,0l$D! "$G$9! #$=$lrh$j=@Fp$K@_Dj9k$?$a$K! "$3$N format $GJQ?t$N%5%$%:$K4X9k>\:Y$J>pJs$r; XDjG-$^$9! #Nc$ ($P **format="%uchar%int%float"** $O! ":G=i$N using NsH7$FId9f$J$7J8; z7?JQ?t (unsigned char) $r! "2 HVL\$NNs$OId9f$D$-@0?t (int) $r! "3 HVL\$NNs $OC1@:EYIbF0>.?t (float) $r; XDj$7$F$$$^$9! #$b$7%5%$%:; XDj; R$N?t$,:GBgNs?thj>.$5$$>19g$O! "; D$jNNsN JQ?t%5%$%:$C0EL[N&AK:G8e$KM?$ ($?JQ?t%5%$%:KEy7$/<h$il^$9! #

5i$K **using** ; XDjF1MM! "* J8; z$,$D$$?FI$_<N$FkNsr=q<0$K; XDj$9k3HbG-$^$9$7! "7+$jJV$7%U%#! <%k%I$X$N2s?t; XDj$KhC$F0EL[$N7+jJV7$r; XDj$9k3HbG-$^$9! #Nc$ ($P! "**format="%*2int%3float"** $O! "3 DN<B?t%G! <%?rFI'A0$K! "2 DN@0?t%G! <%?rFI_<NF^$9! #; HMQ$G$-$kJQ?t%5%$%:$N0lMw$O! "**show datafile binary datasizes** $G8+$k3H$,$G$-$^$9! #$=li$O! "$=l>lN%3%s%Q%$%k$KhCF=$N%P%$%H%5%$%:$HbK%^%7%s$K0MB8$9$kJQ?tL>$N%0%k! <%W$H! "%^%7%s$K0MB8$7$J$$JQ?tL>$N%0%k! <%W$KJ,$+$l$F$$$^$9! #

Endian

%U%!%$%k$N%P%$%J%j%G!<%?$N%(%s%G%#%"%s$O!"gnuplot $,F0:n$9$k%W%i%C%H%[!<%`$N%(%s%G%#%"%sHC0[Jk>l9g bNI/$"$j$^$9!#$$$/D+$N;XDj$Ggnuplot $,%P%$%HrINh$&$K07$&$+$r@)8f$G$-$^$9!#Nc$($P**endian=little** $O!"%P%$%J%j%U%!%$%k$r!"$=$N%P%$%H$NJBS,>.$5$$7e$+$iBg$-$$7eXJBs$G$$$k$H8+$J5l$^$9!#%*%W%7%g %s$C0J2<$NbN$,;H$($^$9!#

```
          little:  >.$5$$7e$+$iBg$-$J7e$XJB$V
             big:  Bg$-$J7e$+$i>.$5$J7e$XJB$V
         default:  compiler $HF1$8%(%s%G%#%"%s$H8+$J$9
    swap (swab):  %(%s%G%#%"%s$rJQ99$9$k ($*$+$7$$$h$&$J$i$3$l$r
                  ;H$C$F$_$F$/$@$5$$)
```

gnuplot $O!"%3%s%Q%$%k;~$K%*%W%7%g%s$,;XDj5l$F$$$l$P!""middle" ($d"pdp") %(%s%G%#%"%s$b%5%]!<%H$G $-$^$9!#

Filetype

gnuplot $O!"$$$/D+I8=`E*$J%P%$%J%j%U%!%$%k7A<0$K$D$$$FOI,MWJ>pJsr=$N%U%!%$%k$+$iH4$-=P$9$3$H $,$G$-$^$9!#Nc$($P "format=edf" $O ESRF %X%C%@!<%U%!%$%k7A<0$N%U%!%$%kH7FFI_9~$_$^$9!#8=:_%5 %]!<%H$7$F$$$k%U%!%$%k7A<0$K$D$$$F$O!"**show datafile binary filetypes** $G8+$F$/$@$5$$!#

FCJL$J%U%!%$%k7A<0H7$F**auto** $,$"$j!"$3$N>l9g gnuplot $O%P%$%J%j%U%!%$%k$N3HD%;R$,!"%5%]!<%H$5lF $$$k7A<0$NI8=`E*$J3HD%;RG"k+$r%A%"%C%/$7$^$9!#

%3%^%s%I%i%$%s%-!<%o!<%I$O%U%!%$%k$+iFI_<h$k@_Dj$r>e=q$-$9kN$K;H$o$l!"%U%!%$%k$+$iFI$_<h$k@_Dj $O%G%U%)%k%H$N@_Dj$r>e=q$-7^$9!#0J2<;2>H**set datafile binary (p. 124)**!#

Avs **avs** $O!"<+F0E*$KG'<1$5$l$k2hA|%$%a!<%8KBP9$k%P%$%J%j%U%!%$%k$N7?$N0l$D$G$9!#AVS $OHs>oC1=c $J%U%)!<%^%C%H$G!"%"%W%j%1!<%7%g%s4VGdjHj9kN$K:G$bE,7F$$$^$9!#$3lO!"2 DN long (xwidth $H ywidth) $H!"$=$N8eB3$/%T%/%;%kNNs+$i@.$j!"$=$N3F%T%/%;%k$O alpha/red/green/blue $N4 %P%$%H$+$i @.j^$9!#

Edf **edf** $O!"<+F0E*$KG'<1$5$l$k2hA|%$%a!<%8KBP9$k%P%$%J%j%U%!%$%k$N7?$N0l$D$G$9!#EDF $O ESRF %G!<%?%U%)!<%^%C%H (ESRF Data Format) $r0UL#$7$F$$$F!"$=$l$O edf $H ehf $NN>J}$N7A<0$r%5%]!<%H$7$F $$$^$9 (8e<T$O ESRF Header Format)!#2hA|$N;HMQ$K4X9k>\$7$$>pJs$C0J2<$G8+D+kG7g$&:

http://www.edfplus.info/specs

Png gnuplot $, png/gif/jpeg =PNCMQ$K libgd %i%$%V%i%j$r;H$&$h$&$K%$%s%9%H!<%k$5lF$$$k>l9g!"$=$l$i $N2hA|7A<0$r%P%$%J%j%U%!%$%kH7FFI_9~$`$3HbG-$^$9!#0J2<Nh$&$JL@<(E*$J%3%^%s%I

```
plot 'file.png' binary filetype=png
```

$r;H$&3HbG$-$^$9$7!"$"$i$+$8$a0J2<$Nh&$K@_Dj$7$F!"3HD%;R$+$i<+F0E*$K2hA|7A<0$r<+F0E*$KG'<1$5 $;$k3HbG$-$^$9!#

```
set datafile binary filetype=auto
```

Keywords

0J2<$N%-!<%o!<%I (keyword) $O!"%P%$%J%j%U%!%$%k$+$i:BI8$r@8@.9kH-KN$_E,MQ$5l^$9!#$D$^$j!" binary array, matrix, image $N8D!9$NMWAG$rFCDj$N x,y,z $N0LCV$X$NG[CV$N@)8fN?aNbN$G$9!#

Scan gnuplot $,%P%$%J%j%U%!%$%k$rINh&$KAv::$9k+!"$H$$$&3H$H<B:]$NIA2h$G8+$ilk<4$NJ}8~$H$N4V$N4X78KD$$$F$OB?$/$N:.Mp$,5/3jF@$^$9!#$=$N:.Mp$r8:$i9K$O!"gnuplot $O%P%$%J%j%U%!%$%k$r">o$K" E@/@~/LL!"$^$?$OB.$$/IaDL/CY$$!"$HAv::$9kH9M$($k$H$$$$G7g$&!#$3$N%-!<%o!<%I$Ognuplot $K!"$=$NAv::$NJ}8~$rIA2hFb$NIN:BI8J}8~(x/y/z) $K3d$jEvFk$+$r;XDj7^$9!#;XDj$O2 $D!"$^$?$O3 DNJ8;zNJBS$GI=8=$7!":G=i$NJ8;z$,E@$K!"<!$NJ8;z$,@~$K!"3 $DL\$NJ8;z$,LI$KBP1~7^$9!#Nc$($P!"**scan=yx** $O!":G$bB.$$Av::(E@$NA*Br) $Oy J}8~$KBP1~$7!"IaDL$NB.5NAv::(@~$NA*Br) $,x J}8~$KBP1~9k3H$r0UL#$7$^$9!#

IA2h%b!<%I$, **plot** $N>19g!";XDj$K$Ox $Hy $N2 DNJ8;z$r;H$&3H$,G-!"**splot** KBP7FOx, y, z $N3 DNJ8;z$r;H$&3H$,G-$^$9!#

3djEvF$K4X$7FO!"E@/@~/LL$+$iD>8r:BI8J}8~XN$_$K@)8B9kFbIt;v>pOJLK$"$j$^$;$s!#$3$NM}M3$G!"1_C1:BI8XN3djEvFN?aN;XDj;R$bMQ0U$5lF$$$F!"$=$liOD>8r:BI8$Nx, y, z $KN'w$7$?7A$Gt (3QEY), r, z HJCF$$$^$9!#

Transpose **scan=yx**!"$^$?$O **scan=yxz** $HF1$8$G$9!#9JoA!"3l$OF~NO;~$NAv::9T$N%T%/%;%k$X$N3d$jEvFK1F6A$rM?$($^$9!#I=<(9k:]$K2hA|$rE>CV9kKO!"0J2<Nh$&$K7F$_$F$/$@$5$$:

```
plot 'imagefile' binary filetype=auto flipx rotate=90deg with rgbimage
```

Dx, dy, dz gnuplot $,:BI8$r@8@.9k>19g!"$=$N4V3VO3li$N%-!<%o!<%I$G;XDj5l$?$bN,;HMQ5l$^$9!#Nc$($P **dx=10** **dy=20** $Ox J}8~$K10!"y J}8~$K20 $N4V3V$GI8K\2=5l$?$3Hr0UL#7^$9!#**dy** $O **dx** $,$J1l$P;H$($^$;$s!#F1MM$K **dz** $O **dy** $,$J1l$P;H$($^$;$s!#$b$7%G!<%?$N<!8$5$,;XDj7?%-!<%o!<%I$N<!8$hjbBg$-$$>19g!";DjN<!8$J}8~$N4V3V$O!";XDj$5l?:G$b9b$$<!8NbNHF1$8CM$,;HMQ5l$^$9!#Nc$($P2hA|$,%U%!%$%k$+$iFI$_~$^$l!"**dx=3.5** N_;XDj5l$?>19g!"gnuplot $Ox J}8~$N4V3V$b y J}8~$N4V3V$b 3.5 $r;HMQ$7$^$9!#

0J2<$N%-!<%o!<%I$b:BI8$N@8@.;~$KN_E,MQ5l$^$9!#7+$7!"0J2<$NbN$Omatrix %P%$%J%j%U%!%$%k$K$b;H$ol^$9!#

Flipx, flipy, flipz %P%$%J%j%G!<%?%U%!%$%k$NAv::J}8~$, gnuplot $NAv::J}8~$H0lCW7J$$3H,$?$^K"j^$9!#$3li$N%-!<%o!<%I$O!"$=$l$>$l x, y, z J}8~$N%G!<%?$NAv::J}8~$r5U8~$-K7$^$9!#

Origin gnuplot $OE>CV(transpose) $dH?E>(flip) K*$$F:BI8$r@8@.$9$k>19g!">o$KG[Ns$N:82<$NE@$,86E@$KJkh&K7$^$9!#9JoA!"%G!<%?$,!"E>CV$dH?E>$N9T$Jol$?8e$ND>8r:BI87O$NBh1>]8B$KMhkh$&$K7^$9!#

G[Ns$r%0%i%U$N$=$NB>$N>l=j$KG[CV7?$$>19g!"**origin** %-!<%o!<%I$G;XDj$7$?>l=j$Kgnuplot $OG[Ns$N:82<$NE@$r9go;$^$9!#$=$=$N;XDj$O!"**plot** GO2 DN:BI8$NAH!"**splot** GO3 DN:BI8NAHr;XDj7F$/$@$5$$!#Nc$($P **origin=(100,100):(100,200)** $O!"0l$D$N%U%!%$%k$K4^$^lk2 DN%G!<%?KBP9$k;XDj$G!"2<!85$NIA2h$KBP9k;XDj$G$9!#2 $DL\$NNcH7$F **origin=(0,0,3.5)** r"2k$H!"$3lO3<!85IA2hMQ$N;XDj$G$9!#

Center **origin** $H;w$F$$$^9,!"3N%-!<%o!<%I$G[Ns$NCf?4$,$3$N%-!<%o!<%I$G;XDj7?E@KJkh$&$KG[CV7^$9!#Nc$($P **center=(0,0)** Nh$&$K7^$9!#G[Ns$N%5%$:$, **Inf** NH$-$O center OE,MQ5l^$;$s!#

Rotate E>CV(transpose) $HH?E>(flip) %3%^%s%I$O:BI8$N@8@.$H:BI8<4$NJ}8~$K$"$k<o$N=@Fp@-$rM?$($F$/$l$^$9!#7+$7!"3QEY$K4X9k4OA4$J@)8f$O!"2<!85$N2sE>3Q$r5-=R7?2sE>3Q%Y%/%H%k$rM?$(k3HKhj9TJ&3H$,2DG=$KJj$^$9!#

%-!<%o!<%I**rotate** $O, **plot**, **splot** $NN>J}$G!"2<!85LIKBP7FE,MQ5l^$9!#2sE>$O:BI8J?LI$N@5$N3QEY$K4X$7$F9T$Jol$^$9!#

3QEY$O!"%i%8%"%sC10L$G9,!"pi $d degrees $NG\?t$H7F$N%i%8%"%s$G$bI=8=$G$-$^$9!#Nc$($P!"**rotate=1.5708**, **rotate=0.5pi**, **rotate=90deg** O9YFF1$80UL#$G$9!#

origin $,;XDj$5l?>19g!"2sE>$OJ?9T0\F0$NA0$K:82<$NE@$rCf?4$K7F9TJol^$9!#$=$l0J30$G$O2sE>$OG[Ns$NCf?4(**center**) $K4X$7$F9T$Jol$^$9!#

Perpendicular splot $K4X$7$F2sE>%Y%/%H%k$N@_Dj$,!"%Y%/%H%k$rI=8=9k3 DN?t;zNAHr;XDj9k3H$G<BAu$5lF$$$F!"3N%Y%/%H%k$O2<!85$Nxy J?LLKBP7$F8~$-IU1il?K!@~%Y%/%H%k(perpendicular)$rI=$7$F$$^$9!#$bAms=$N%G%U%)%k%H$O(0,0,1) $G$9!#rotate $H perpendicular $NN>J}$r;XDj9k3HKh$j!"3<!856u4VFb$GL5?t$NJ}8~$X%G!<%?$r8~$-IU1ilk3HKJj^$9!#

$^$::G=i$K2<!85$N2sE>$,9T$Jol!"$=$N<!$K3<!85$N2sE>$,9T$Jol$^$9!#D^$j!"R' r"$k3Q$Khk2x2 $N2sE>9TNs$H$7!"P $r(0,0,1) $r(xp,yp,zp) $X;R8a@~J}8~$K2sE>5;$k3x3 $N9TNs$H$7!"R' $r:8>e$NItJ,9TNsH7$F;}$A3,3@.J,$,1 G=$NB>$N@.J,$,0 G"kh$&$J9TNs(D^$jz<4<~$j$N2sE>9TNs) H9lP!"3NJQ49$rI=$99TNsKh$k4X78<0$Ov' = P R v HJj^$9!#$3$3$G!"v $O%G!<%?%U%!%$%k$+$iFI$_9~$^l?3x1 $N0LCV%Y%/%H%k$G$9!#%U%!%$%k$N%G!<%?$,3<!85E*JbNGJ>19g$O!"O@M}E*$J%k!<%k,E,MQ5l$F3<!856u4VFb$N%G!<%?$H8+$J5l$^$9(Nc$($P!"DI>o$Oz:BI8$O0 H5$l!"xy J?LIFb$N2<!85%G!<%?$H8+$J5l$^$9)!#

%G!<%?(data)

%U%!%$%k$KG<ail?N%;6E*$J%G!<%?$O!"**plot** %3%^%s%I%i%$%s>e$G!"$=$N%G!<%?%U%!%$%kL>(<datafile>) $rC10l0zMQId$^$?$OFs=E0zMQId$G0O$s$G;XDj$9k3HKhC$FI=<($G$-$^$9!#

=q<0:

```
     plot '<file_name>' {binary <binary list>}
                        {{nonuniform} matrix}
                        {index <index list> | index "<name>"}
                        {every <every list>}
                        {skip <number-of-lines>}
                        {using <using list>}
                        {smooth <option>}
                        {bins <options>}
                        {volatile} {noautoscale}
```

=$@5;R$N **binary**, **index**, **every**, **skip**, **using**, **bins**, **smooth** $O!"$=l>lKJ,1F@bL@7^$9!#4JC1$K8@$&$H!"**binary** $O%G!<%?Ns$r%P%$%J%U%!%$%k$+$i<hF@G-kh$&$K$7!"**index** $O%^%k%A&G!<%?=89g%U%!%$%k$+$iIN%G!<%?=89g$rI=<($9kN$+$rA*$S!"**every** $,!"0l$D$N%G!<%?=89g$+iI$NE@$rI=<(9kN+$rA*$S!"**using** $C0l9T$+iINNsr2r<a9kN+$r7hDj$7!"$=$7$F **smooth** $,!"C1=c$JJd4V$H6a;w$r9T$$$^$9!#**bins** $O8D!9$NF~NCE@$rx Klh&EyI}$N6h4V$K;EJ,$1!"3F6h4V$K0lD@1NN_@QCM$rIA2h7^$9!#

splot bh$/;w$?=q<0$r;H$$$^9,!"**smooth** %*%W%7%g%s$O%5%]!<%H$7$F$$$^$;$s!#

%-!<%o!<%I **noautoscale** $O!"<+F0E*$K<4$NHCOO$,7hDj5l$k5!G=$,M-8zG"$k>19g$K!"3NIA2h$r9=@.$9$k%G!<%?E@$K$D$$F$O!"$=lrL5;k5;$k(<+F0=L<\5!G=$N7W;;BP>]$+$i30$9)$h$&$K7^$9!#

%F%-%9%H%G!<%?%U%!%$%k:

%G!<%?%U%!%$%k$O!"0l9TKD$-/$J$/$H$b0l$D$N%G!<%?E@$r4^$`I,MW$,$"$j$^$9(**using** $C0l9T$+$i0l$D$N%G!<%?]%$%s%H$rA*$V3H$,$G$-$^$9)!## (VMS GO!) $G;O$^$k9T$O!"%3%a%s%HH7$F07$o$l!"L5;k$5l^$9!#3F$G!<%?E@$O!"(x,y) NAHrI=7^$9!#%(%i!<%P!<!"$^$?$O!"3NIA2h$r9=@.9k%G!<%?E@KD$$F$O!"$=lrL5;k5;$k(<+F0=L<\5!G=$N7W;;BP>]$+$i30$9) $

2 9T$N%V%i%s%/9T$O! "JL! 9$N%G! <%?=89g4V$N6h@Zjr< (7^$9! #0J2<; 2>H: **index (p. 94)**! #

b7 autoscale $N>uBV$G$"$l$P (0J2<; 2>H: **set autoscale (p. 114)**)! "<4$OA4$F$N%G! <%?%]%s%s%H$r4^$ 'h& $K<+F0E*$K0z$-?-$P5l$F! "L'\@9$j$,=q$+lk>uBVJi$PA4$F$NL'\@9$j$,%^! <%/$5l^$9! #$3lO! "2 DN7k 2L$r0z$-5/$3$7$^$9: i) **splot** GO! "6JLL$N3Q$CDlLL$N3Q$K0lCW7F$$$J$$$3H,$"$j$^$9! #3N>19g! "=D$N @~$O=q$+$lk3HO$"$j$^$;$s! #i) 2 <dN '$N<4GN! "F1$8x $NHC0O$N%G! <%?$NI=< ($N:]! "b7x2 $N<4$KBP$9 $kL\@9$j$,=q$+lF$$$J$>19g$O! "x :BI8$,$"CF$$$J$$$3H,$"$j$^$9! #3l$Ox <4 (x1) $OA4$F$NL\@9$j K^$G<+F0E*$K0z$-1d$P5lkN$KBP$7! "x2 <4O=$&$GOJ$$+iG$9! #<!$NNcG=$NLdBj$r8+k3H,G- $^$9:

```
reset; plot '-', '-' axes x2y1
1 1
19 19
e
1 1
19 19
e
```

3lrHr1kK$O! "**set autoscale** %3%^%s%I$N **fixmin/fixmax** %*%W%7%g%s$r; H$&3H$,$G$-$^$9! #$3lO! " <!$NL\@9$j$N9o$_$K9g$&h&$K<4$NHC0O$r<+F0E*$K3HD%9k5!G=$rL58z$K7^$9! #

%i%Y%k$N:BI8$HJ8; zNs$b%G! <%?%U%!%$%k$+$iFI$_9~$'3H$,$G$-$^$9(0J2<; 2>H: **labels (p. 64)**)! #

Bins

;n83CJ3,$N5!G=(;EMM$N:Y$+$$ItJ,$O! ":#8e$NHG$GJQ99$9$k2DG=@-$"$j)! #=q<0:

```
plot 'DATA' using <XCOL> {:<YCOL>} bins{=<NBINS>}
     {binrange [<LOW>:<HIGH>]} {binwidth=<width>}
```

plot %3%^%s%IKBP9$k%*%W%7%g%s **bins** $O! ":G=i$K85$N%G! <%?$r! "x <4>eGEy7$$I}$r; }$D$$$/D+$NH" (%S %s) $K3d$jEv$F! "$=7FH"Kh$K0l$DNCMN$_$rIA2h7^$9! #H"$N?t$N%G%U%)%k%HCM$O! "**set samples** $G7hDj$7 $^$9$,$3lO plot %3%^%s%I$G%S%s%N?t$rL@< (E*$K; XDj$9k3HGJQ99G-$^$9! #

binrange $r; XDj$7$J$$H! "HC0O$O 'DATA' Fb$NCM$NN>C<$r<hj^$9! #

H"$NI}$O! "; XDj7?HC0O$HH"$N?t$+$i<+F0E*$K7W; ;$7! "3FE@$r0 $+$iNBINS-1 $^$G$NH"$K3djEvF$^$9:

```
BINWIDTH = (HIGH - LOW) / (NBINS-1)
xmin = LOW - BINWIDTH/2
xmax = HIGH + BINWIDTH/2
first bin holds points with (xmin <= x < xmin + BINWIDTH)
:G=i$NH"$O (xmin <= x < xmin + BINWIDTH) $NHC0O$NE@$rJ]; }
:G8e$NH"$O (xmax-BINWIDTH <= x < xman) $NHC0O$NE@$rJ]; }
3FE@$O i = floor(NBINS * (x-xmin)/(xmax-xmin)) HV$NH"$K3d$jEv$F
```

$=$lHOJL$K! "8GDjI}$NH"$r; XDj$9k3Hb2DG=$G$9! #$=$N>19g! "H"$N?t(nbins) $O! "E@$NHC0OA4BNKo$?$k :G>.$NH"$N?tHJj^$9! #

H"$N=PNO$O! "$=$NCfE@$GIA2h! "$^$?$OI=K5l^$9! #Nc$ ($P gnuplot $,>e$Nh&$KH"$NI}$r7W; ;$9$k>19g! ":G =i$NH"$Nx :BI8$N=PNO$Ox=LOW G"$j! "x=xmin GO$"$j$^$;$s! #

using L?Na$G0l$DNNsN$_$r; XDj7?>19g! "3F%G! <%?E@$O! "$=$Nx :BI8CM$KBP9kH"$N9g7WCM$K1 $@$14sM?$7 $^$9! #2 NsL\$r; XDj9k$H! "$=$NH"$N9g7WCMKO2 NsL\$NCM$,DI2C$5l^$9! #$hCF! "0J2<$N2 DN plot %3 %^%s%I$OF1$8KJj^$9:

```
plot 'DATA" using N bins=20
set samples 20
plot 'DATA' using (column(N)):(1)
```

4XD"9kIA2h%9%?%$%k$K4X7F$O! "0J2<; 2>H: **smooth frequency (p. 96)**,**smooth kdensity (p. 96)**! #

Every

%-! <%o! <%I **every** $O! "IA2h$9$k%G! <%?$r%G! <%?=89g$+$i<~4 |E*$K%5%s%W%j%s0$9k3Hr2DG=K7$^$9! #

$3$3GO!V%]%$%s%H!W$O%U%!%$%kCf$N1 DN9TKhCFDj5A5l$k%G!<%?$H$7!"%G!<%?$N!V%V%m%C%/!W$O!"A0 8e$N%V%m%C%/$H6u9T$G6h@Zil$kO"B3$7$?9T$N=89g$r0UL#$9k3HH7^$9!#

=q<0:

```
        plot 'file' every {<%]%$%s%HA}J,>}
                          {:{<%V%m%C%/A}J,>}
                            {:{<3+;O%]%$%s%H>}
                              {:{<3+;O%V%m%C%/>}
                                {:{<=*N;%]%$%s%H>}
                                  {:<=*N;%V%m%C%/>}}}}}
```

IA2h9k%G!<%?%]%$%s%H$O!"< 3+;O%]%$%s%H> $+$i < =*N;%]%$%s%H> $^$G < %]%$%s%HA}J,> $NA}2C$GA*$S!" %V%m%C%/$O < 3+;O%V%m%C%/> $+$i < =*N;%V%m%C%/> $^$G < %V%m%C%/A}J,> $NA}2C$GA*S^$9!#

3F%V%m%C%/$N:G=i$N%G!<%?$O!"%U%!%$%kCf$N:G=i$N%V%m%C%/$HF1$8h&$K!"V0 HV!W$H?t$($^$9!#

%W%m%C%HG-$J$$>pJs$r4^$`9T$b%+%&%s%H$9k3HKCm0U7F2<$5$$!#

$$/D+$N?t;z$O>JN,G-$^$;A}J,$N%G%U)%k%H$O1 !"3+;ONCMO:G=i$N%]%$%s%H$+:G=i$N%V%m%C%/!"$=$7 $F=*N;$NCM$O:G8e$N%]%$%s%H$+:G8e$N%V%m%C%/$K@_Dj7^$9!#**every** $N%*%W%7%g%s$,':' $G=*$okN$O5v$5$l $F$$$^$;$s!#**every** $r;XDj$7J1lP!"A4FN9T$NA4$F$N%]%$%s%H$r%W%m%C%H$7$^$9!#

Nc:

```
      every :::3::3   # 4 HVL\$N%V%m%C%/$@$1A*$S$^$9 (0 HV$,:G=i)
      every :::::9    # :G=i$N 10 %V%m%C%/$rA*$S$^$9
      every 2:2       # 1 $D$*$-$N%V%m%C%/$G 1 $D$*$-$N%]%$%s%H$rA*$S
                      # $^$9
      every ::5::15   # $=$l$>$l$N%V%m%C%/$G%]%$%s%H 5 $+$i 15 $^$G$r
                      # A*$S$^$9
```

;2>H C1=c$J **plot** %G%b **(simple.dem)**

, HsG^2pJQ?t%b!<%IGN **splot** %G%b

, G^2pJQ?t%b!<%IGN **splot** %G%b

!#

%G!<%?%U%!%$%k$NNc **(example)**

<!NNcO!"%U%!%$%k "population.dat" Cf$N%G!<%?HM}O@6J@~$r?^$K9kbN$G$9!#

```
     pop(x) = 103*exp((1965-x)/10)
     set xrange [1960:1990]
     plot 'population.dat', pop(x)
```

%U%!%$%k "population.dat" $O<!$Nh&$J%U%!%$%k$G$9!#

```
     # Gnu population in Antarctica since 1965
        1965   103
        1970   55
        1975   34
        1980   24
        1985   10
```

binary $NNc:

```
     # 2 $D$N float $NCM$rA*Br$7 (2 $DL\$NCM$OL50UL#)!"0lJ}$rFI$_<N$F!"
     # 0l$D$*$-$N float CM$rL58B$KD9$/B3$/ 1 <!85%G!<%?$H$7$F;HMQ
     plot '<file_name>' binary format="%float%*float" using 1:2 with lines

     # %G!<%?%U%!%$%k$+$i:BI8$r@8@.$9$k$N$KI,MW$J>pJs$r$9$Y$F$=$N%X%C
     # %@$K4^$s$G$$k EDF %U%!%$%k$N>l9g
     plot '<file_name>' binary filetype=edf with image
     plot '<file_name>.edf' binary filetype=auto with image
```

```
# 3 $D$NId9f$J$7J8;z7?@0?tCM (unsigned char) $r@8$N RGB 2hA|$N?'
# @.J,$H$7$FA*Br$7!"y J}8~$OH?E>$5$;2hA|$NJ}8~$r:BI8J?LI>e$GJQ99
# $9$k (:8>e$,86E@$K$J$k$h$&$K)!#%T%/%;%k$N4V3V$b;XDj$7!"%U%!%$
# %k$K$O 2 $D$N2hA|$,4^$^$l$F$$$F!"$=$N$&$A0l$D$O origin $GJ?9T
# 0\F0$9$k!#
plot '<file_name>' binary array=(512,1024):(1024,512) format='%uchar' \
     dx=2:1 dy=1:2 origin=(0,0):(1024,1024) flipy u 1:2:3 w rgbimage
# 4 $D$NJL$N%G!<%?$+$i$J$j!":BI8>pJs$b%G!<%?%U%!%$%k$K4^$^$l$F$$
# $k!#%U%!%$%k$O gnuplot $,<B9T$5$l$F$$$k%7%9%F%'$H$O0[$J$k%(%s
# %G%#%"%s$G@8@.$5$l$F$$$k!#
splot '<file_name>' binary record=30:30:29:26 endian=swap u 1:2:3
# F1$8F~NO%U%!%$%k$G!":#2s$O 1 HVL\$H 3 HVL\$N%l%3!<%I$r%9%-%C%W
splot '<file_name>' binary record=30:26 skip=360:348 endian=swap u 1:2:3
```

0J2<;2>H: **binary matrix (p. 194)**!#

Index

%-!<%o!<%I **index** $O!"IA2hMQ$KJ#?t$N%G!<%?=89g$r;}$D%U%!%$%k$+$i!"FCDj$N%G!<%?=89g$rA*Br9k3H$r2DG=$K7^$9!#

=q<0:

```
plot 'file' index { <m>{:<n>{:<p>}} | "<name>" }
```

%G!<%?=89g$O2 9T$N6uGr$GJ,N%$5lF$$$^$9!#**index <m>** $O<m> HVL\$N=89g$@$1$rA*Br$7$^$9; **index <m>:<n>** $O<m> $+$i<n> $^$G$N%G!<%?=89g$NA*Br; **index <m>:<n>:<p>** $O!"<m>, <m>+<p>, <m>+2<p>, JI!"<p> $*$-$N=89g$rA*Br$7!"=89g<n> $G=*N;$7$^$9!#C 8@8l$NE:;z(index) NIU1J}$K=>$$!"index 0 O=$N%U%!%$%k$N:G=i$N%G!<%?=89g$r0UL#$7$^$9!#Bg$-$9$.$kindex $N;XDj$K$O%(%i!<%8$,JV5l$^$9!#<p> $r;XDj$7!"<n> $r6uMs$K7?>19g!"<p> Kh$N%G!<%?=89g$r%U%!%$%k$N:G8e$^$GFI$_9~$_$^$9!#**index** $r;XDj$7J>19g$O!"%U%!%$%k$N%G!<%?A4BN$rC10l$N%G!<%?=89g$H7FIA2h7^$9!#

Nc:

```
plot 'file' index 4:5
```

%U%!%$%k$N3FE@KBP7$F!"$=l,4^$^$l$k%G!<%?=89g$Nindex CM$O!"5?;wNs**column(-2)** $GMxMQ$G$-$^$9!#$3lO!"0J2<$K8+$kh&$K!"$=$N%U%!%$%kFb$N8D!9$N%G!<%?=89g$r6hJL$9kJLNJ}K!$rDs6!$7$^$9!#3l$O!"IA2hMQ$K1 DN%G!<%?=89g$NA*Br$7$+$7J>19g$O**index** %3%^%s%I$hjbIT3f9%G9$,!"8D!9$N%G!<%?=89g$K0[$J$kB0@-$r3djEvF$?$>19gKO%HFbJXMx$G$9!#0J2<;2>H: **pseudocolumns (p. 100)**, **lc variable (p. 42)**!#

Nc:

```
plot 'file' using 1:(column(-2)==4 ? $2 : NaN)        # $H$F$bIT3f9%
plot 'file' using 1:2:(column(-2)) linecolor variable # $H$F$bJXMx!
```

index '<name>' $O!"%G!<%?=89g$rL>A0'<name>'$GA*Br$7$^$9!#L>A0$O%3%a%s%H9T$K=q$$F%G!<%?=89g$K3d$jEvF^$9!#%3%a%s%HJ8;z$H$=$l$KB3$/6uGrr=$N%3%a%s%H9T$+$i<h$j=|$$F!"$=$N7k2L$,<name> $+$i;O$^$C$F$$$l$P!"$=lKB3$/%G!<%?=89g$K<name> $H$$$&L>A0$,$D1ilF!"$=$l$r;XDj$G$-$^$9!#

Nc:

```
plot 'file' index 'Population'
```

<name> $G;O$^k9YF$N%3%a%s%H$,$=$l$KB3$/%G!<%?=89g$NL>A0$KJk3H$KCm0U$7F/$@$5$$!#LdBjrHr1k?aK!"Nc$($P'== Popolation ==' $d'[Population]' JI$NL?L>K!$rA*Br9k$HJXMx$G7g$&!#

Skip

%-!<%o!<%I **skip** $O!"%W%m%0%i%'$K%F%-%9%H%G!<%?%U%!%$%k(%P%$%J%j%G!<%?$OI12D) $N@hF,$N?t9T$r%9%-%C%W$5$;$^$9!#%9%-%C%W$9$k9T$O;**every** %-!<%o!<%I=hM}GN9T?tKO%+%&%s%H7^;$s;!#**every ::N** O=$N%U%!%$%k$Nb%G!<%?$N9YFN%V%m%C%/$N@hF,$r%9%-%C%W7^9,!"**skip N** O=$N%U%!%$%k$N@hF,ItJ,$N9TN_$r%9%-%C%W$9k3HKCm0U7F$/$@$5$$!#P%$%J%j%G!<%?%U%!%$%kKE,MQ5lkF1MM$N%*%W%7%g%s$K$D$$F$O!"0J2<;2>H:**binary skip (p. 88)**!#

Smooth

gnuplot $O! "%G! <%?$NJd4V$H6a; w$r9T$&HFMQE*$J%k! <%A%s$r$$/D+; }CF$$^$9! #$3$l **smooth** %*%W%7%g %s$NCf$K%0%k! <%W2=$5lF$$^$9! #$h$j@vN}$5l?%G! <%?=hM}r7$?$1lP! "30ItK*$$F%G! <%?$NA0=hM}$r 9k$+! "$^$?$OE,@Z$J%b%G%k$G fit $r; H$&N,$$$$G7g$&! #

=q<0:

```
smooth {unique | frequency | fnormal | cumulative | cnormal | bins
                | kdensity {bandwidth}
                | csplines | acsplines | mcsplines | bezier | sbezier
                | unwrap}
```

unique, **frequency**, **fnormal**, **cumulatie**, **cnormal** $O! "x :BI8$K4X7F%G! <%?$r%=! <%H$7! "$=$7F=$N x NCMKBP9kJ,I[N"$k<o$NMM; R$rIA2h7^$9! #

spline 7O! "Bezeir 7O$N%*%W%7%g%s$O! "%G! <%?$NC<$HC<$r7k$VO"B36J@~$N78?t$r7hDj7^$9! #$3$N6J@~$O4X?t%0%i %U$HF1$8J}K!! "9JoA$=$NCM$rx :BI8$K1h$&F1$8I}$N6h4V$4HKA*$S(0J2<;2>H **set samples (p. 167)**)! " $=$liNE@$r@~J,$GDJ$0$3HGIA2h7^$9! #%G! <%?=89g$,6u9TdLDj5ACM$G@Z$ilF$$k>19g! "@Zil$F$$ $J$$$=l>lNItJ,$rJL! 9$NO"B36J@~H7FDJ.$^$9! #3liNJL! 9KD$J$$$@ItJ,F1; N$O! "6J@~$H7F@Z l?$j! "ITO"B3$KJC$?$j9k$+$b7l$^$;$s! #

unwrap $O! "%G! <%?$,&PhjBg$-$J%8%c%s%Wr7$J$$h$&$K! "2 &P$N@0?tG\$r2C$($kA`:nr7$^$9! #

b7 **autoscale** $N>uBV$G$"$l$P! "<4$NHC0C$C85$N%G! <%?$+$iGCJ/! "$=$3$+$i:nil$k:G=*E*$J6J@~$KBP$7 $F7W; ;$5l^$9! #

b7 **autoscale** $N>uBV$GJ/! "$+$D%9%W%i%$%s6J@~$r@8@.9k>19g! "$=$N%9%W%i%$%s6J@~$NI8K\2=$O! "F~NO %G! <%?$r4^$`$h$&$Jx $NHC0C$H! "**set xrange** $GDj5A$5lk8GDj7?2#:BI8$NHC0C$N6&DLItJ,$N>e$G9TJo$l $^$9! #

MW5a9kJ?3j2=%*%W%7%g%srE,MQ9kK$O%G! <%?$NE@?t$,>/$J9.$k>19g$O! "%(%i! <%a%C%;! <%8$,I=<($5$l $^$9! #

smooth %*%W%7%g%s$O! "4X?t$NIA2hNH$-$K$OL5;k$5l^$9! #

Acsplines **acsplines** %*%W%7%g%s$O! V<+A3$J3ji+$J%9%W%i%$%s! W$G%G! <%?$r6a; w7^$9! #%G! <%?$, x $K4X 7FC1D4K5l?8e(0J2<;2>H **smooth unique (p. 96)**)! "1 DN6J@~$,! "$$/D+$N3<!B?9`<0$N0lItJ, Kh$j6hJ,E*$K9=@.5l$^$9! #$=$liN3<!<0$N78?t$O! "8D! 9$N%G! <%?E@$K9g$&$h$&$K5aail^9,! "using ;XDjKhCF3NsL\$NCM$,M?$(il$?>19g$O! "$=$NCM$G8D! 9$NE@$K=E$_rD1^$9! #%G%)%k%H$O! "0J2<$HF1 8G$9:

```
plot 'data-file' using 1:2:(1.0) smooth acsplines
```

@-<A>e! "=E$_$N@dBPE*JBg-5O! "6J@~$r9=@.$9kN$K; H$olk6hJ,$N?t$r7hDj7^$9! #$b$7=E$_$,Bg$-1l $P! "8D! 9$N%G! <%?$NlF6A$OBg$-$/Jj! "$=$7F=$N6J@~$O! "NY$j9g$&E@F1; V$r<+A33<!%9%W%i%$%sGD$J$$$G F@ilkbNK6aE-$^$9! #b7=E$_$,>.$5$1lP! "$=$N6J@~Oh$j>/$J$$$6hJ,$G9=@.$5$l! "$=lKhCFh$j J?3jE*$KJj$^$9! #$=$N:G$b6KC<$J>19gO?$@1$D$N6hJ,$+iJ$k>19g$G$"j! "$=lOA4FN%G! <%?$K=E$_$N IU$-@~7A:G>.2>h6a; wKhCF:nil$^$9! #8m:9$NN)>l$+$i8@$($P! "U?3j$5$N=E$_$O! "$=$N6J@~$KBP9k! VJ? 3j2=0x; R! WKhCFJ,3d5l$?3FE@$X$N! "E}7WE*$J=E$_$H8+k3H,G-$^$9! #$=$lKh$j! "$=$N%U%!%$%kCf $N(I8=`E*$J)8m:9$OJ?3j$5$N=E$_H7$F; H$&3H$,$G$-$^$9! #

Nc:

```
sw(x,S)=1/(x*x*S)
plot 'data_file' using 1:2:(sw($3,100)) smooth acsplines
```

Bezier **bezier** %*%W%7%g%s$O! "n<!(%G! <%?E@$N8D?t) $N%Y%8%'6J@~$G%G! <%?$r6a; w$7$^$9! #3N6J@~$OCN>C< $NE@$rDJ$J.$^$9! #

Bins **smooth bins** $O **bins** $HF1$8$G$9! #0J2<;2>H **bins (p. 92)**! #4XO"9kIA2h%9%?%$%k$K4X7F$O! "0J 2<;2>H **smooth frequency (p. 96)**,**smooth kdensity (p. 96)**! #

Csplines **csplines** %*%W%7%g%s$O%G!<%?$rC1D4$KB7$($?8e$G(0J2<;2>H:**smooth unique (p. 96)**)<+A33<!%9%W%i%$%s6J@~$G0z$-B3$/E@rDJ.$^$9!#

Mcsplines **mcsplines** %*%W%7%g%s$O!"U?3j2=$5l?4X?t$,85$NE@$NC1D4@-$HFI@-$rJ]B8$9kh$&$J3<!%9%W%i%$%s6J@~$G0z$-B3$/E@rDJ.$^$9!#3l$O!"30$lCM$NlF6A$rDc8:7^$9!#FN Fritsch & RE Carlson (1980) "Monotone Piecewise Cubic Interpolation", SIAM Journal on Numerical Analysis 17: 238-246.

Sbezier **sbezier** %*%W%7%g%s$O!":G=i$K%G!<%?$rC1D4$KB7$((0J2<;2>H: **unique (p. 96)**)$=$7$F **bezier** %"%k%4%j%:%'rE,MQ7$^$9!#

Unique **unique** %*%W%7%g%s$O!"%G!<%?$r x J}8~$KC1D4$K7^$9!#F1$8x $r;}$D%G!<%?E@$O y NCMrJ?6Q7F01DNE@GCV-49$($^$9!#$=7F$=$N7k2LH7$FF@$ilkE@$r@~J,$G7kS^$9!#

Unwrap **unwrap** %*%W%7%g%s$O!"2 DNB3$/E@$,&P$r1[$($k0c$$$,=P$J$$h$&$K%G!<%?$r=$@5$7$^$9:y NCM,$=$NHC0C$r1[$(kh$&$JE@KBP7FO!"A0$NE@HN:9$,&P$NHC0C$K<}$^$kh&$K2&P$N@0?tG\$r2C$($^$9!#$3$NA'n$O!"4,$-La$7$r;}$D7ONCMr;~4VE*$KO"B3$K5;kN$KM-MQ$G$9!#

Frequency %*%W%7%g%s **frequency** $O!"%G!<%?$r x $K4X$7$FC1D4$K7^$9!#x :BI8$,F1$8E@$O!"$=$liNy NCMN9g7W$ry NCMH7F;}$D0lDNE@$KCV-49($^$9!#B?$/NCMN%G!<%?$r0lDj$N3,5iI}(bin) GIA/KO!"$=$liNy NCMr1.0 K7$F!"$=lG$=$NDB$,F1$83,5iI}Fb$NE@$N8D?t$rI=$9h&K7$^$9!#3l$O!"%G!<%?1Ns$@1r;XDj7?>19g$O!"0EL[$N$&$A$K9T$Jol$^$9!#Nc:

```
binwidth = <E,Ev$JCM>  # x $NCM$N3F3,5iI}
bin(val) = binwidth * floor(val/binwidth)
plot "datafile" using (bin(column(1))):(1.0) smooth frequency
plot "datafile" using (bin(column(1))) smooth frequency  # F1>e
```

0J2<$b;2>H!#smooth.dem

Fnormal %*%W%7%g%s **fnormal** $O!"%*%W%7%g%s **frequency** $HF1MM$NF0:nr7$^$9$,!"@55,2=$7$?%R%9%H%0%i%'$r@8@.7^$9!#$9Jo$A!"%G!<%?$rx $K4X$7$FC1D4$K7F!"y NCMO$=$N9YFNDB$,1 KJkh$&$K@55,2=7^$9!#x :BI8$,F1$8E@$O!"$=$liNy NCMN9g7W$ry NCMH7F;}$D0l$D$NE@$KCV-49($^$9!#B?$/$NCM$N%G!<%?$r0lDj$N3,5iI}(bin) GIA/KO!"$=$liNy NCMr1.0 K7$F!"$=lG$=NDB,F1$83,5iI}Fb$NE@$N8D?t$rI=$9h&K7$^$9!#3l$O!"%G!<%?1Ns$@1r;XDj7?>19g$O!"0EL[N&AK9TJol^$9!#0J2<$b;2>H!#smooth.dem

Cumulative %*%W%7%g%s **cumulative** $O!"%G!<%?$r x $K4X$7$FC1D4$K7^$9!#x :BI8$,F1$8E@$O!"$=$l0J2<$Nx NCMr;}D9YF$NE@($9Jo$A8=:_$N%G!<%?E@$N:8B&$NE@)KBP9$k y NCMNN_@QE*$J9g7W$ry NCMH7F;}$D0l$D$NE@$KCV-49(il$^$9!#3l$O!"%G!<%?$+$iN_@QJ,I[4X?t$rF@kN$KMxMQ$G$-$^$9!#0J2<$b;2>H!#smooth.dem

Cnormal %*%W%7%g%s **cnormal** $O!"x $K4X$7$FC1D4$G!"y NCMO[0:1] $K@55,2=$5l?%G!<%?$r@8@.$7$^$9!#F1$8x NCMr;}$DE@$,J#?t$"$k>19g$O!"$=lh$j>.$5$$x NCMr;}D9YF$N%G!<%?E@($9Jo$A8=:_$N%G!<%?E@hj$b:8$K$"$kE@) $NN_@QDB$r!"9YFNy NCMNDB$G3d$C$?CM$ry NCMH7F;}Dh$&$J0lE@$N%G!<%?$KCV$-JQ$(il$^$9!#3l$O!"%G!<%?$+$i@55,2=$5l?N_@QJ,I[4X?t$rF@$kNK;H$($^$9(FC$KI8K\E@?t$N0[$J$k%G!<%?=89g$rHf3S9kNKM-MQ$G$9)!#0J2<$b;2>H!#smooth.dem

Kdensity %*%W%7%g%s **kdensity** $O!"%,%&%93K$rMQ$$$?!"%i%s%@%'A*BrE@$N3KL)EYI>2A($=lO3ji+$J%R%9%H%0%i%'$KJj$^$9)$rIA2h$9$kJ}K!$N0lDG$9!#%,%&%93K$,Bh1Ns$N3FE@$N0LCVKCV+$l!"$3li$N%,%&%93K$9YFNDB,4X?tH7$FIA2h$5l^$9!#2NsL\$NCM$O!"%,%&%93K$N=E$_$H7F;HMQ5l$^$9!#@55,2=5l$?%R%9%H%0%i%'$rF@kK$O!"$3lr1/(E@$N8D?t)$H9Y$-$G$9!#%G%U%)%k%H$G$O!"gnuplot $O@55,J,I[$N%G!<%?KBP7$F:GE,$HJkh&$J?%s%II}$r7W;;$7;HMQ$7$^$9!#

```
default_bandwidth = sigma * (4/3N) ** (0.2)
```

3l$CDL>o$OHF$bJ]<iE*$G! "9JoAI}9-$$%P%s%II}$G$9! #%P%s%II}$O! "L@< (E*$K; XDj9k3HbG$-$^$9! #

```
plot $DATA smooth kdensity bandwidth <value> with boxes
```

A0$NIA2h$G; HMQ5l$?%P%s%II}$O! "JQ?t GPVAL_KDENSITY_BANDWIDTH $KJ]B8$5l^$9! #

FCJL$J%U%!%$%kL> **(special-filenames)**

FCJL$J0UL#$r; }$D%U%!%$%kL>H7$F! "<!$NbN$,$"j^$9: '', '-', '+', '++'

6u$N%U%!%$%kL>'' $O! "F1$8 plot %3%^%s%I>e$G! "D>A0$NF~NO%U%!%$%k$r:F$S; HMQ$9k3Hrgnuplot $K; X< ($7$^$9! #hC$F! "F1$8F~NO%U%!%$%k$N2 DN%G! <%?Ns$rIA2h$9kK$O0J2<$Nh&K7$^$9:

```
plot 'filename' using 1:2, '' using 1:3
```

3N filename $O! "$3$N8e$N plot %3%^%s%IGb'' $G:FMxMQ$G$-$^9,! "$=$N>l9g$K **save** 9k$H! "%3%a%s%H$H7F$=$NL>A0$r5-O?$9kN$_$G$9! #

'+' $H'++' $H$$$&FCJL$J%U%!%$%kL>$O! "**using** ; XDj$NA4BN$HIA2h%9%?%$%k$K%$%s%i%$%s4X?t$r; H$ (kh$&$K9k$?$a$N; EAH$_$G$9! #DI>o! "4X?tIA2h$O%5%s%W%kE@Kh$KC10l$Ny ($^$?$Oz) NCM7$+; }$F$^$;$s! #$7$+$75?; w%U%!%$%k'+' O=l,$"$?$+$b<B:]$NF~NO%U%!%$%kG"kh$&$K! "**using** ; XDjKh$k1 NsL\$NCM$rI8K\E@$H7F07$$! "5i$KDI2C$NNsNCMr; XDj9k3H$b2DG=$G$9! #I8K\E@$O! "%G%U%)%k%HGO **set xrange** $G@_Dj$7$?HO0OA4BN$KEO$j! "**set samples** $G@)8f$9$kI8K\2=$K=>CF<hil$^$9! #

```
plot '+' using ($1):(sin($1)):(sin($1)**2) with filledcurves
```

'+' $ND>A0$K! "FHN)$JI8K\HO0O$r; XDj9k3HbG$-$^$9! #DI>o$N4X?tIA2hNHF1MM! "FHN)JQ?t$KL>A0$r3djEvFk3HbG-$^$9! #plot $N:G=i$NMWAG$KM?$ ($k>l9g! "I8K\HO0O$KO=lrL@< (9k%-! <%o! <%I **sample** $rA0CV$9kI,MW,$"$j$^$9 (0J2<$b; 2>H: **plot sampling (p. 103)**)! #

```
plot sample [beta=0:2*pi] '+' using (sin(beta)):(cos(beta)) with lines
```

5i$K! "+ $NHO0O; XDj$K$O! "I8K\A}J,$rM?$ (k3HbG-$^$9! #

```
plot $MYDATA, [t=-3:25:1] '+' using (t):(f(t))
```

5?; w%U%!%$%k'++' $O! "u J}8~$O **set samples** $G@)8f$5lkE@$N?t! "v J}8~$O **set isosamples** $G@)8f$5lkE@$N?t$N! "I8=`E*$J[u,v] :BI8$N3J;R$r@8@.$9$k2 Ns$N%G! <%?rJV7$^$9! #hC$F! "++' $NIA2h$NA0$K! "urange $H vrange $r@_Dj$9kI,MW,$"$j$^$9$,! "x $H y $NHO0O$O<+F0E*$K@_Dj$5lk$+! "$^$?$OL@< (E*$K urange, vrange HO0O&CM$K@_DjG-$^$9! #++' $N%5%s%W%j%s%0$G$Nu, v $N; HMQ$O! "version 5.0 $+$i$NJQ9$G$9! #Nc:

```
splot '++' using 1:2:(sin($1)*sin($2)) with pm3d
plot '++' using 1:2:(sin($1)*sin($2)) with image
```

'-' $H$$$&FCJL$J%U%!%$%kL>$O! "%G! <%?$,%$%s%i%$%s$G"$k3H$r; X< ($7$^$9! #9JoA! "%G! <%?$r%3%^%s%I$N8e$KB3$1$F; XDj$7$^$9! #3NH-$O%G! <%?$N$_$,%3%^%s%I$KB3$-F@$^$9! #hC$F! "**plot** %3%^%s%I$KBP9k%U%#%k%?! <! "%?$%H%k! "%i%$%s%9%?$%k$H$$C$?*%W%7%g%s$O! "**plot** $N%3%^%s%I%i%$%s$NJ}$K=q$+$J$$$H$$1$^$; $s! #$3lO! "unix %7%'%k%9%/%j%W%HK*1k<< (%R%"%I%-%e%a%s%H)! "$"$k$$OVMS DCL K*1k$DECK $HF1MM$G$9! #$=$N%G! <%?$O! "$=$li,%U%!%$%k$+iFI_9~$^$l$?$+Nh$&$K! "1 9TKD$-1 D:DN%G! <%?E@$,F~NO$5l^$9! #$=7F%G! <%?$N=*jO! "1 NsL\$N; CaKJ8; z "e" rCV/3H$G; X< ($7$^$9! #

'-' $O! "%G! <%?$H%3%^%s%I$r0l=o$K; }D3H,M-MQG"$k>l9g$N$?$aK"j^$9! #Nc$ ($P! "JL! 9$N%"%W%j%1!<%7%g%s$+$i **gnuplot** K=$NN>J}$,%Q%$%WF~NO$5lk>l9g$G$9! #Nc$ ($P! "%G%b%U%!%$%kNCfKO3$N5!G=$r; H$&$bN,$"$kG7g&! #**index** $d **every** Nh$&$J **plot** $N%*%W%7%g%s$,M?$ (il$F$$$k$H! "$=li$O; H$olk3HNJ$%%G! <%?$NF~NO$rMW5a$7F-$^$9! #4/C1=c$J>l9g$r=|$/$9YF$N>l9g$G! "**'-'** $+$i%G! <%?rFI_9~$`$h$j$b! "**:** G=i$K%G! <%?%V%m%C%/$rDj5A$7$F$=$l$rFI$_9~$`U}$,B?J,4JC1$G$9! #0J2<; 2>H: **datablocks (p. 39)**! #

b7! "**replot** %3%^%s%I$G **'-'** $r; H$&Ji! "$"$J$?$O1 EY0J>e%G! <%?$rF~NO$9kI,MW,$"$kG7g&! #0J2<; 2>H: **replot (p. 110)**, **refresh (p. 109)**! #7+jJV7$^$9$,! "%G! <%?%V%m%C%/$r; H$&J}$,$$$$G$9! #

6u$N%U%!%$%kL> ('') $O! "D>A0$N%U%!%$%kL>$,:F$S; H$olk3H$r; X< ($7$^$9! #3l$O! "

```
plot ' $"$k/$H$F$b/D9$$/%U%!%$%kL>' using 1:2, '' using 1:3, '' using 1:4
```

Nh$&$JH-$KJXMx$G$9!#($b$7F1$8 plot %3%^%s%I>e$G!"'-' $H'' $NN>J}$r;HMQ9k$H!">e$NNcK"kh$&$K!"%$%s%i%$%s%G!<%?$N2 DN=89g$rM?$(kI,MW,$"j^$9!#)

popen 4X?t$r;}$C$F$$$k%7%9%F%'>eGO!"%G!<%?%U%!%$%k$O!"'<' $G;O$^$k%U%!%$%kL>KhCF!"%7%'%k%3%^%s%I$+$i%Q%$%WF~NO$9k3H,G-$^$9!#Nc$($P

```
pop(x) = 103*exp(-x/10)
plot "< awk '{print $1-1965, $2}' population.dat", pop(x)
```

$O!":G=i$N?MB}NNcHF1$8>pJs$rIA2h7^$9!#$?$@$7!"x :BI8$O1965 G/$+iN7P2aG/$rI=$9h&KJj^$9!#$3NNcr<B9T9kH-$O!">e$N%G!<%?%U%!%$%k$N%3%a%s%H9Tr9YF:o=|7J1lPJj^$;$s,!"$^$?$O>e$N%3%^%s%I$N:G=i$NItJ,$r<!$Nh&KJQ(k3HbG-$^$9(%3%s%^$KB3$/ItJ,):

```
plot "< awk '$0 !~ /^#/ {print $1-1965, $2}' population.dat"
```

3N%"%W%m!<%A$O:G$b@Fp@-$,$"j^$9,!"**using** %-!<%o!<%I$rMQ$$$?C1=c$J%U%#%k%?%j%s%0$G9T$&$3Hb2DG=$G$9!#

fdopen() 4X?t$r;}$D%7%9%F%'GO!"%G!<%?%U%!%$%k$+%Q%$%W$K7kSD1il?G$0U$N%U%!%$%k%G%9%/%j%W%?$+iFI_9~$'$3H,G-$^$9!#**n** HV$N%U%!%$%k%G%9%/%j%W%?$+$iFI$_9~$'KO!"'<&n' H7F/$@$5$$!#3lKh$j!"1 2s$NPOSIX shell $+$i$N8F$S=P7NCf$G!"U#?t$N%G!<%?%U%!%$%k$+iN%Q%$%WF~NO$,MF0W$K9T$((kh$&$KJj$^$9:

```
$ gnuplot -p -e "plot '<&3', '<&4'" 3<data-3 4<data-4
$ ./gnuplot 5< <(myprogram -with -options)
gnuplot> plot '<&5'
```

Thru

%-!<%o!<%I **thru** $OHs?d>)$G$9!#

8E$$=q<0:

```
plot 'file' thru f(x)
```

8=:_$N=q<0:

```
plot 'file' using 1:(f($2))
```

Using

:Gbh$/;H$olk%G!<%?%U%!%$%k$N=$>~;R$O **using** $G!"$3lOF~NO%U%!%$%k$NIN9T$rIA2h$9kN$+$r;X<(7^$9!#

=q<0:

```
plot 'file' using <entry> {:<entry> {:<entry> ...}} {'format'}
```

format $r;XDj$9kH!"$=$l$rC %i%$%V%i%j4X?t'scanf' KE,MQ7FG!<%?%U%!%$%k$N3F9TrFI_$^$9!#$=$&GJ1l$P!"3F9T$O%[%o%$%H%9%Z!<%9(%9%Z!<%9d%?%V) $G6h@Z$il?G!<%?$NNs(%U%#!<%k%I) $+$iJkH_J7$^$9$,0J2<$b;2>H: **datafile separator (p. 124)**!#

3F <entry> $O!"F~NO%U%!%$%kDN%U%#!<%k%I$rA*Br$9k?aNC1JkNs$NHV9f$+!"0lDN%G!<%?=89g$N:G=i$N9TNNsN%i%Y%k$K0lCW$9$kJ8;zNs!"%+%C%3$G0C$^$l$??t<0!"xticlabels(2) Nh$&$K%+%C%3$G0C^JFCJLJ4X?t!"$N$$:l+$G$9!#

$=$N%(%s%H%j,%+%C%3$G0C$^l??t<0$N>19g!"N NsL\$NCM$r;XDj$9kN$K4X?tcolumn(N) $r;HMQ$G$-$^$9!#$D$^$j!"column(1) OFI_9~$^$l$?:G=i$N9'L\$r;2>H$7!"column(2) $O<!$N9'L\!"$H$$C$?6g9g$G$9!#column(1), column(2), ... $NN,5-$H7F!"FCJL$J5-9f$1, $2, ... $r;HMQ$G$-$^$9!#4X?t**valid(N)** $G!"N HVL\$NNs$,M-8z$J?t;zG"k+I&$+%F%9%H$G$-$^$9!#F~NO%U%!%$%k$N:G=i$N9T$N3FNs$K!"%G!<%?NCMGOJ$/%i%Y%k$r;}CF$$k>19g!"3N%i%Y%k$rF~NONs$NFCDj$dplot %?%$%H%k$K;HMQ$G$-$^$9!#4X?tcolumn() $O!"NsHV9f0J30$K%i%Y%k$GF~NONs$rA*BrG-$^$9!#Nc$($P!"%G!<%?%U%!%$%k,0J2<$Nh&$J>19g:

```
Height    Weight    Age
val1      val1      val1
...       ...       ...
```

0J2<$N plot %3%^%s%I$CF1$80UL#$KJj$^$9:

```
plot 'datafile' using 3:1, '' using 3:2
plot 'datafile' using (column("Age")):(column(1)), \
             '' using (column("Age")):(column(2))
plot 'datafile' using "Age":"Height", '' using "Age":"Weight"
```

;XDjJ8;zNs$,40A4$K0lCW9kI,MW$,$"j^$9$7!"BgJ8;z>.J8;z$b6hJL$7$^$9!#Ns$N%i%Y%k$rplot %?%$%H%k$K;H$&$K$O!"**set key autotitle columnhead** H7F/$@$5$$!#

F~NO%G!<%?%U%!%$%k$N 1...N $H$$&<B:]NNsK2C$($F!"gnuplot $O4IM}>pJs$r;}$D$$/D+$N"5?;wNs" $rDs6!$7$^$9!#Nc$($P!"$0 $^$?$O column(0) $O!"%G!<%?=89gFb$N$=$N%G!<%?9T$N9THV9f$rJV7^$9!#0J2<;2>H:**pseudocolumns (p. 100)**!#

<entry> $K2?$b=q$+$JJ1lP!"$=$N%(%s%H%j$N%j%9%H$N=g$K%G%U%)%k%H$NCM$,;H$ol^$9!#Nc$($P **using ::4** $O!"**using 1:2:4** $H2r<a$5l^$9!#

using K?$@0l$D$N%(%s%H%j$r;XDj7?>19g$O!"$=$N<entry> $Oy NCMH7F;Hol!"%G!<%?E@$NHV9f(5?;wNs$0) $,x H7$F;H$ol^$9!#Nc$($P"**plot 'file' using 1**" $O"**plot 'file' using 0:1**" $HF1$80UL#$G$9!#**using** $K2 DN%(%s%H%j$rM?$($?>19g!"$=li$Ox,y H7$F;H$ol^$9!#5$i$K%(%s%H%j$rDI2C7F!"F~NO$+$i$N%G!<%?$rMxMQ9kh&$JIA2h%9%?%$%k$N>\:Y$K$D$$F$O!"0J2<;2>H: **set style (p. 168)**, **fit (p. 75)**!#

'scanf' 4X?tGO?'!9$J%G!<%?7A<0$N?tCMF~NO$,;H$($^$9$,!"**gnuplot** $OA4$F$NF~NO%G!<%?$rG\@:EYIbF0>.?tH_J7$^$9$+$i!"**gnuplot** GO **%lf** $,K\<AE*$KM#0l$N?tCMF~NO;XDj!"$H$$&3HKJj^$9!#=q<0J8;zNs$K$O!">/$J$/$H$b0l$D!"$=$7$F7 $D0J2<$N!"$=$Nh&$JF~NO;XDj;R$rF~lkI,MW$,$"j^$9!#'scanf' $O?t$H?t$N4V$K%[%o%$%H%9%Z!<%9!"$9Jo$A6uGr!"%?%V("\t")!"2~9T("\n")!"$^$?$O2~%Z!<%8("\f") $,$"kH4|BT7$^$9!#$=$l0J30$NF~NO$OL@<(E*$K%9%-%C%W$5lkY-$G$9!#

"\t", "\n", "\f" $r;H$&H-$OC10l0zMQId$hj'7mFs=E0zMQId$r;H$&Y-G"k3HKCm0U7F$/$@$5$$!#

Using $NNc **(using_examples)** <!NNcO!"1 HVL\$N%G!<%?$K2 HVL\$H3 HVL\$NOBNCMrplot 7^$9!#=q<0J8;zNs$O!"3FNs%G!<%?$,%9%Z!<%96h@Z$jGJ$/!"%3%s%^6h@Z$jG"k3Hr;X<(7F$$$^9,!"F18$3$H$, **set datafile separator comma** $r;XDj$9k3HG$b2DG=$G$9!#

```
plot 'file' using 1:($2+$3) '%lf,%lf,%lf'
```

<!NNcO!"hjJ#;($J=q<0;XDj$G%G!<%?r%U%!%$%k"MyData" $+$iFI$_9~$_$^$9!#

```
plot 'MyData' using "%*lf%lf%*20[^\n]%lf"
```

3N=q<0;XDj$N0UL#$O0J2<NDLj$G$9:

%*lf	?tCM$rL5;k
%lf	G\@:EYIbF0>.?trFI_9~$`(%G%U%)%k%H$G$O x $NCM)
%*20[^\n]	20 8D$N2~9T0J30$NJ8;z$rL5;k
%lf	G\@:EYIbF0>.?trFI_9~$`(%G%U%)%k%H$G$O y $NCM)

3 9`1i;;R?: $r;H$C$F%G!<%?r%U%#%k%?$9$k0l$D$N7]Ev$r>R2p7^$9!#

```
plot 'file' using 1:($3>10 ? $2 : 1/0)
```

3l$O!"1 NsL\$N%G!<%?KBP7F!"3 NsL\$N%G!<%?$, 10 0J>e$G$"$kh&$J2 NsL\$N%G!<%?$rplot 7^$9!#**1/0** OLDj5ACMG"$j!"**gnuplot** OLDj5A$NE@$rL5;k9kNG!"hC$FE,@ZGJ$$$E@$O1#$5lk3HKJj^$9!#$^$?$O!"$"$i+8aDj5A5l$F$$$kCM NaN $r;H$CFbF1$8$3HKJj$^$9!#

%+%C%3$G;O$^CF$$$J$8B$j$CDj?t<0$rNsHV9fH7$F;H$&3H$,$G$-$^$9!#Nc$($P **using 0+(J#;($J<0) NMMJ3H$,$G$-$^$9!#$=7F!"$=$N?t<0$O!"%+%C%3$G%9%?!<%H7F$$$J1l$P?t<0$NCM$,0lEYI>2A$5$l!"%+%C%3$G%9%?!<%H7F$$$l$P8D!9$N%G!<%?E@rFI_9~$`$?aK$=$NCM$,0lEYI>2A$5lk!"$H$$&E@$,=EMW$G$9!#

;~7CNs%U%)!<%^%C%H%G!<%?r;HCF$$k>19g!"$=$N;~4V$N%G!<%?$rJ?$J?t$NNsKEOi$;$k3H$,$G$-$^$9!#$=$N>19g!"B>$N%G!<%?$N3+;C0LCV$r7W;;9kH-!";~4V$N%G!<%?$K6uGr$,4^$^lF$$$k3H$KCm0U$7F/$@$5$$!#Nc$($P!"%G!<%?TN:G=i$NMWAG$,%9%Z!<%9Kda9~$^$l$?;~4V%G!<%?$G"kJiP!"y NCMO3 NsL\$NCMH7$F;XDj$5lkY-$G$9!#

(a) **plot 'file'** $H!"(b) **plot 'file' using 1:2**!"$=$7$F(c) **plot 'file' using ($1):($2)** KOHyL/$J0c$$,$"$k3H$KCm0U$7F/$@$5$$!#:Y$+$$5sF0$O!"%P!<%8%g%s5 $GJQ9$5lF$$$^$9!#0J2<;2>H:**missing (p. 122)**!#

:G=i$KC1$K

```
plot 'file' using 1:2
```

$H;XDj$9k3HG!"BgDq$N>l9g$IsJ$K%4%_$N%G!<%?$r4^$'9T$r;}$D%U%!%$%k$r$b plot 9k3H$,2DG=KJj^$9!#7+$7!"I&$7Fb%G!<%?%U%!%$%k$KJ8;zNs$r;D$7F*$-$?$$$JiP!"$=$N%F%-%9%H9T$NBh0lNs$K%3%a%s%HJ8;z(#) rCV/J}$,$h$j0BA4$G7g$&!#

5?;wNs **(pseudocolumns)** plot J8$N **using** 9'L\Fb$N<0GO!"F~NO%U%!%$%k$K4^$^$l$k<B:]$N%G!<%?CM$K2C$($F4IM}>pJs$b;2>HG-!"3liO"5?;wNs" (pseudocolumns) $K4^$^lF$$$^$9!#

```
column(0)    %G!<%?=89gFb$G$N3FE@$N=gHV!#=gHV$O 0 $+$i;O$^$j!"2
             9T$N%V%i%s%/9T$G%j%;%C%H$5$l$^$9!#N,5- $0 $b;HMQ2D!#
column(-1)   $3$NHV9f$O 0 $+$i;O$^$j!"1 9T$N%V%i%s%/9T$G%j%;%C%H
             $5$l$^$9!#$3$l$O!"9TNs!"$^$?$O3J;R>u%G!<%?Fb$N%G!<%?
             9T$KBP1~$7$^$9!#
column(-2)   J#?t$N%G!<%?=89g$r;}$D%U%!%$%kFb$N!"8=:_$N%G!<%?=89g
             $N index HV9f!#0J2<;2>H: `index`!#
```

Xticlabels <4$N9o$_$N8+=P$7 (ticlabel) $OJ8;zNs4X?t$KhC$F:n$k3HbG$-!"$=lODL>o$O0z?t$H7F%G!<%?Ns$+$i<hF@7^$9!#:G$bC1=c$J7A<0$O!"%G!<%?Ns<+?H$NJ8;zNs$H7F$NMxMQ$G!"xticlabels(N) $O xticlabels(stringcolumn(N)) $N>JN,7A$H7F;H$($^$9!#0J2<$NNc$O3 NsL\$NMWAG$r x <4$N9o$_$N8+=P7H7F;HMQ7^$9!#

```
plot 'datafile' using <xcol>:<ycol>:xticlabels(3) with <plotstyle>
```

<4$NL\@9$j$N8+=P$7$O!"G$0U$NIA2h<4 x,x2,y,y2,z MQ$K@8@.G-$^$9!#**ticlabels(<labelcol>)** ;XDj$O!"**using** ;XDj$NCf$G!"$=$N%G!<%?$N:BI8;XDj$,A4$F:Qs@8e$K9T$&I,MW$,$"j^$9!#M-8z$J X,Y[,Z] :BI8NAHr;}$D3F%G!<%?E@$KBP7F!"xticlabels() $KM?$($kJ8;zNsCM$O!"$=$l$KBP1~$9$kE@$Nx :BI8$HF1$8>l=j$Nx <4$N8+=P7N%j%9%H$KDI2C$5l^$9!#**xticlabels()** $O **xtic()** $H>JN,$9k3HbG-!"B>$N<4$K4X7F$bF1MM$G$9!#

Nc:

```
splot "data" using 2:4:6:xtic(1):ytic(3):ztic(6)
```

3NNcGO!"x <4!"y <4$N8+=P$7$O x,y :BI8CM$HOJLNNs$+$i<h$j=P$5l^9,!"z <4$N8+=P$7$O!"BP1~$9$kE@$N z :BI8CM$+$i@8@.5l$^$9!#

Nc:

```
plot "data" using 1:2:xtic( $3 > 10. ? "A" : "B" )
```

3NNc$O!"x <4$N8+=P7N@8@.$KJ8;zNsCM4X?t$r;HMQ7?bN$G!"%G!<%?%U%!%$%k$N3FE@$Nx <4$N9o$_$N8+=P$7$O!"3 NsL\$NCMKhCF "A" $+ "B" $+$N$$$:l+HJj^$9!#

X2ticlabels 0J2<;2>H: **plot using xticlabels (p. 100)**!#

Yticlabels 0J2<;2>H: **plot using xticlabels (p. 100)**!#

Y2ticlabels 0J2<;2>H: **plot using xticlabels (p. 100)**!#

Zticlabels 0J2<;2>H: **plot using xticlabels (p. 100)**!#

Volatile

plot %3%^%s%I$N%-!<%o!<%I **volatile** $O!"F~NO%9%H%j!<%'$+%U%!%$%k$+$i0JA0$KFI$_9~$s$@%G!<%?$,!":FFI$_9~$_;~KOM-8zGO$J$$$3Hr0UL#7^$9!#$3lO!"**replot** %3%^%s%INBeojK!"2DG=$J8B$j **refresh** %3%^%s%I$r;H$&h& gnuplot $K;X<($7$^$9!#0J2<;2>H: **refresh (p. 109)**!#

Errorbars

% (%i! <%P! <$O! "1 $+$i 4 8D$NDI2C$5l?%G! <%?$rF I$ ` ($^$?$O% (%s%H% j$r **using** $GDI2CA*Br$9$k) 3HKh$j! " 2 < !85%G! <%?$NIA2hK*$$F<B8=5l$F$$$^$9! #$3liDI2C5lkCMO! "$=$l$>$l$N% (%i! <%P! <%9%?%$%k$G0 [JC$?7A$G; Hol$^$9! #

%G%U%)%k%HGO! "**gnuplot** $O%G! <%?%U%!%$%k$N3F9T$K0J2<Nh$&$J 3 $D! "4 $D! "$"$k$$$O 6 DNNs$,$"k3 Hr4 |BT7F$$$^$9:

```
(x, y, ydelta),
(x, y, ylow, yhigh),
(x, y, xdelta),
(x, y, xlow, xhigh),
(x, y, xdelta, ydelta),
(x, y, xlow, xhigh, ylow, yhigh)
```

x :BI8$OI,$:; XDj7J1l$P$$$1$^$;$s! #3F?tCM$r=q$/=g=x$b>e$G5s$2$?DL$jGJ$/$FOJj^$;$s! #$?$@! " **using** =$>~; R$r; H$ (P=$N=g=x$rA `: nG-$^$9$7! "7g$1$F$$$kNsNCMbJd$&$3HO2DG=G9$,! #Nc$ ($P! "

```
plot 'file' with errorbars
plot 'file' using 1:2:(sqrt($1)) with xerrorbars
plot 'file' using 1:2:($1-$3):($1+$3):4:5 with xyerrorbars
```

:G8eNNcO! "AjBPE*$Jx $N8m: 9$H@dBPE*$Jy $N8m: 9! "$H$$$&! "%5%]! <%H5l$F$$$JAHN%U%!%$%k$KBP9k$b NG$9! #**using** % (%s%H% j$,AjBPE*$Jx $N8m: 9$+$i@dBPE*$Jx $N: G> .CM$H: GBgCM$r@8@ .$7$F$$$^$9! #

y $N% (%i! <%P! <$O! "(x, ylow) $+$i (x, yhigh) XN1tD>$J@~$H7FIA$+$l$^$9! #ylow $Hyhigh NBecjKydelta $,; XDj$5l?H-$O! "ylow = y - ydelta, yhigh = y + ydelta HJj^$9! #$"$k9T$K%G! <%?$, 2 D7$+$J1l $P! "ylow $Hyhight OHbKy HJj^$9! #x % (%i! <%P! <$OF1MM$K7W; ;$5l??eJ?@~$G$9! #%G! <%?$N3FE@$r7k $V@^$l@~$r0z$-$?$$>l9g$O! "with errorbars $H with lines $r; XDj$7$F! "F1$8%G! <%?%U%!%$%k$r2 2s **plot** 7F 2<$5$$ ($?$@$7! "%-! <$NCf$K2 DN% (%s%H% j$r: niJ$$$h$&$K! "$=$N0lJ}KO **notitle** %*%W%7%g%s$r; H$&3H $rK:$l$J$$$G2<$5$$)! #B>$NA*Br; h$H7F! "errorlines %3%^%s%Ib"j^$9 (0J2<; 2>H: **errorlines (p. 101)**)! #

% (%i! <%P! <$NC<$N9o$_$N0u$N8+$?L\$O! "**set errorbars** $G@)8f$G$-$^$9! #

<+F0HO0O; XDj$,M-8z$G$"$l$P! "$=$NIA2hHO0O$O% (%i! <%P! <$b4^$ `h&$KD4@0$5l^$9! #

0J2<$b; 2>H% (%i! <%P! <$N%G%b

9Jk>pJs$K4X$7FO! "0J2<; 2>H: **plot using (p. 98)**, **plot with (p. 106)**, **set style (p. 168)**! #

Errorlines

8m: 9@~ (errorbar) $rH<$&@~IA2h$O! "2 < !85%G! <%?%U%!%$%k$NIA2h$G%5%]! <%H5l$F$$$F! "$=$l$O 1 8D$+$i 4 8D $NDI2C$N ($^$?$O **using** $G; XDj$9$k) Ns%G! <%?$rM?$ (k3HG9TJol^$9! #$3li$NDI2C$5lkCM$O! "MM! 9 $Jerrorline %9%?%$%kN=l>lG0 [JC$?7A$G; Hol$^$9! #

%G%U%)%k%H$N>uBV$G$O! "**gnuplot** $O! "%G! <%?%U%!%$%k$N3F9T$K3 8D! "4 8D! "6 8D$N$$$:l+$N8D?t$N%G! <%?$, $"$k3H$r4 |BT$7! "$=$l$>$l0J2<$N$$$:l+$KBP1~$7$^$9! #

```
(x, y, ydelta),
(x, y, ylow, yhigh),
(x, y, xdelta),
(x, y, xlow, xhigh),
(x, y, xdelta, ydelta),
(x, y, xlow, xhigh, ylow, yhigh)
```

x :BI8$O; XDj$9kI,MW,$"$j$^$9$7! "%G! <%?$N=gHV$b>e$N7A<0G"kI,MW,$"$j$^$9$,! "**using** =$>~; RG=$N =gHV$rA `: n7?$j! "7g$1$F$$$kNsKBP9kCMrM?$ ($?$j9k3H$,$G$-$^$9! #Nc$ ($P

```
plot 'file' with errorlines
plot 'file' using 1:2:(sqrt($1)) with xerrorlines
plot 'file' using 1:2:($1-$3):($1+$3):4:5 with xyerrorlines
```

:G8eNNcO! "AjBPE*$Jx $N8m:9$H@dBPE*$Jy $N8m:9! "$H$$&%5]!<%H5l$F$$J$$AH9g$;$N%G! <%?$N%U%!%$%kKBP9kbNG! **"using** $GAjBPE*$J8m:9$+$i@dBPE*$Jx $N:G>.CM$H:GBgCM$r@8@.$7$F$$^$9!#

y 8m:9@~$O (x, ylow) $+$i (x, yhigh) $XIA2h$5lk=D@~$G$9!#ylow, yhigh Beoj$Kydelta $,;XDj$5l?>19g $O! "ylow = y - ydelta, yhigh = y + ydelta $H07$ol^$9!#$"$k9T$K2 DN%G! <%?7+$J$$>19g! "yhigh, ylow $ON>J}$H$by KJj^$9!#x 8m:9@~$OF1MM$NJ}K!$G7W;;5l$k?eJ?@~$G$9!#

%(%i!<%P!<$NC<$N9o$_$N0u$N8+$?L\$O! **"set errorbars** $G@)8f$G$-$^$9!#

<+F0=L<\ (autoscaling) $, ON $N>19g! "IA2hHOOO$O8m:9@~$,F~$kh&$KD4@0$5l^$9!#

99Jk>pJsKD$$F$O! "0J2<;2>H: **plot using (p. 98), plot with (p. 106), set style (p. 168)**!#

4X?tIA2h (functions)

%3%^%s%I **plot**, **splot** GO! "%U%!%$%k$+iFI_9~s@%G! <%?$NIA2h$@1GJ/! "AH$_9~$_4X?t$d%f!<%6Dj5A4X?t$rIA2h9k3HbG$-$^$9!#4X?t$NCM$O! "FHN)$J<4$NDL>o$NHOOOKEOC$F%G! <%?%5%s%W%k$r<hk3HGI>2A 7^$9!#0J2<;2>H: **set samples (p. 167), set isosamples (p. 135)**!#

Nc:

```
approx(ang) = ang - ang**3 / (3*2)
plot sin(x) title "sin(x)", approx(x) title "approximation"
```

4X?t$N%G%U%)%k%H$NIA2h%9%?%$%k$r@_Dj9kJ}K!KD$$F$O! "0J2<;2>H:**set style function (p. 172)**!#AH$_9~$_4X?t$N>pJs$K$D$$F$O! "0J2<;2>H:**expressions functions (p. 30)**!#<+A0$G4X?t$rDj5A9kJ}K!KD$$F$O! "0J2<;2>H:**user-defined (p. 36)**!#

G^2pJQ?t%b!<%IIA2h (parametric)

G^2pJQ?t%b!<%I (**set parametric**) GO! **"plot** GO2 DN?t<0NAHr! **"splot** GO3 DN?t<0NAHrM?$($kI,MW$,$"j^$9!#

Nc:

```
plot sin(t),t**2
splot cos(u)*cos(v),cos(u)*sin(v),sin(u)
```

%G!<%?%U%!%$%k$OA0$HF1$8h&$KIA2h$5l^$9!#$?$@$7! "%G!<%?%U%!%$%k$,IA2hN?aKM?$($ilkA0$K! "G$0U$NG^2pJQ?t4X?t$,@h$K40A4$K;XDj5l$?>19g$r=|$$$F$G$9!#8@$$49$($k$H! "x $NG^2pJQ?t4X?t (>e$NNcGO **sin(t)**) $Hy $NG^2pJQ?t4X?t (>e$NNcGO **t**2**) HN4V$K! "B>$N=$>~;R$d%G!<%?4X?trO5_3sGO$$$1$^$;$s!#$=Nh$&$J3Hr9kH! "9=J8%(%i!<KJ$j! "G^2pJQ?t4X?t$,40A4KO;XDj5l$F$$$J$$! "$HI=<($5l^$9!#

with $d **title** Nh$&$JB>$N=$>~;R$O! "G^2pJQ?t4X?t$N;XDj$,40N;7?8e$K;XDj7J1l$P$$$1$^$;$s!#

```
plot sin(t),t**2 title 'Parametric example' with linespoints
```

0J2<$b;2>HG^2pJQ?t%b!<%I$N%G%b!#

HOOO (ranges)

3N%;%/%7%g%sGO! "%3%^%s%I **plot** $N0lHV:G=i$N'L\$H7F=q$/! "<4$NHOOO$N%*%W%7%g%s$K$D$$FN_@bL@7^$9!#$3lr;XDj9k$H! "$=$NHOOO$O! "$=$l0JA0NI$N **set range** Kh$kHOOO$N@)8Bhj$hM%@h7F07$ol^$9!#%3%^%s%I **plot** NULJ>l=j$K;XDj$9$k! "8D! 9$NIA2hMWAG$NHOOO$N@)8B$?$a$N%*%W%7%g%s$K$D$$F$OJ2<;2>H: **sampling (p. 103)**!#

=q<O:

```
[{<dummy-var>=}{{<min>}:{<max>}}]
[{{<min>}:{<max>}}]
```

1 $DL\$N7A<0$NHOOO;XDj$OFHN)JQ?t$NHOOO (**xrange**! "$^$?$OG^2pJQ?t%b!<%IGN **trange**) MQ$G! "2 $DL\$N7A<0$O=>BJQ?t$NHOOOMQ$G$9!#%*%W%7%g%s$N<dummy-var> $GFHN)JQ?t$N?7$7$$L>A0$rMxMQ$G$-$^$9(%G%U%)%k%H$NJQ?tL>$Oset dummy $GJQ99$G$-$^$9)!#

G^2pJQ?t%b!<%I (parametric) GJ1l$P! "HOOO;XDj$OOOJ2<$N=g$KM?$($J1l$P$$$1$^$;$s:

```
plot [<xrange>][<yrange>][<x2range>][<y2range>] ...
```

G^2pJQ?t%b!<%I (parametric) GO!"HCOO;XDj$COJ2<$N=g$KM?$ (J1lP$$$1$^$;$s:

```
plot [<trange>][<xrange>][<yrange>][<x2range>][<y2range>] ...
```

0J2<$N **plot** %3%^%s%I$O!"**trange** $r[-pi:pi], **xrange** $r[-1.3:1.3],**yrange** $r[-1:1] $K@_Dj$9kNcG$9:

```
plot [-pi:pi] [-1.3:1.3] [-1:1] sin(t),t**2
```

***** $O!"min (:G>.CM) $dmax (:GBgCM) $K<+F0HCOO;XDj (autoscale) $N5!G=$r;H$&$3Hr2DG=K7$^$9!#;XDj=g HVN?a@1KI,MW$JHCOO;XDj$K$O!"6u$NHCOO[] $r;H$CF/$@$5$$!#

plot $d**splot** $N%3%^%s%I9T$G;XDj$5$1$?HCOO$O$=$N%0%i%U0lDKN_1F6A$r5Z$\$7$^$9!#hC$F!"$=$N8e$N %0%i%U$N%G%U%)%k%H$NHCOO$rJQ9$9kK$O**set xrange** $d**set yrange** $r;HMQ$7F/$@$5$$!#

%j%s%/5l$?<4$KBP7F$O!"plot %3%^%s%I$G$N0l;~E*$JHCOO;XDj$N;HMQ$O!"4|BT9k7k2L$r@8$^$J$$$+b7$l $^$;$s(0J2<;2>H: **set link (p. 143)**)!#Beoj$K**set xrange** $H**set yrange** $NJ8$rJL!9$K;XDj$9$kJ}$,$$ $$G7g$&!#

;~4V%G!<%?KBP7FO!"HCOO$O!"%G!<%?%U%!%$%k$+$iFI$_9~$`NK;HMQ9kNHF1$8=q<0$G!"0zMQId$G0O$s$G ;XDj$9kI,MW,$"$j$^$9!#0J2<;2>H**set timefmt (p. 178)**!#

Nc:

0J2<$O8=:_$NHCOO$r;HMQ$7$^$9:

```
plot cos(x)
```

0J2<$Ox $NHCOO$N$_$N;XDj$G$9:

```
plot [-10:30] sin(pi*x)/(pi*x)
```

0J2<$O>e$HF1$8$G9,!"2>JQ?tH7$Ft $r;H$$$^$9:

```
plot [t = -10 :30]  sin(pi*t)/(pi*t)
```

0J2<$Ox $Hy $NN>J}$NHCOO$N;XDj$G$9:

```
plot [-pi:pi] [-3:3]  tan(x), 1/x
```

0J2<$O!"y $NHCOO$N$_$N;XDj$G$9:

```
plot [ ] [-2:sin(5)*-8] sin(x)**besj0(x)
```

0J2<$Ox $N:GBgCM$Hy $N:G>.CM$N$_$N;XDj$G$9!#

```
plot [:200] [-pi:]  $mydata using 1:2
```

0J2<$Ox $NHCOO$r;~7CNs%G!<%?H7$F;XDj$7$F$$$^$9:

```
set timefmt "%d/%m/%y %H:%M"
plot ["1/6/93 12:00":"5/6/93 12:00"] 'timedata.dat'
```

%5%s%W%j%s%0 (sampling)

1 <!85$N%5%s%W%j%s%0 (x $^$?$Ot <4) (1D sampling)

%G%U%)%k%HGO!"4X?t$d5?;w%U%!%$%k"+" $G@8@.$5lk%G!<%?HO2hHCOOA4BNKo$?$C$FI8K\(%5%s%W%k) $,<h$il^$9!#$3$NHCOO$O!";vA0$K%3%^%s%I**set xrange** $G@_Dj$9k+!"plot %3%^%s%I+splot %3%^%s%I$N:G =i$N>l=j$GBg0hHCOO$rL@<(E*$K;XDj$9k+7J1l$P!"$=$N%0%i%U$NYF$NMWAG$r4^$`HCOOFb$K%G!<%?%U%!%$%k$F~kh$&x $NHCOO$r<+F0=L<\(autoscaling) 7^$9!#$7$+$7!"$=$NI8K\2=HCOO$O8D!9$NIA2hMWAGKhK5iK @)8B7F3djEvFk3HbG-$^$9!#

Nc:

0J2<$O!"x A4BN$NHCOO$r0 $+$i 1000 H7$F%U%!%$%k$N%G!<%?rIA2h$7!"2 DN4X?t$rA4BN$NHCOO$N0lItJ,$@ 1=l>$lIA2h$7$^$9:

```
plot [0:1000] 'datafile', [0:200] func1(x), [200:500] func2(x)
```

0J2<$O! ">e$H$[$\F1MMG9$,! "A4BN$NHCOO$O%G! <%?%U%!%$%k$NFbMF$KhC$F7hDj$7$^$9! #3N>19g! "I8K\2=5l$k4X?t$O! "A4BN$,%0%i%UFb$K<}$^$k$+$b7l$^$;s7! "<}$^$i$J$$$+b7l^$;$s:

```
set autoscale x
plot 'datafile', [0:200] func1(x), [200:500] func2(x)
```

0J2<$N%3%^%s%I$KO"$$$^$$5$,4^$^l^$9! #@hF,$NHCOO$O! "B?J,:G=i$N4X?t$NI8K\2=$N$_$K8~1?N@$H;W$$$^9,! "<B:]O=$&$GOJ$/! "$9YF$NIA2hMWAG$KE,MQ9kh&$K2r<a$5l^$9:

```
plot [0:10] f(x), [10:20] g(x), [20:30] h(x)
```

0J2<$N%3%^%s%I$O! ">eNNcN$"$$$^$$5$r=|$/$?$a$K%-! <%o! <%I **sample** $rDI2C$7$?$bNG! "$=$NHCOO;XDj$r plot A4BN$KE,MQ7J$$$h$&$K7F$$$^$9:

```
plot sample [0:10] f(x), [10:20] g(x), [20:30] h(x)
```

0J2<NNcO! "3 <!85%0%i%UKi$;$s$N6J@~$rIA$/01$D$NJ}K!$rDs<(7^$9:

```
splot [-2:2][-2:2] sample [h=1:10] '+' using (cos(h)):(sin(h)):(h)
```

2 <!85$N%5%s%W%j%s%0 (u $H v <4) (2D sampling)

5?;w%U%!%$%k'++' KBP7$F7W;;9k4X?tCM$d@8@.5l$?%G! <%?$O! "u, v <4$K1hCFI8K\2=(%5%s%W%j%s%0) $r9T$$$^$9! #$3$1$O! "5.2 hjA0$N%P! <%8%g%s$+iN;EMM$N! VUQ99! W$G! "=>Mh$Ox, y <4$K1hCFI8K\2=7F$$$^7?! #0J2<;2>H: **special-filenames ++ (p. 97)**! #2 <!85$N%5%s%W%j%s%0$O **plot**, **splot** %3%^%s%I$G;HMQ$G$-$^$9! #

0J2<$O! "2 <!85$N **plot** %3%^%s%IKBP9$k2 <!85%5%s%W%j%s%0$NNc$G$9! #$3$1$O! "IA2h%9%?%$%k **with vectors** $GI=<($5$1$k%0%i%U$r@8@.$7$^$9! #0J2<;2>H: **vectors (p. 66)**! #

```
set urange [ -2.0 : 2.0 ]
set vrange [ -2.0 : 2.0 ]
plot '++' using ($1):($2):($2*0.4):(-$1*0.4) with vectors
```

0J2<$O3 <!85$N **splot** %3%^%s%IKBP9$k2 <!85%5%s%W%j%s%0$NNc$G$9! #$3$1$O! "**sampling.dem** $G;HMQ$5$1$F$$$kbN$K;w$?%3%^%s%INs$G$9! #3N2 DN6JLL$O! "@8@.$5$1$k%0%i%U$NHCOOA4BN$hjb69$$u, v $NHCOO$GI8K\2=$r9T$&3H$KCm0U$7F/$@$5$$! #

```
set title "3D sampling range distinct from plot x/y range"
set xrange [1:100]
set yrange [1:100]
splot sample [u=30:70][v=0:50] '++' using 1:2:(u*v) lt 3, \
      [u=40:80][v=30:60] '++' using (u):(v):(u*sqrt(v)) lt 4
```

u, v $N%5%s%W%j%s%0$NHCOO;XDjKO! "%5%s%W%j%s%0G! <%?$N?t$H%9%Z! <%9$r@)8f$9$k! "L@<(E*$J%5%s%W%j%s%04V3V$rF~$lk3HbG-$^$9:

```
splot sample [u=30:70:1][v=0:50:5] '++' using 1:2:(func($1,$2))
```

Plot %3%^%s%I$N for %k! <%W (for loops in plot command)

B?$/$NF1Ey$N%U%!%$%k$d4X?t$rF1;~$KIA2h$9$k>19g$O! "$=$l$>$l$N plot %3%^%s%IN7+$jUV$7 (iteration) G=lr9T$&N,JXMx$G$9! #

=q<0:

```
plot for [<variable> = <start> : <end> {:<increment>}]
plot for [<variable> in "string of words"]
```

7+jUV7$NE,MQHCOO (scope) $O! "<!$N%3%s%^(,) $+%3%^%s%I$N=*oj! "$N$$:l+@h$K8=$l$?$H3m$^$G$G$9! #$?$@$7! "IA2h$9$k9'L\$NA0$KDj5A<0(J#?t$b2D) $,JB$s$G$$k>19g$O! "%3%s%^$,4V$KF~$C$F$$Fb=$NNc30$HJj$^$9! #

7+jUV7$OG^2pJQ?t%b! <%I (parametric) GO5!G=7J$$3HKCm0U7F$/

$@$5$$!#

Nc:

```
plot for [j=1:3] sin(j*x)
```

Nc:

```
plot for [dataset in "apples bananas"] dataset."dat" title dataset
```

3NNcGO!"7+jUV7$O%U%!%$%kL>$HBP1~$9$k%?%$%H%k$N@8@.$NN>J}$G;H$olF$$$^$9!#

Nc:

```
file(n) = sprintf("dataset_%d.dat",n)
splot for [i=1:10] file(i) title sprintf("dataset %d",i)
```

3NNc$O!"%U%!%$%kL>$G@8@.$5lkJ8;zNsCM4X?t$rDj5A$7!"$=$Nh&$J 10 8D$N%U%!%$%k$rF1;~$KIA2h$7$^$9!#
7+jUV7$NUQ?t($3NNcG$O'i') $O0l$D$N@0?t$H7F07ol!"$=$l$r2 EY0J>e;HMQ$G$-$^$9!#

Nc:

```
set key left
plot for [n=1:4] x**n sprintf("%d",n)
```

3NNc$O!"4X?t$NAH$rIA2h$7$^$9!#

Nc:

```
list = "apple banana cabbage daikon eggplant"
item(n) = word(list,n)
plot for [i=1:words(list)] item(i).".dat" title item(i)
list = "new stuff"
replot
```

3NNcGO!"%j%9%H$K=>$C$F3F%9%F%C%W$,?J9T$7!"$=$N3F9'L\$KBP7F0lDNIA2h$,9T$ol^$9!#$3$N3F9'L\
$OF0E*$K<hF@5l$^$9NG!"$=$N%j%9%H$rJQ9$7!"$=$N$^$^replot 9k3H$,$G$-$^$9!#

Nc:

```
list = "apple banana cabbage daikon eggplant"
plot for [i in list] i.".dat" title i
list = "new stuff"
replot
```

3NNc$O!"@0?t$N7+jUV7JQ?tGOJ/!"U8;zNs$N7+$jUV$7JQ?t7A<0$rMQ$$$F$$k3H0J30$OA0$NNc$HA4$/F1
8G$9!#

<end> $N@0?t$NBeoj$K5-9f* $r;HMQ$9lP!"7+jUV7O9YF$NM-8z$J%G!<%?$,$J$/$Jk^GN7+jUV7
HJj^$9!#$3lO!"3F9T$K4^$^lk9YFNNs$N=hM}!"$"$k$$$O%U%!%$%kFb$N9YFN%G!<%?%;%C%H(2 9T
$N6u9T$G6h@Zil$k) $N=hM}!";XDj$KEvFO$^$k9YFN%U%!%$%k$JIr0lEY$K=hM}$9kN$KJXMx$G$9!#

Nc:

```
plot for [i=2:*] 'datafile' using 1:i with histogram
splot for [i=0:*] 'datafile' index i using 1:2:3 with lines
plot for [i=1:*] file=sprintf("File_%03d.dat",i) file using 2 title file
```

Title

%G%U%)%k%HGO3F6J@~$O!"BP1~$9$k4X?t$d%U%!%$%kL>$G%-!<NCfK0lMwI=<(5l$^$9$,!"plot $N%*%W%7%g%s
title $r;H$&3H$G!"L@<(E*$J%?%$%H%k$rM?$($k3HbG$-$^$9!#

=q<0:

```
title <text> | notitle [<ignored text>]
title columnheader | title columnheader(N)
      {at {beginning|end}} {{no}enhanced}
```

$3$3$G <text> $O!"0zMQId$G0O$^$l$?J8;zNs$+!"U8;zNs$HI>2A$5lk<0$N$$:l+$G$9!#0zMQId$O%-!<$K$OI=<($5l^$;$s!#

F~NO%G!<%?NNsN:G=i$N9`L\($9JoANsN@hF,)$rJ8;zNs%U%#!<%k%I$H2r<a$7!"$=lr%-!<%?%$%H%k$H7FMxMQ9k*%W%7%g%sb"j^$9!#0J2<;2>H:**datastrings (p. 27)**!#3l$O!"**set key autotitle columnhead**$r;XDj$9lP%G%U%)%k%H$N5sF0$HJj$^$9!#

6J@~%?%$%H%k$H%5%s%W%k$OM=Ls8l **notitle** $r;H$&3H$G%-!<$+$i:o=|$G$-$^$9!#2?$b$J$$%?%$%H%k(**title ''**)$O**notitle**$HF1$80UL#$r;}$A$^$9!#%5%s%W%k$@$1$,M_$7$$H$-$O!"0l$D0J>e$N6uGr$r%?%$%H%k$N8e$m$KF~$lF/$@$5$$(**tilte ''**)!#**notilte** $N8e$m$KJ8;zNs$rD1$?>19g!"$=$NJ8;zNs$OL5;k5l$^$9!#

key autotitles $,@_Dj$5lF(%G%U%)%k%H)!"$+$D **title** $b **notitle** $b;XDj$5lJ$+$C$?>19g!"6J@~$N%?%$%H%k$O **plot** %3%^%s%I>eK"$k4X?tL>$+%G!<%?%U%!%$%kL>$KJj$^$9!#%U%!%$%kL>$N>19g$O!";XDj$5lkG$0U$N%G!<%?%U%!%$%k=$>~;Rb=$N%G%U%)%k%H%?%$%H%k$K4^$^l^$9!#

0ICV$d%?%$%H%k$N0ICVB7$(JINK^NcN%l%$%"%&%H$O!"**set key** $G@)8f$G$-$^$9!#>\:Y$O!"0J2<;2>H: **set key (p. 136)**!#

%-!<%o!<%I **at** Kh$j!"6J@~$N%?%$%H%k$r!"<+F0E*$K:n$ilk key $NH"$N30KGbCV/3H$,$G$-$kh&KJj^$9!#**at {beginning|end}** $r;HMQ$7$?>19g$O!"6J@~$N%?%$%H%k$r%0%i%U$N6J@<+?H$ND>A0!"$"$k$$$CD>8eKCV-$^$9!#3N*%W%7%g%s$O!"**with lines** $GIA2h$9$k>19g$OM-MQG9$,!"B>$NIA2h%9%?%$%k$G$OL50UL#$G$9!#

at <x-position>,<y-position> $N7A<0$r;HMQ9l$P!"6J@~$N%?%$%H%k$r%Z!<%8FbNG0U$N0ICV$KCV$/$3H,G-$^$9!#%G%U%)%k%HGO!"$=$N0ICV;XDj$O%9%/%j!<%s:EI8$H2r<a7^$9!#Nc($P **at 0.5, 0.5** $O!"%0%i%U$N<4$K=L<\$d6-3&KO4X78J/!"><o$K%9%/%j!<%s$Cf$r0UL#$7$^$9!#3NJ}K!$GG[CV$9$k%?%$%H%k$N=q<0$O!"key $N%*%W%7%g%s;XDj$N1F6A$r<u$1$^$9!#0J2<;2>H:**set key (p. 136)**!#

Nc:

0J2<$O y=x $r%?%$%H%k'x' $GI=<($7$^$9:

```
plot x
```

0J2<$O!"x $N2>h$r%?%$%H%k"x^2" $G!"%U%!%$%k"data.1" $r%?%$%H%k"measured data" $GI=<($7$^$9:

```
plot x**2 title "x^2", 'data.1' t "measured data"
```

0J2<$O!"%U%!%$%k$N@hF,9T$N3FNs$K%?%$%H%k$r4^$`U#?tNs$N%G!<%?IA2h$7$^$9!#3F%?%$%H%k$O!"FHN)7?K^NcGOJ/!"BP1~9k6J@~$N8e$mKCV-$^$9:

```
unset key
set offset 0, graph 0.1
plot for [i=1:4] 'data' using i with lines title columnhead at end
```

0J2<$O!"2 DNJL!9$N%0%i%U$N key $N>l=j$r1 2U=jK7$^$9:

```
set key Left reverse
set multiplot layout 2,2
plot sin(x) with points pt 6 title "Left plot is sin(x)" at 0.5, 0.30
plot cos(x) with points pt 7 title "Right plot is cos(x)" at 0.5, 0.27
unset multiplot
```

With

4X?t$d%G!<%?IA2h$=$N9%?%$%k$N%&A$N0lDr;H$&$3H,G-$^$9!#%-!<%o!<%I **with** $,$=$NA*Br$N%?%a$KMQ0U$5lF$$$^$9!#

=q<O:

```
with <style> { {linestyle | ls <line_style>}
               | {{linetype  | lt <line_type>}
                  {linewidth | lw <line_width>}
                  {linecolor | lc <colorspec>}
                  {pointtype | pt <point_type>}
                  {pointsize | ps <point_size>}
                  {fill | fs <fillstyle>} {fillcolor | fc <colorspec>}
                  {nohidden3d} {nocontours} {nosurface}
```

```
                    {palette}}
                }
```

```
lines        dots       steps     errorbars     xerrorbar    xyerrorlines
points       impulses   fsteps    errorlines    xerrorlines  yerrorbars
linespoints  labels     histeps   financebars   xyerrorbars  yerrorlines
surface      vectors    parallelaxes
```

```
boxes          boxplot        ellipses       histograms  rgbalpha
boxerrorbars   candlesticks   filledcurves   image       rgbimage
boxxyerror     circles        fillsteps      pm3d        zerrorfill
```

```
table
```

fillstyle (p. 171) **plotting styles (p. 52)** **table** **set table (p. 175)**

set style function **set style data**

test

set style line **pm3d** **splot** lines, points, dots **palette** **set palette** **using** **colors (p. 40)**, **set palette (p. 160)**, **linetype (p. 142)**

nohidden3d **splot** **set hidden3d** **nohidden3d**

nocontours **set contour**

F1MM$K!"%-!<%o!<%I **nosurface** $O!"%0%m!<%P%k$K **set surface ;** XDj$,M-8z$J>l9gGb!"8DJL$N plot KBP9$k 3 <!856JLLIA2h$r%*%UK7$^$9!#

%-!<%o!<%I$C0E<($9kh$&$J7A$G>JN,2DG=$G$9!#

linewidth, **pointsize**, **palette** %*%W%7%g%s$OA4$F$NC<KvAuCV$G%5%]!<%H5l$F$$$ko1GO$J$$$3HKCm0U7F$/$@$5$$!#

Nc:

0J2<$O!"sin(x) $r1tD>@~$GIA2h7^$9:

```
plot sin(x) with impulses
```

0J2<$O!"x $rE@$GIA2h$7!"x**2 $r%G%U%)%k%H$NJ}<0$GIA2h$7$^$9:

```
plot x w points, x**2
```

0J2<$O!"tan(x) $r4X?t$N%G%U%)%k%H$NJ}<0$G!""data.1" $r@^$l@~$GIA2h$7$^$9:

```
plot [ ] [-2:5] tan(x), 'data.1' with l
```

0J2<$O!""leastsq.dat" $r1tD>@~$GIA2h7^$9:

```
plot 'leastsq.dat' w i
```

0J2<$O!"%G!<%?%U%!%$%k"population" $r6k7A$GIA2h7^$9:

```
plot 'population' with boxes
```

0J2<$O!""exper.dat" $r%(%i!<%P!<IU$-$N@^$l@~$GIA2h$7$^$9(%(%i!<%P!<$O3 Ns!"$"$k$$$O4 Ns$N%G!<%?$rI,MWH7$^$9):

```
plot 'exper.dat' w lines, 'exper.dat' notitle w errorbars
```

b&0lDN"exper.dat" $N%(%i!<%P!<IU$-$N@^$l@~(errorlines) GNIA2hJ}K!(%(%i!<%P!<$O3 Ns!"$"$k$$$O4 Ns$N%G!<%?$,I,MW):

```
plot 'exper.dat' w errorlines
```

0J2<$O!"sin(x) $Hcos(x) $r%^!<%+!<IU$-$N@^$l@~$GIA2h$7$^$9!#@^$l@~$OF1$8@<o$G9,!"%^!<%+!<$O0[$JC?bN$r;H$$^$9:

```
plot sin(x) with linesp lt 1 pt 3, cos(x) with linesp lt 1 pt 4
```

0J2<$O!""data" $rE@<o3 $G!"E@$NBg$-$5$rDI>o$N2G\$GIA2h7^$9:

```
plot 'data' with points pointtype 3 pointsize 2
```

0J2<$O!""data" $rIA2h$7$^$9$,!"4 NsL\$+iFIs$@%G!<%?$r pointsize NCMH7F;HMQ7^$9:

```
plot 'data' using 1:2:4 with points pt 5 pointsize variable
```

0J2<$O!"2 DN%G!<%?=89gKBP7$F!"I}N_0[Jk@~$rMQ$$$FIA2h7^$9:

```
plot 'd1' t "good" w l lt 2 lw 3, 'd2' t "bad" w l lt 2 lw 1
```

0J2<$O!"x*x $N6J@~$NFbItNEIjDV7H?'NBSrIA2h7^$9:

```
plot x*x with filledcurve closed, 40 with filledcurve y=10
```

0J2<$O!"x*x $N6J@~$H?'$NH"$rIA2h7^$9:

```
plot x*x, (x>=-5 && x<=5 ? 40 : 1/0) with filledcurve y=10 lt 8
```

0J2<$O!"3j$i$+$KJQ2=9k?'$N@~$G6JLL$rIA2h$7$^$9:

```
splot x*x-y*y with line palette
```

0J2<$O!"2 DN?'ND$$$?6JLL$r!"0[$J$k9b$5$GI=<(:$7$^$9:

```
splot x*x-y*y with pm3d, x*x+y*y with pm3d at t
```

Print

print %3%^%s%I$O < <0> NCMr2hLL$KI=< (7^$9!#3l$O **pause 0** $HF1$8$G$9!#< <0> $O!"?t$r@8@.9k **gnuplot** $N?t<0$+!"$^$?$OJ8;zNs$G$9!#

=q<0:

```
       print <<0> {, <<0>, ...}
```

0J2<;2>H **expressions (p. 29)**!#=PNO%U%!%$%k$O**set print** $G@_Dj$G$-$^$9!#0J2<$b;2>H **printerr (p. 109)**!#

Printerr

printerr $O print %3%^%s%I$H$[$\F1$8$G9,!"$=$NA0$N **set print** %3%^%s%I$N8z2L$,B3$$$F$$k>uBVGb=PNO$r>c$K stderr KAwkH3m@1,0c$$^$9!#

Pwd

pwd %3%^%s%I$O%+%l%s%H%G%#%l%/%H%j$NL>A0$r2hLL$KI=< (7^$9!#

%+%l%s%H%G%#%l%/%H%j$rJ8;zNsJQ?t$KJ]B8$7$?$j!"J8;z<0$NCf$G;H$$?$>19g$O!"JQ?t GPVAL_PWD $r;H$&3H$,$G$-$k3H$KCm0U$7F/$@$5$$!#0J2<;2>H**show variables all (p. 180)**!#

Quit

exit $H**quit** $NN>%3%^%s%I$H END-OF-FILE J8;z$O!"**gnuplot** $r=*N;$5$;$^$9!#$3li$N%3%^%s%I$O!"=PNOAuCV$r(**clear** %3%^%s%I$HF1MM$K)%/%j%"$7F+$i=*N;$5$;$^$9!#

Raise

=q<0:

```
     raise {plot_window_id}
     lower {plot_window_id}
```

%3%^%s%I **raise** $H**lower** $O!"=PNO7A<0$N$$/D+K7$+5!G=$;$:!"$=7F$"$J$?$,;HMQ9k%&%#%s%I%&%^%M!<%8%c$dI=<(M%@h5!G=$N@_DjKb0MB8$9$k2DG=@-$,$"j^$9!#

```
     set term wxt 123      # :G=i$NIA2h%&%#%s%I%&$r@8@.
     plot $FOO
     lower                 # B8:_$9$kIA2h%&%#%s%I%&$N$_$r2<$K
     set term wxt 456      # 2 $DL\$r@8@. (1 $DL\$N>e$K$+$V$k)
     plot $BAZ
     raise 123             # 1 $DL\$NIA2h%&%#%s%I%&$r>e$K
```

3liN%3%^%s%I$O!"$"$^$jEvFKJi$J$$$H;WCF$/$@$5$$!#

Refresh

%3%^%s%I **refresh** $O!"**replot** $K;w$F$$$^9,!"<g$K2$D$NE@$G0c$$$,$"$j$^$9!#**refresh** $O!"4{$KFI$_9~$s$@G!<%?$rMQ$$$F!"8=:_$NIA2h$r:F@07A$7:FIA2h$7$^$9!#3l$O!"**refresh** $r(5?;w%G%P%$%9'-' $+$i$N)%$%s%i%$%s%G!<%?$NIA2h!"$*$h$SFbMF$,JQ2=7&$k%G!<%?%U%!%$%k$+$i$NIA2h$K;H$($k$H$$$&3H$r0UL#$7$^$9!#$?@$7!"%3%^%s%I **refresh** $O!"4{$KB8:_9kIA2h$K?7$7$$%G!<%?rDI2C9kNK$O;H$($^$;$s!#

%^%&%9A`:n!"FC$K%:!<%`%$%s%H:!<%`%"%&H$G$O!"E,@Z$J>19g$O**replot** $NBe$o$j$K$`$7$m**refresh** $r;HMQ$7$^$9!#Nc:

```
plot 'datafile' volatile with lines, '-' with labels
100 200 "Special point"
e
# ?'$s$J%^%&%9A':n$r$3$3$G<B9T
set title "Zoomed in view"
set term post
set output 'zoom.ps'
refresh
```

Replot

replot %3%^%s%I$r0z?t$J7G<B9T9k$H!":G8e$K<B9T7?**plot** $^$?$O**splot** %3%^%s%I$r:F<B9T7^$9!#$3lO!"$"$k%W%m%C%H$r0[$J$k**set** %*%W%7%g%s$G$_$?$j!"F1$8%W%m%C%H$r0[$J$kAuCV$K=PNO7?j9kH$-$KJXMxG7g&!#

replot %3%^%s%IKBP9$k0z?t$O:G8e$K<B9T$7$?**plot** $^$?$O**splot** %3%^%s%I$N0z?t$K(0EL[$N','$H6&$K)DI2C5l!"$=$l$+$i:F<B9T5l$^$9!#**replot** $O!"HCOO(range)$r=|$$F$O!"**plot** $d**splot** $HF1$80z?trHk3H,G-$^$9!#hC$F!"D>A0$N%3%^%s%I$,**splot** GOJ/**plot** $N>19g$O!"4X?trb$&0l$D$N<49o$_$G%W%m%C%H$9kN$K**replot** $r;H$&3H$,$G$-$^$9!#

Cm0U:

```
plot '-' ; ... ; replot
```

$H$$&;H$$J}$O?d>)$5l^$;$s!#$=$l$O!"$3l,$"$J$?$K:F$SF1$8%G!<%?9YFNF~NO$rMW5a$9k3HKJk$+$i$G$9!#$?$$$F$$N>19g!"Beoj$K%3%^%s%I**refresh** $r;H$($^$9!#3l$O!"0JA0$KFI$_9~$s$@%G!<%?$r;HCF%0i%U$r:FIA2h$7$^$9!#

multiplot %b!<%IGO!"**replot** %3%^%s%IO9YF$N plot GOJ/!"D>A0$N plot ItJ,$@$1$7$+:F<B9T7J$$$3HKCm0U7F$/$@$5$$!#

:G8e$K<B9T$7$?**plot** (**splot**) %3%^%s%I$NFbMF$r=$@5$9$kJ}K!$K$D$$$F$O0J2<$b;2>H: **command-line-editing (p. 25)**!#

D>A0$NIA2h%3%^%s%I$NA4BN$rI=<($5$;$k3H$d!"$=lr**history** NCfK%3%T!<9kJ}K!KD$$$F$O!"0J2<$b;2>H: **show plot (p. 156)**!#

Reread

reread %3%^%s%I$O!"**load** %3%^%s%I$^$?$O%3%^%s%I%i%$%s$G;XDj7?**gnuplot** $N%3%^%s%I%U%!%$%k$r!"$=$N<!$N%3%^%s%I$,FI$^lkA0$K!"3+;CE@$K:F@_Dj7^$9!#$3lO!"%3%^%s%I%U%!%$%k$N:G=i$+$i**reread** %3%^%s%I$^$G$N%3%^%s%I$NL58B%k!<%W$rK\<AE*$K<BAu7F$$$k3HKJj^$9!#($7$+$7!"3l$O2?$b0-$$$3HG$O"$j$^$;$s!#**reread** $O**if** HAH_9go;k3HGHF$bM-MQ$J%3%^%s%IHJj^$9!#)I8=`F~NO$+iNF~NO$N>19g$O!"**reread** %3%^%s%I$O2?$b1F6A$rM?$($^$;$s!#

Nc:

%U%!%$%k"looper" $,<!$Nh&$J%U%!%$%k$G

```
a=a+1
plot sin(x*a)
pause -1
if(a<5) reread
```

$=$7$F!"**gnuplot** $+$i<!Nh$&$K<B9T9kH7$^$9!#

```
a=0
load 'looper'
```

9k$H!"pause $N%a%C%;!<%8$GJ,3d5l$?5 2s$N%W%m%C%H$,9T$olk3HKJj^$9!#

%U%!%$%k"data" $,!"3F9T$K!"0 $+$i10 $^$G$NHCOO(yrange) $N6 DN%G!<%?;}$A!":G=i$,x :BI8$G!"$=$NB>$O5 DN0[Jk4X?t$N!"$=$Nx GNCMG"kH7^$9!#$=7F!"%U%!%$%k"plotter" $,

```
c_p = c_p+1
plot "$0" using 1:c_p with lines linetype c_p
if(c_p <  n_p) reread
```

$G!"**gnuplot** $+$i<!Nh$&$K<B9T9kH7$^$9!#

```
n_p=6
c_p=1
unset key
set yrange [0:10]
set multiplot
call 'plotter' 'data'
unset multiplot
```

9k$H!"5 DN%W%m%C%H$r9go;$?1 DN%0%i%U$,G-$^$9!#yrange $O!"multiplot %b!<%I$G:G=iNbNKB3 1F=q$+$l$k5 DN%0%i%U$,!"F1$8<4$r;}$Dh&$K!"L@<(E*$K;XDj9kI,MW$,$"j^$9!#@~<o$b;XDj7J1l PJj^$;$s!#5b$J$$$H!"A4FN%0%i%U$,F1$8@~<o$G=q$+lk3HKJj^$9!#%"%K%a!<%7%g%s$N%5%s%W%k H7$F!"demo %G%#%l%/%H%j$N animate.dem $b;2>H$7F/$@$5$$!#

Reset

%3%^%s%I **reset** $O!"**set** %3%^%s%I$GDj5AG-$k!"%0%i%U$K4X9kA4FN%*%W%7%g%s$r%G%U%)%k%H$NCMKLa7$^ $9!#$3$N%3%^%s%I$O!"load 7?%3%^%s%I%U%!%$%k$r<B9T7?8e$G%G%U%)%k%H$N@_Dj$rI|5"$7$?$j!"@_Djr?$/ 5sJQ99$7$?8e$G85$N>uBVKLa7$?$$$H$-$JIKJXMx$G$9!#

0J2<NbNO!"**reset** $N1F6A$r<u1^$;$s!#

```
`set term` `set output` `set loadpath` `set fontpath` `set linetype`
`set encoding` `set decimalsign` `set locale` `set psdir` `set fit`
```

reset $O!"I,$:7b%W%m%0%i%`N)$A>e$,C?=i4|>uBVKOLa5J$$$3HKCm0U7F$/$@$5$$!#$=$l$O!"=i4|@_ Dj%U%!%$%k gnuplotrc $d $HOME/.gnuplot Fb$N%3%^%s%I$G%G%U%)%k%H$NCM$rJQ99$7$?>l9g$O!"$=$l$b%j%;%C %H$5lF7^$&$+iG$9!#$7$+$7 **reset session** H9lP!"$=$liN%3%^%s%I$b:F<B9T$7$^$9!#

reset session $O!"%f!<%6Dj5AJQ?t!"%f!<%6Dj5A4X?t9YFr:o=|$7!"%G%U%)%k%H$N@_Dj$rI|5"$7!"%7%9%F%` A4BN$N=i4|@_Dj%U%!%$%k gnuplotrc $H8D?MMQ$N=i4|@_Dj%U%!%$%k $HOME/.gnuplot $r:F<B9T$7$^$9!#0J2<;2 >H:**initialization (p. 47)**!#

reset errors $O!"%(%i!<>uBVJQ?t GPVAL_ERRNO $H GPVAL_ERRMSG N_$r%/%j%"7^$9!#

reset bind $O!"%-!<Dj5A$r%G%U%)%k%H$N>uBV$KI|5"7^$9!#

Save

=q<0:

```
save  {functions | variables | terminal | set | fit} '<filename>'
```

Il$b;XDj$7J+C?>l9g$O!"**gnuplot** $O!"%f!<%6Dj5A4X?t!"JQ?t!"set $G@_Dj$9$k%*%W%7%g%s!":G8e$K<B9T 7? **plot** ($^$?$O **splot**) %3%^%s%I$NA4FrJ]B8$7$^$9!#

save $O!"%F%-%9%H7A<0$G=PNO7^$9!#$^$?!"$3$N%U%!%$%k$O **load** %3%^%s%I$GFI$_9~$`3H$,$G$-$^$9!#**set** %* %W%7%g%sIU$-!"$^$?$O2?$b%*%W%7%g%srD1:$K **save** $r<B9T$7$?>l9g!"**terminal** $NA*Br$H **output** $N%U%!%$ %kL>$O%3%a%s%H5-9f$D$-$G=q$-=P$5l^$9!#$3lO$=$N=PNO%U%!%$%k$rB>$N4D6-$K%$%s%9%H!<%k$5l?gnuplot >e$GF0$+$9>l9g$K!"=$@5$J7K;H$($kh&K9$k!"$"$k$$$O$&$C$+$j%U%!%$%k$r>e=q$-$7F7$^$C$?$j9k4m 81@-rHr1$k!"$H$$$C$?0UL#$,$"$j$^$9!#

save terminal $O!"**terminal** $N>uBV$r!"%3%a%s%H5-9frD1:$K=q$-=P7^$9!#$3lO<g$K!"$AgCHN4V $@$1 **terminal** $N@_Dj$rF~lBX(!"$=$N8eJ]B8$7$F$*$$$? **terminal** $N>uBV$rFI$_9~$`$3$H$G0JA0$N terminal $N@_Dj$KLa$9>l9g$J$I$KLrN)$A$^$9!#$?$@!"C10l$N gnuplot %;%C%7%g%s$G$O!"8=:_$N terminal $rJ]B8/I|85$9 $kB>$NJ}K!$G$"$k%3%^%s%I **set term push** $H **set term pop** $r;H$&J}$,$`7m$$$$$+b7l^$;$s!#0J2<;2 >H:**set term (p. 176)**!#

save fit $O!"D>6a$N **fit** %3%^%s%I$G;HMQ$7$?JQ?t$N$_$rJ]B8$7$^$9!#$=$NJ]B8%U%!%$%k$O!"8e$G **via** %-!<%o!<%I$r;H$&3H$G fit %3%^%s%I$N=i4|2=MQ$N%Q%i%a!<%?%U%!%$%kH7$FMxMQ$G$-$^$9!#

%U%!%$%kL>$O0zMQId$K0O$olF$$$J1lPJj^$;$s!#

FCJL$J%U%!%$%kL>"-" Kh$j **save** %3%^%s%I$KI8=\=PNO$K=PNO$5$;$k3H$,$G$-$^$9!#popen 4X?t$r%5%]!<%H9kh&$J%7%9%F%\(Unix JI) GO!"save $N=PNO$r%Q%$%W7PM3$GB>$N30It%W%m%0%i%\$KEO$9$3H,G-$^$9!#$=$N>l9g!"%U%!%$%kL>$H7F%3%^%s%IL>$N@hF,$K'|' rDl?bN$r;H$$^$9!#$3lO!"**gnuplot** $H%Q%$%WrDL7$FDL?.$9$k%W%m%0%i%\$K!"**gnuplot** $NFbIt@_j$K4X9k<sHx0l4S7?%$%s%?!<%U%'!<%9$rDs6!7^$9!#>\:Y$O!"0J2<;2>H: **batch/interactive (p. 24)**!#

Nc:

```
save 'work.gnu'
save functions 'func.dat'
save var 'var.dat'
save set 'options.dat'
save term 'myterm.gnu'
save '-'
save '|grep title >t.gp'
```

Set-show

set %3%^%s%I$O<B$KB?$/$N%*%W%7%g%s$r@_j$9kN$K;H$ol^$9!#$7$+$7!"**plot**, **splot**, **replot** %3%^%s%I$,M?$(ilk^$G2?$bI=<(7^$;$s!#

show %3%^%s%IO=li$N@_jCM$rI=<(7^$9!#**show all** G=liA4FrI=<(7^$9!#

set %3%^%s%I$GJQ9$5l?%*%W%7%g%s$O!"$=lKBP1~9k **unset** %3%^%s%I$r<B9T$9k3HG%G%U%)%k%H$N>uBV$KLa$9$3H,G-$^$9!#0J2<;2>H:**reset (p. 111)**!#3l$OA4$F$N%Q%i%a!<%?$N@_j$r%G%U%)%k%H$NCMKLa7$^$9!#

set $H **unset** %3%^%s%I$K$O7+$jJV$7@a$bMxMQG-$^$9!#0J2<;2>H:**plot for (p. 104)**!#

3Q$NC10L (angles)

%G%U%)%k%HGO **gnuplot** $O6K:BI8%0%i%U$NFHN)JQ?t$NC10L$O%i%8%"%s$r2>Dj$7$^$9!#**set polar** $NA0$K **set angles degrees** $r;XDj$9kH!"$=$NC10LOEYKJj!"%G%U%)%k%H$NHO0O$O[0:360] HJj^$9!#$3lO%G!<%?%U%!%$%k$NIA2hGFCKJXMxG7g&!#3QEY$N@_j$O!"**set mapping** %3%^%s%I$r@_j$9k3HKhj3<!85GbM-8z$G$9!#

=q<O:

```
set angles {degrees | radians}
show angles
```

set grid polar $G;XDj$5lk3QEY$b!"**set angles** $G;XDj$7$?C10L$GFI$^$lI=<(5l$^$9!#

set angles OAH_9~$_4X?t sin(x), cos(x), tan(x) $N0z?t$d asin(x), acos(x), atan8x), atan2(x), arg(x) $N=PNO$K$b1F6A$rM?$($^$9!#AP6J@~4X?t$d!"%Y%C%;%k4X?t$N0z?t$K$O1F6A$rM?$($^$;$s!#7+$7!"J#AG?t$r0z?tH9$k5UAP6J@~4X?t$N=PNOKO1F6A$,=P$^$9!#$=li$N4X?t$;HolkH$-$O!"**set angles radians** $OF~=PNO$N0z?t$N4V$K0l4S@-$r;}$C$?4IM}$r<B8=7F$$J1lPJj^$;$s!#

```
x={1.0,0.1}
set angles radians
y=sinh(x)
print y          #{1.16933, 0.154051} $HI=<(
print asinh(y)   #{1.0, 0.1} $HI=<(
```

7+$7!"

```
set angles degrees
y=sinh(x)
print y          #{1.16933, 0.154051} $HI=<(
print asinh(y)   #{57.29578, 5.729578} $HI=<(
```

0J2<$b;2>Hpoldat.dem: **set angles** $rMQ$$?6K:BI8IA2h$N%G%b

Lp0u (arrow)

set arrow %3%^%s%I$r;H$&3HKh$j!"%0%i%U>e$NG$0U$N0LCV$KLp0u$rI=<(9k3H$,$G$-$^$9!#

=q<0:

```
set arrow {<tag>} from <position> to <position>
set arrow {<tag>} from <position> rto <position>
set arrow {<tag>} from <position> length <coord> angle <ang>
set arrow <tag> arrowstyle | as <arrow_style>
set arrow <tag> {nohead | head | backhead | heads}
                {size <headlength>,<headangle>{,<backangle>}}
                {filled | empty | nofilled | noborder}
                {front | back}
                {linestyle | ls <line_style>}
                {linetype | lt <line_type>}
                {linewidth | lw <line_width>}
                {linecolor | lc <colorspec>}
                {dashtype | dt <dashtype>}

unset arrow {<tag>}
show arrow {<tag>}
```

%?%0 <tag> $O3FLp0u$r<1JL9k@0?t$G$9!#%?%0$r;XDj$7J>19g$O!"$=$N;~E@$GL$;HMQ$N:G$b>.$5$$?t$,<+F0E*$K3djEvFil$^$9!#%?%0$r;H$&3H$G!"FCDj$NLp0u$rJQ99$7$?$j!":o=|7?jG$-$^$9!#4{$KB8:_9kLp0u$NB0@-$rJQ99$9$k>19g$O!"%?%0$rL@<(7?**set arrow** %3%^%s%I$GJQ92U=j$r;XDj7F$/$@$5$$!#

Lp0u$N:G=i$NC<E@$N0LCV$O!">o$K"from" $G;XDj$7$^$9$,!"$b$&0l$D$NC<E@$O0J2<$G@bL@$9$k3 DN0[Jk;EAH$_$N$$:l+$G;XDj$G$-$^$9!#<position> $Ox,y $"$k$$$Ox,y,z $G;XDj$7$^$9!#$=$7F=$NA0$K:BI87O$rA*Br$9k?aK**first**, **second**, **graph**, **screen**, **character** rCV/3H$,$G$-$^$9!#:BI8$r;XDj7J1l$P%G%U%)%k%H$G$O0 $H8+$J5l$^$9!#>\:Y$O0J2<;2>H: **coordinates (p. 26)**!#:G=i$NC<E@$KBP9k:BI8;XDj;R$O!"2HVL\$NC<E@KO1F6A7^$;$s!#

1) "to <position>" $O!"$b$&0l$D$NC<E@$N@dBP:BI8$r;XDj$7$^$9!#

2) "rto <position>" $O!"'from" $N0LCV$+iN:lr;XDj7^$9!#$3$N>19g!"@~7A<4(HsBP?t<4)!"$*$h$S**graph**, **screen**:BI8KBP7FO!";OE@$H=*E@$N5wN%$,M?$(il$?AjBPE*$JCM$KBP1~$7$^$9!#0lJ}!"BP?t<4KBP7FO!"M?$($il?AjBPE*JCMO!";OE@$+$i=*E@XNG\?t$KBP1~$7$^$9!#hC$F!"BP?t<4$N>19g!"AjBPE*JCMH7F0dIiNCM$rM?$(k3HO5v5l$^$;$s!#

3) "length <coordinate> angle <angle>" $O!"%0%i%UU?LIFb$G$NLp0u$NJ}8~$r;XDj$7$^$9!#length KOG$0U$N:BI87OrE,MQG$-$^$9!#angle $NC10L$O>oKEYKJC$F$$^$9!#

Lp0u$NB>$NB0@-$b!"$"i+8aDj5A7?Lp$N%9%?%$k$G!"$^$?$O%3%^%s%I**set arrow** G=l>$lM?$(k3H,2DG=$G$9!#Lp0u$NB>$NB0@-$N>\:Y$K$D$$$F$O0J2<;2>H: **arrowstyle (p. 169)**!#

Nc:

86E@$+$i(1,2) XNLp0u$r%f!<%6Dj5A:Q$N%i%$%s%9%?%$%k5 GIA/KO:

```
set arrow to 1,2 ls 5
```

IA2hNN0h$N:82<3Q$+$i(-5,5,3) $X%?%0HV9f3 $NLp0u$rIA$/$K$O:

```
set arrow 3 from graph 0,0 to -5,5,3
```

Lp0u$NC<$r1,1,1 $KJQ99$7!"Lp@h$r30$7$FI}$r2 K9kK$O:

```
set arrow 3 to 1,1,1 nohead lw 2
```

x=3 $N=j$X%0%i%U$N2<$+$i>e$^$G1tD>@~$rIA$/$K$O:

```
set arrow from 3, graph 0 to 3, graph 1 nohead
```

T;z7?$NLp@h$rN>C<$K;}$D1tD>J}8~NLprIA$/$K$O:

```
set arrow 3 from 0,-5 to 0,5 heads size screen 0.1,90
```

```
set arrow from 0,-5 rto graph 0.1,0.1
```

```
set logscale x
set arrow from 100,-5 rto 10,10
```

```
unset arrow 2
```

```
unset arrow
```

```
show arrow
```

(autoscale)

```
set autoscale {<axes>{|min|max|fixmin|fixmax|fix} | fix | keepfix}
set autoscale noextend
unset autoscale {<axes>}
show autoscale
```

```
set yrange [0:*] noextend
```

```
set arrow 3 from 0,-5 to 0,5 heads size screen 0.1,90
```

```
set arrow from 0,-5 rto graph 0.1,0.1
```

```
set logscale x
set arrow from 100,-5 rto 10,10
```

```
unset arrow 2
```

```
unset arrow
```

```
show arrow
```

```
set autoscale {<axes>{|min|max|fixmin|fixmax|fix} | fix | keepfix}
set autoscale noextend
unset autoscale {<axes>}
show autoscale
```

```
set yrange [0:*] noextend
```

N)JQ?t (2>JQ?t) $O **plot** GO t $G **splot** GO u, v $G$9! #$=$7$FG^2pJQ?t%b! <%I$G$O! "<+F0=L<\5 !G=$O (t, u, v, x, y, z) $NA4$F$NIA2hHCOO$r@)8f$7! "x, y, z $NHCOO$N<+F0@_Dj$r40A4$K9T$$$^$9! #

L\@9j,Bh2 $N<4$KI=< ($5$1! "7+b3$1$i$N<4$KBP9kIA2h$,9T$o1J$+$C$?>19g$K$O! "x2range $Hy2range $Oxrange $Hyrange NCMr<u$17Q$.$^$9! #$3$1$O! "HCOON:$i7N<B9T$d! "HCOO$r@0?t8D$NL\@9$jI}$K<+F0?-=L9k! VA0! W$K9T$$$^9N$G! ">19g$KhC$EM=4|$7$J$$$7k2Lrb$?$i$92DG=@-$,$"$j$^$9! #$3$1rHr1kN$K! "Bh2 <4$NHCOO$rBh1 <4$NHCOO$KL@< (E*$K%j%s%/(link) 9kJ}K!$,$"j^$9! #0J2<;2>H: **set link (p. 143)**! #

Nc:

0J2<$Oy <4$N<+F0=L<\5 !G=$r;XDj$7$^$9 (B>$N<4$K$O1F6A$rM?$ ($^$;$s):

```
set autoscale y
```

0J2<$Oy <4$N:G>.CMKBP7FN$_<+F0=L<\5 !G=$r;XDj7^$9 (y <4$N:GBgCM! "$*$h$SB>$N<4KO1F6A$rM?$ ($^$;$s):

```
set autoscale ymin
```

0J2<$Ox2 <4$NNY$NL\@9$jXN<+F0HCOO3HBg5!G=$rL58z$K$7! "$hCFIA2h%G! <%?Fb! "$^$?$O4X?t$KBP9kCzEY $NIA2hHCOO$r0];}7^$9:

```
set autoscale x2fixmin
set autoscale x2fixmax
```

0J2<$Ox, y N><4$N<+F0=L<\5 !G=$r;XDj$7$^$9:

```
set autoscale xy
```

0J2<$Ox, y, z, x2, y2 A4<4$N<+F0=L<\5 !G=$r;XDj$7$^$9:

```
set autoscale
```

0J2<$Ox, y, z, x2, y2 A4<4$N<+F0=L<\5 !G=$r6X;_$7$^$9:

```
unset autoscale
```

0J2<$Oz <4$N$_$K$D$$$F<+F0=L<\5 !G=$r6X;_$7$^$9:

```
unset autoscale z
```

6K:BI8%b! <%I (polar)

6K:BI8%b! <%I (**set polar**) GO! "xrange $Hyrange $O<+F0=L<\%b! <%I$GOJ$/$Jj^$9! #F07B<4$NHCOO@)8BMQ$K**set rrange** $r;HMQ$7$?>19g! "xrange $Hyrange O=1K9g$&h&$K<+F0E*$KD4@0$5$1$^$9! #7+$7! "5iK=1rD4@0$7$?1l$P! "$=$N8e$KL@< (E*$Kxrange $dyrange %3%^%s%I$r;H$&$3H,G-$^$9! #0J2<;2>H: **set rrange (p. 167)**! #

0J2<$b;2>H6K:BI8$N%G%b! #

Bind

show bind $O! "8=:_$N%[%C%H%-! <$N3d$jEv$F (binding) $rI=< ($7$^$9! #0J2<;2>H: **bind (p. 44)**! #

Bmargin

%3%^%s%I **set bmargin** $O! "2<It$NM>Gr$N%5%$%:$r@_Dj$7$^$9! #>\:Y$O0J2<;2>H: **set margin (p. 145)**! #

%0%i%U$NDH@~ (border)

set border $H **unset border** $O **plot** $d **splot** GN%0%i%UNDHNI=< ($r@)8f$7$^$9! #DH$OI,$:7b<4HO1CW7J$$$3HKCm0U7F$/$@$5$$! #**plot** GOBgDq0lCW7^9,! "**splot** GOBgDq0lCW7F$$$^$;$s! #

=q<0:

```
set border {<integer>}
           {front | back | behind}
           {linestyle | ls <line_style>}
           {linetype | lt <line_type>} {linewidth | lw <line_width>}
           {linecolor | lc <colorspec>} {dashtype | dt <dashtype>}
           {polar}
unset border
show border
```

set view 56,103 Nh$&$KG$0U$NJ}8~$GI=<($5l&$k **splot** GO!"x-y J?LI>e$N4 DN3Q$O<jA0(**front**), 8e $m(**back**) , :8(**left**), 1&(**right**) Nh$&$K8FPl$^$9!#bAms3NF1$84 DN3Q$OE70f$NLLKb$"j^$9!#hC$F!"Nc$($Px-y J?LI>e$N8emH1&$N3QrDJ06-3&$r"1tD><jA0(front vertical)" $H8F$V3HK7$^$9(3NL?L>K!$O!"FI<T$,2<$NI=$rM}2r9k$?$a$@$1$K;H$ol^$9)!#

OH$O!"12 %S%C%H$N@0?t$KId9f2=$5lF$$$^$9:2<0L4 %S%C%H$O **plot** KBP9$k3OOH!"**splot** KBP7FOIlLL$N3OOH!"<!$N4 %S%C%H$O **splot** $NItD>$J3OOH!"$=$7$F>e0L4 %S%C%H$O **splot** $NE70fLL$N3OOH$r@)8f$7$^$9!#hC$F3OOH$N@_Dj$O!"<!$NI=$NBP1~$9$k9'L\$N?t;zNOBKJj$^$9:

%0%i%U6-3&$NId9f2=		
%S%C%H	plot	splot
1	2<	Dl$N:8<jA0
2	:8	Dl$N:88e$m
4	>e	Dl$Nl&<jA0
8	1&	Dl$Nl&8e$m
16	8z2L$J$7	1tD>:8
32	8z2L$J$7	1tD>8e$m
64	8z2L$J$7	1tD>1&
128	8z2L$J$7	1tD>$N<jA0
256	8z2L$J$7	E70f$N:88e$m
512	8z2L$J$7	E70f$Nl&8e$m
1024	8z2L$J$7	E70f$N:8<jA0
2048	8z2L$J$7	E70f$Nl&<jA0
4096	6K:BI87O	8z2L$J$7

%G%U%)%k%H$N@_DjCM$O31 $G!"$3lO **plot** GO4 J}8~$N3OOHA4$F!"**splot** GOIlLL$NOH@~A4It$Hz<4rIA/3H$r0UL#$7$^$9!#

2<!85IA2hGO6-3&O9YF$NIA2hMWAG$N0lHV>eKIA+l^$9(**front**)!#$b$76-3&$rIA2hMWAG$N2<$KIA$+$;$?$>19g$O!"**set border back** H7F/@$5$$!#

3<!851#@~=hM}(hidden3d) IA2hGO!"DL>o$O6-3&$r9=@.9k@~$bIA2hMWAG$HF1MM$K1#@~=hM}$NBP>]KJj^$9!#**set border behind** H9kH3N%G%U%)%k%H$N5sF0$,JQoj$^$9!#

<linestyle>, <linetype>, <linewidth>, <linecolor>, <dashtype> $r;xDj$7$F!"OH@~$NIA2hK=li$rH?1G$5$;$k3H$,$G$-$^$9(8=:_$N=PNOAuCV$,%5%]!<%H$9kbNK8BDj5l$^$9)!#5i$K!"<4$N9o$_(tics) $rIA2h$9$k:]$b!"$=$lir6-3&@~>e$GIA2h$9k+!"<4>e$GIA2h$9k+$K4X$oi:!"3N%i%$%s%9%?%$%k$r;HMQ$7$^$9!#

plot GO!"Bh2<4$rM-8z$K9k3H$G!"2<$H:80J30$N6-3&$KL\@9jrIA$/$3H,G-$^$9!#>\:Y$O!"0J2<;2>H **xtics (p. 186)**!#

"unset surface; set contour base" JIKhCF **splot** $GDlLL$KN_IA2h9k>19g!"1tD>@~$dE70f$O$=$li,;XDj5l$F$$$F$bIA2h$5l^$;$s!#

set grid $N%*%W%7%g%s 'back', 'front', 'layerdefault' Gb!"IA2h=PNO$N6-3&@~$r=o$/=gHV$r@)8fG-$^$9!#

%-!<%o!<%I **polar** $O!"6K:BI8%0%i%U$K1_7A$N6-3&$rD1$^$9!#

Nc:

0J2<$O!"%G%U%)%k%H$NOH@~rIA-$^$9:

```
set border
```

0J2<$O!"**plot** GO:8$H2<!"**splot** GOIlLL$N:8<jA0$H:88emNOH@~rIA-$^$9:

```
set border 3
```

0J2<$O! "**splot** $G<~$j$K40A4$JH"rIA-$^$9:

```
set border 4095
```

0J2<$O! "<jA0$N1tD>LL$HE70f$N$J$$H"rIA-$^$9:

```
set border 127+256+512 # $^$?$O set border 1023-128
```

0J2<$O! "**plot** KBP7$F>e$H1&OH@~N_rIA-! "$=$1ir<4H7$FL\@9$jE1$7$^$9:

```
unset xtics; unset ytics; set x2tics; set y2tics; set border 12
```

K@%0%i%UI} (boxwidth)

%3%^%s%I **set boxwidth** $O **boxes**, **boxerrorbars**, **boxplot**, **candlesticks**, **histograms** %9%?%$%k$K$*$1$k K@$N%G%U%)%k%H$NI}$r@_Dj9k$?$a$K;H$$^$9! #

=q<O:

```
set boxwidth {<width>} {absolute|relative}
show boxwidth
```

%G%U%)%k%HGO! "NY$j9g$&K@$,@\$9kh$&$K3F! 9$NK@$NI}$,9-$2i1$^$9! #$=$1HC0[Jk%G%U%)%k%H$NI}$r@_Dj9kKO **set boxwidth** %3%^%s%I$r;HMQ$7$^$9! #**relative** $N>19g$NI}$O! "%G%U%)%k%H$NI}KBP9kHfG$"$k$H2r<a$5$1$^$9! #

=$>~;R **relative** $r;XDj$7J+C?>19g! "K@$NI} (boxwidth) H7$F;XDj$5$1$?L@<(E*JCMO! "8=:_$Nx<4$NC10LGN?t;z (**absolute**) G"kH2r<a$5$1$^$9! #x<4$,BP?t<4 (0J2<;2>H: **set log (p. 144)**) G"$k>19g! "boxwidth NCMO<B:]KOx=1 GN$_"@dBPE*" HJ$j! "$=$NU*M}E*$JD9$5$,<4A4BNrDL8$FJ];}$5$1$^$9($9Jo$A! "K@$Ox:BI8$NA}2C$KHbJC$F69$/JC$?$jO7$^$;$s)! #BP?t<4$Nx<4$NHC0O$,x=1 $+$iN%1F$$$k>19g$O! "E,@Z$JI}$r8+=P$9KO2?EY$+;n$7F_kI,MW,$"$k$+$bCN1^$;$s! #

%G%U%)%k%HNCMO! "**boxes** $d **boxerrorbars** %9%?%$%k$NI};XDjMQ$NDI2C$N%G! <%?Ns$NL@<(E*JCM,$"$1KhCFCV-49(i1$^$9! #1Ns$N%G! <%?$N>19g! "Bh4Ns$L\$NCM$,K@$NI}H7$F;H$o1^$9! #$?$@$7! "$=$NI}$,-2.0 $N>19g$K$OK@$NI}$O<+F07W;;$5$1$^$9! #▶\:Y$O! "0J2<;2>H: **style boxes (p. 52)**,**style boxerrorbars (p. 52)**! #

K@$NI}$r<+F0E*$K%;%C%H$9kK$O

```
set boxwidth
```

H9$k! "$"$k$$$O4Ns$N%G! <%?$KBP7F$C0J2<$Nh&K7$^$9! #

```
set boxwidth -2
```

plot $N%-! <%o! <%I **using** $r;H$CFbF1$88z2L$rF@k3H,G-$^$9:

```
plot 'file' using 1:2:3:4:(-2)
```

K@$NI}$r<+F0E*JCMNH>J,K9kK$O

```
set boxwidth 0.5 relative
```

K@$NI}$r@dBPE*$JCM2 K9kK$O

```
set boxwidth 2 absolute
```

%+%i! <%b! <%I (color)

gnuplot $O! "2 DN0[Jk@~<o72$r%5%]! <%H7F$$$^$9! #%G%U%)%k%H$G$O! "8D! 9$N@~<o$K0[$J$k?'$r;HMQ7^9,! "$=$N?'$GE@@~$dGK@~rIA/3HbG$-$^$9! #$b$&1$D$OGr9u$N@~<o$G! "E@@~/GK@~%Q%?! <%s$d@~I}N_$G@~<o$r6hJL7^$9! #%3%^%s%I **set color** $O%+%i! <$N@~<o$rA*Br$7$^$9! #0J2<;2>H**set monochrome (p. 146)**, **set linetype (p. 142)**, **set colorsequence (p. 118)**! #

?'=d2sNs (colorsequence)

=q<0:

```
set colorsequence {default|classic|podo}
```

set colorsequence default $O!"=PNO7A<0$K0MB8$7$J$$8 ?'$N=d2sNs$rA*Br7^$9!#0J2<;2>H: **set linetype (p. 142), colors (p. 40)**!#

set colorsequence classic $O!"=PNO7A<0JL$K$=$N%I%i%$%P$,MQ0U9k@~?'NNsrA*Br7^$9!#?'$N<dN'$O!"4 ?'$+$i100 ?'D6$^$GI}$,$"$j$^$9$,!"$=$NB?$/$O!"@V!"NP!"@D!";g!"?e?'!"2+?'!"$G;O$^j^$9!#$3l,0JA0NHGNgnuplot $N%G%U%)%k%H$N5sF0$G$9!#

set colorsequence podo $O!"Wong (2011) [Nature Methods 8:441] $G?d>)$5lF$$$k!"P 7?!"D 7? (Protanopia, Deuteranopia) $N?'<e<T$,MF0W$K6hJL$G$-$k8 ?'NAHrA*Br7^$9!#

$$:lN>l9gGb!"?'Ns$ND9$5H=$N?'$K$D$$FO5iK%+%9%?%^%$:$G$-$^$9!#0J2<;2>H: **set linetype (p. 142), colors (p. 40)**!#

Clabel

3N%3%^%s%I$OHs?d>)$G$9!#Be$ojK **set cntrlabel** $r;HMQ$7F/$@$5$$!#**unset clabel** $O **set cntrlabel onecolor** $K!"**set clabel "format"** $O **set cntrlabel format "format"** KCV-49oC$F$$^$9!#

%/%j%C%T%s%0 (clip)

=q<0:

```
set clip {points|one|two}
unset clip {points|one|two}
show clip
```

%G%U%)%k%H$N>uBV:

```
unset clip points
set clip one
unset clip two
```

%0%i%UNN0h$N6-3&Fb$KCf?4$,$"$k%G!<%?$O!"$=$NE@$rI=$95-9f$N%5%$%:$,$=$N5-9f$r6-3&@~$N30$KO_$@$7F7$^$&h&$J>l9g$G$b!"DL>o$OIA2h7^$9!#**set clip points** $O!"2 <!85IA2h$G$=$Nh&$JE@$NCf?4$,%0%i%UNN0hFb$K$"$k>l9gGb!"$=$Nh&$JE@$r%/%j%C%T%s%0$7$^$9(B($D$^$jIA2h7^$;$s)!#E@$NCf?4$,%0%i%UNN0h30K"kh$&$J%G!<%?E@$O!"7h$7$FIA2h$7$^$;$s!#

@~J,KD$$F$O!"$=$N0lJ}$NC<E@$,IA2hHC0O(xrange $Hyrange) $N30$K$"$k>l9g$O!"DL>o$=$N@~J,$OIA2h7^$;$s!#**set clip one** $O!"0lJ}$NC<E@$,IA2hHC0O$N30K"$k@~J,$NHC0OFb$NItJ,$rIA2h9kh&$K **gnuplot** $K;X<($7$^$9!#**set clip two** $O!"N>J}$NC<E@$,IA2hHC0O$N30K"$k@~J,$NHC0OFb$NItJ,$rIA2h9kh&$K **gnuplot** $K;X<($7$^$9!#@~J,A4BN$,IA2hHC0O30$G$"$kh&$J@~J,$O7h7FIA2h7^$;$s!#

Cm0U:

* **set clip** $O!"IA2h%9%?%$%k **lines**, **linespoints**, **points**, **vectors** $G@8@.$5lkE@!"@~J,N_$K1F6A$7$^$9!#

* **pm3d** $N2<!85<M1F$d6JLI$G;HMQ$9$k?'D9J}7A$N%/%j%C%T%s%0$O!"**set pm3d clip1in** $H **set pm3d clip4in** $G9T$$$^$9!#

* %*%V%8%'%/%H$N%/%j%C%T%s%0$O!"8D!9$N%*%V%8%'%/%H(object) $N **{clip|noclip}** B0@-$G@)8f7^$9!#

Ey9b@~%i%Y%k (cntrlabel)

=q<0:

```
set cntrlabel {format "format"} {font "font"}
set cntrlabel {start <int>} {interval <int>}
set contrlabel onecolor
```

set cntrlabel $O! "K^NcFb (%G%U%)%k%H) $+! "**splot ... with labels** $N:]$N%0%i%U>e$NEy9b@~$N%i%Y%k$r@)8f 7^$9! #8e<T$N>19g! "%i%Y%k$O%i%Y%k5-=RB0@-$N **pointinterval** $+ **pointnumber** $K=>$C$F3FEy9b@~$K1h$C $FG[CV$5$1$^$9! #%G%U%)%k%H$G$O%i%Y%k$OEy9b@~$r9=@.$9$k 5 HVL\$N@~J,$N>e$KCV$+$1! "20 8D$N@~J,Kh$K7+ jUV5$1$^$9! #$3$N%G%U%)%k%H$O! "0J2<$HF1$8$G$9:

```
set cntrlabel start 5 interval 20
```

$3$1iNCM$O%3%^%s%I **set cntrlabel** $G! "$"$k$$$O **splot** %3%^%s%I$K4V3V$r;XDj9k3H$GJQ99$G$-$^$9:

```
set contours; splot $FOO with labels point pointinterval -1
```

4V3VrIiNCM$K@_Dj$9kH! "%i%Y%k$O3FEy9b@~$K1 D@1D$-$^$9! #$7$+$7 **set samples** $+ **set isosamples** $,Bg$-JCMN>19g$OB?$/$NEy9b@~$r%i%Y%k01D@1GIA$-$^$9! #

K^Nc (key) KO! "Ey9b@~%i%Y%kr=1>1N@~<o (linetype) $r;HMQ$7$F=q$-$^$9! #%G%U%)%k%HGO! "@~<o<+ ?H$,3FEy9b@~$N%l%Y%k$rM?$(kN$G! "$=1>1KBP9kJL! 9$N%i%Y%k$,8=1^$9! #%3%^%s%I **set cntrlabel onecolor** O9YF$NEy9b@~$rF1$8@~<o$GIA2h9kNG! "K^NcKO01DN%i%Y%kN_$r=q$-$^$9! #3N%3%^%s%I$O! "8E$%3%^%s%I **unset clabel** rCV-49$($kbN$G$9! #

Ey9b@~@)8f (cntrparam)

set cntrparam $OEy9b@~$N@8@.J}K!! "$*$hS=1r3ji+$KIA2h$9$kJ}K!$r@)8f7^$9! #**show contour** $O 8=:_$N **contour** $N@_Dj$@1GJ/ **cntrparam** $N@_Dj$r$bI=<($7$^$9! #

=q<0:

```
set cntrparam { { linear
                | cubicspline
                | bspline
                | points <n>
                | order <n>
                | levels { auto {<n>} | <n>
                           | discrete <z1> {,<z2>{,<z3>...}}
                           | incremental <start>, <incr> {,<end>}
                         }
              }
            }
show contour
```

3N%3%^%s%I$O2 DN5!G=$r;}CF$$$^$9! #01$D$OEy9b@~>e$NE@(%G! <%?E@$N@~7AJd4V! "$"$k$$$O4X?t$NI8K\ 2=(isosample) Kh$kE@) GNz NCMN@_Dj$G! "$b$&01$D$O! "$=Nh$&$K7hDj$5$1$?z $,Ey$7$$E@F1;N$rEy9b @~$G7k$VJ}K!$N@)8f$G$9! #<n> $O@0?t7?$NDj?t<0! "<z1>, <z2> ... OG0U$NDj?t<0$G$9! #3F%*%W%7%g%sJQ?t $N0UL#$O<!NDLj$G$9:

linear, **cubicspline**, **bspline** — 6a;w(Jd4V) J}K!$r;XDj$7$^$9! #**linear** Ji$P! "Ey9b@~$O6JLL$+$iF@il$? CM$r6hJ,E*$KD>@~$G7kS^$9! #**cubicspline** (3 <!%9%W%i%$%s) Ji$P! "6hJ,E*$JD>@~$O$$/VsJai+$JEy 9b@~$,F@ilkh$&$KJd4V$5$1$^$9$,! "B?>/GHBG$D2DG=@-$,$"j^$9! #**bspline** (B-spline) $O! "$h$j3j$i$+$J 6J@~rIA/3H$,J]>Z$5$1$^9,! "$3$1$Oz NEy7$$E@$NOLCV$r6a;w7F$$k$@$1$G$9! #

points — :G=*E*KO! "A4FNIA2h$O! "6hJ,E*$JD>@~$G9T$ol^$9! #$3$3$G;XDj9k?t$O! "**bspline** $^$?$O **cubicspline** GN6a;w$K;H$olk@~J,$N?t$r@)8f7^$9! #<B:]KO cubicspline $H bspline $N6h4V(6J@~@~J,) $N?t$O **points** $H@~J,$N?t$N@Q$KEy7/j^$9! #

order — bspline 6a;w$N<!?t$G$9! #$3$N<!?t$,Bg$-$/JkKDlF! "Ey9b@~OJai$+$KJj$^$9(bAms! " 9b<!$N bspline 6J@~$KJk[$I! "85$N6hJ,E*D>@~$+$i$ON%$l$F$$$-$^$9)! #3N%*%W%7%g%s$O **bspline** %b! <%I GN$_M-8z$G$9! #;XDjG-kCMO! "2 (D>@~) $+$i 10 $^$G$N@0?t$G$9! #

levels — Ey9b@~$N%l%Y%k$N?t$O! "**auto** (%G%U%)%k%H), **discrete**, **incremental** $HEy9b@~$N%l%Y%k?t <n> $G @)8f$7$^$9! #

auto GO! "<n> $O2>$N%l%Y%k$N?t$G$"$j! "<B:]$N%l%Y%k$N?t$O! "4JC1$J%i%Y%k$r@8@.$9kh$&$KD4@a$5$1$^ $9! #6JL1$Nz :BI8$, zmin $+$izman $NHOO$K$"$kH-! "Ey9b@~O=$N4V$Ndz $N@0?tG\$KJkh&$K@8@.$5 1^$9! #$3$3$G! "dz $O10 N"kY$->h$N1, 2, 5 G\! "$N$$:1+$G$9(2 DNL\@9jN4V$rCzEY3d$j@Zkh $&$K)! #

levels discrete GO! "Ey9b@~$O;XDj$5l?z = <z1>, <z2> ... KBP7$F@8@.$5l^$9!#;XDj$7$?8D?t$,Ey9b@~$N%l%Y%k$N8D?tHJj^$9!#**discrete** %b!<%I$G$O!"**set cntrparams levels** <**n**> $H$$$&;XDj$O>o$KL5;k5l$^$9!#

incremental GO!"Ey9b@~$Oz = <start> $+$i;O$^$j!"<increment> $:$DA}$($F9T$-8B3&$N8D?t$KC#$9k^$G=q$+l^$9!#<end> O=$NEy9b@~$N?t$r7hDj$9kN$K;H$ol^9,!"3l$O8e$N**set cntrparam levels** <**n**> KhCF>o$KJQ9$5l^$9!#z <4$,BP?t<4$N>19g!"**set ztics** $N>19g$HF1MM$K!"<increment> $OG\?t$H7F2r<a5l$^$9!#

%3%^%s%I**set cntrparam** $,0z?t$J7K8FPl$?>19g$O!"<!$N%G%U%)%k%H$NCM$,;H$ol^$9: linear, 5 points, order 4, 5 auto levels

Nc:

```
set cntrparam bspline
set cntrparam points 7
set cntrparam order 10
```

0J2<$O%l%Y%k$N4p='$,9g$($P5 8D$N%l%Y%k$,$K<+F0E*$KA*Br$5l^$9:

```
set cntrparam levels auto 5
```

0J2<$O.1, .37, .9 $K%l%Y%k$r@_Dj7^$9:

```
set cntrparam levels discrete .1,1/exp(1),.9
```

0J2<$O0 $+$i4 $^$G!"1 $:$DA}d9%l%Y%k$r@_Dj$7$^$9:

```
set cntrparam levels incremental  0,1,4
```

0J2<$O%l%Y%k$N?t$r10 $K@_Dj$7$^$9(A}2C$N:G8e$NCM(end) $^$?$O<+F0$G@_Dj5l$k%l%Y%k$N?t$OJQ9$5l^$9):

```
set cntrparam levels 10
```

0J2<$O%l%Y%k$N?t$OJ];}$7$?$^$^%l%Y%k$N3+;OCM$HA}J,CM$r@_Dj7^$9:

```
set cntrparam levels incremental 100,50
```

Ey9b@~rIA/>l=j$N@)8f$K4X7F$O!"0J2<;2>H: **set contour (p. 121)**!#Ey9b@~$N%i%Y%k$N=q<0$H@~<o$N@)8f$K4X$7FO!"0J2<;2>H: **set cntrlabel (p. 118)**!#

0J2<$b;2>H$7F/$@$5$$!#Ey9b@~$N%G%b (contours.dem)

$*$h$S%f!<%6Dj5A%l%Y%k$NEy9b@~$N%G%b (discrete.dem).

%+%i!<%\%C%/%9 (colorbox)

?'$N0lMwI=!"$9Jo$A**pm3d** $N**palette** $Nmin_z $+$imax_z $^$G$N3j$i$+$J?'$N8{G[$O!"**unset colorbox** $,;H$olF$$$J$$B$j%+%i!<%\%C%/%9(colorbox) KIA+l^$9!#

```
set colorbox
set colorbox {
           { vertical | horizontal } {{no}invert}
           { default | user }
           { origin x, y }
           { size x, y }
           { front | back }
           { noborder | bdefault | border [line style] }
         }
show colorbox
unset colorbox
```

%+%i!<%\%C%/%9$N0LCV$O!"**default** $^$?$O**user** $G;XDj$G$-!"8e<T$N>19g$=$N0LCVdBg-5r**origin** $d**size** %3%^%s%I$G@_Dj7^$9!#%+%i!<%\%C%/%9$O!"%0%i%U$d6JLL$N8e(**front**) $"$k$$$O@h(**back**) $KIA2h$5$;$k3HbG$-$^$9!#

?'8{G[$NJ}8~$O!"%*%W%7%g%s **vertical** $H **horizontal** $G@ZBX$(k3H,2DG=$G$9!#

origin x, y $H **size x, y** $O **user** %*%W%7%g%s$HNAHGN_;HMQ5l$^$9!#x, y NCMO!"%G%U%)%k%HGO%9%/%j!<%s:BI8$H2r<a$5l^9,!"3l$O3<!85IA2hMQ$N$+$7$3$^C?%*%W%7%g%s$K2a$.$^$;$s!#**set view map** Kh$k splot $r4^$`2<!85IA2hGO!"G$0U$N:BI87OGN;XDj$,2DG=$G$9!#Nc$($P0J2<$r;n$7F$_F/$@$5$$:

```
set colorbox horiz user origin .1,.02 size .8,.04
```

3l$O?eJ?J}8~$N?'8{G[$r%0%i%U$N2<NJUj$KIA2h$7$^$9!#

border $O6-3&IA2h$r ON K7$^$9(%G%U%)%k%H) $7!"**noborder** $O6-3&IA2h$r OFF K7$^$9!#**border** $N8e$m$K@5$N@0?t$rM?$(kH!"$=$l$r6-3&$rIA2h9k;~$N line style $N%?%0$H7F;H$$^$9!#Nc$($P:

```
set style line 2604 linetype -1 linewidth .4
set colorbox border 2604
```

$O line style **2604**!"$9Jo$A:Y$$@~$N%G%U%)%k%H$N6-3&?'(-1) $G6-3&$rIA2h7^$9!#**bdefault** (%G%U%)%k%H) $O!"%+%i!<%\%C%/%9$N6-3&$NIA2h$K%G%U%)%k%H$N6-3&$N line style $r;H$$^$9!#

%+%i!<%\%C%/%9$N<4$O **cb** $H8F$P$l!"DL>o$N<4$N%3%^%s%I$G@)8f5l$^$9!#9JoA **set/unset/show** $G **cbrange**, **[m]cbtics**, **format cb**, **grid [m]cb**, **cblabel** JI$,!"$=7FB?J, **cbdata**, **[no]cbdtics**, **[no]cbmtics** JI$b;H$(kG7g$&!#

%Q%i%a!<%?L5$7$N **set colorbox** $O%G%U%)%k%H$N0lCV$X@ZBX$($^$9!#**unset colorbox** $O%+%i!<%\%C%/%9$N%Q%i%a!<%?$r%G%U%)%k%HCM$K%j%;%C%H$7!"$=$N>e$G%+%i!<%\%C%/%9$r OFF K7$^$9!#

0J2<$b;2>H: **set pm3d (p. 156)**, **set palette (p. 160)**, **x11 pm3d (p. 262)**, **set style line (p. 172)**!#

?'L> (colornames)

gnuplot $O8BDj$5l?8D?t$N?'$NL>A0$r;}$C$F$$^$9!#$3li$O!"pm3d %Q%l%C%H$GDJ$,$l$k?'$NHCOO$rDj5A$9kN$K!"$"$k$$$O8D!9$N@<o$d%i%s%9%?%kN?'$r=PNO7A<0$K0MB8$7$J$7A$GDj5A$7?$j9kNK;H$($^$9!#gnuplot $N;}$D?'L>$N0lMw$r8+kK$O!"%3%^%s%I **show colornames** $r;HMQ$7F/$@$5$$!#Nc:

```
set style line 1 linecolor "sea-green"
```

Ey9b@~ (contour)

%3%^%s%I **set contour** $O6JLL$NEy9b@~$r0z$/3H$r;X<($7$^$9!#3N%*%W%7%g%s$O **splot** GN$_M-8z$G$9!#$3lO!"3J;R>u%G!<%?(grid data) rI,MWH7^$9!#>\:Y$O!"0J2<;2>H: **grid_data (p. 197)**!#Hs3J;R>u%G!<%?$GEy9b@~$rIA$-$?$$>l9g$O!"3J;R$r@8@.9k$?$a$K **set dgrid3d** $r;HMQ$7$^$9!#

=q<0:

```
set contour {base | surface | both}
unset contour
show contour
```

3liN3 DN%*%W%7%g%s$OEy9b@~$rI3$K0z$/$+$r;XDj7^$9!#**base** GOEy9b@~$rx/y<4$N9o$_N"$kDlLLKIA+$l!"**surface** GOEy9b@~O=$N6JLL<+BN$N>eKIA+$l!"**both** GOClLL$H6JLL>e$NN>J}KIA+l^$9!#%*%W%7%g%s$,;XDj5l$F$$J$$>l9g$O **base** G"kH2>D j5l$^$9!#

Ey9b@~$NIA2h$K1F6A$rM?$(kQ%i%a!<%?KD$$$F$O!"0J2<;2>H:**set cntrparam (p. 119)**!#Ey9b@~$N%i%Y%k$N@)8f$K4X$7FO!"0J2<;2>H:**set cntrlabel (p. 118)**!#

Ey9b@~N_$N%0%i%U$rF@k?aK!"6JLL<+?H$NIA2h$r7J$$h$&$K9k3HbG$-$^$9(0J2<;2>H: **unset surface (p. 175)**)!#**set size** $r;H$C$F!"%0%i%U$r2hLL0lGU$KIA2h$9k3Hb2DG=G9$,!"$=$&$$C$?=PNO7A<0$hjb!"Ey9b@~$N%G!<%?$r%G!<%?%V%m%C%/$K=q$-=P$7!"$=lr:F$S2<!85%G!<%?H$7FFI_9~sGIA2h9lPhjh$S@)8f$,2DG=KJj^$9:

```
unset surface
set contour
set cntrparam ...
set table $datablock
splot ...
```

```
unset table
# Ey9b@~$N>pJs$O:# $datablock $NCf$K$"$k
set term <whatever>
plot $datablock
```

Ey9b@~rIA/$?$aKO:"%G!<%?$O3J;R>u%G!<%?("grid data") G"kI,MW,$"$j$^$9!#$=$Nh&$J%U%!%$%kGO:"0lDNy-8IN)@~>e$NA4$F$NE@$,=gKJBYil$F$$-$^$9!#$=$7FNYNy-8IN)@~>e$NE@$,=gKJBYil:"$=$7$FNY:"$HB3$$F$$-$^$9!#y-8IN)@~F1;N$rJ,N%$9kK$O0l9T$N6u9T(6uGr:"I|5"!"2~9T0J30$NJ8;z$r4^$^$J$$9T) $r64$_$^$9!#0J2<;2>H: **splot datafile (p. 194)**!#

0J2<$b;2>H$7F/$@$5$$!#Ey9b@~$N%G%b (contours.dem)

$*$h$S%f!<%6Dj5A%l%Y%k$NEy9b@~$N%G%b (discrete.dem).

E@@~/GK@~@_Dj (dashtype)

%3%^%s%I **set dashtype** $O:"E@@~/GK@~%Q%?!<%s$rHV9f$G;2>H$G$-$kh&$KEPO?$7$^$9!#3l$O%H$F$bJXMx$G!"$=$NE@@~/GK@~%Q%?!<%sr=$NHV9f$G<u1D1F$/$l$k>l=j$JiP:"I3GbL@<(E*$JE@@~/GK@~%Q%?!<%s$b<u1D1F$/$l$^$9!#Nc:

```
set dashtype 5 (2,4,2,6)   # 5 HV$N dashtype $rDj5A$^$?$O:FDj5A
plot f1(x) dt 5            # $=$N dashtype $r;H$C$F plot
plot f1(x) dt (2,4,2,6)    # >e$HA4$/F1$8%0%i%U
set linetype 5 dt 5        # $3$N%Q%?!<%s$r linetype 5 $G>o$K;H$&
set dashtype 66 "..-"      # J8;zNs$G?7$7$$ dashtype $rDj5A
```

0J2<;2>H: **dashtype (p. 43)**!#

Data style

3N%3%^%s%I$N7A<0$O8=:_$O?d>)$5lF$$^;$s!#0J2<;2>H:**set style data (p. 171)**!#

Datafile

%3%^%s%I **set datafile** $O:"**plot**, **splot**, **fit** %3%^%s%I$GF~NO%G!<%?$r>l9g$K!"$=$NNs(field) $N2r<a$N;EJ}$r@)8f$9$k%*%W%7%g%s$r;}A^$9!#8=:_$O:"6 DN$=$Nh&$J%*%W%7%g%s,<BAu$5lF$$^$9!#

Set datafile fortran

%3%^%s%I **set datafile fortran** $O:"F~NO%U%!%$%k$NFortran D 7?!"Q 7?$NDj?tCM$NFCJL$J%A%'%C%/$r2DG=$K7^$9!#$3$NFCJL$J%A%'%C%/$OF~NO=hM}$rCY$/$7$^$9NG!"<B:]K=$N%G!<%?%U%!%$%k$,Fortran D 7?!"Q 7?$NDj?t$r;}$C$F$$k>l9gKN$_$3lrA*Br9Y$-$G$9!#$3$N%*%W%7%g%s$O:"$=$N8e$G**unset datafile fortran** $r9T$($PL58z$KG-$^$9!#

Set datafile nofpe_trap

%3%^%s%I **set datafile nofpe_trap** $O:"F~NO%U%!%$%k$+$i%G!<%?$NF I$_9~$_$N:]$K!"$9YF$N?t<0$NI>2A$NA0$KIbF0.?tE@Nc30%O%s%I%i$N:F=i4|2=$r7J$$h$&$K gnuplot $KL?Na$7$^$9!#3lKh$j!"$HFbBg$-$J%U%!%$%k$N%G!<%?$NF~NO$,$+$J$jB.$/Jj$^$9$,!"IbF0.?tE@Nc30$,5/$-$?>l9g$K%W%m%0%i%'$,0[>o=*N;7F7^$&4m81$O"j^$9!#

Set datafile missing

=q<O:

```
set datafile missing "<string>"
set datafile missing NaN
```

```
show datafile missing
unset datafile
```

%3%^%s%I **set datafile missing** $O!"F~NO%G!<%?%U%!%$%kCf$G7gB;%G!<%?$r5-=R9kF'CJL$JJ8;zNs$,$"$k3H$r **gnuplot** $K;X<($7$^$9!#**missing** $K4X$9$k%G%U%)%k%HCM(J8;z) O"j^$;$s!#gnuplot $O!V7gB;%G!<%?!W$H!VL58z$JCM!W(Nc$($P"NaN" $d1/0) $r6hJL$7$^$9!#Nc$($P!"O"B3$9$k%G!<%?E@KBP9$k%0%i%U$N@^$l@~IA2h$O!"L58zJCMKhCF=3G@Zl^9,!"7gB;%G!<%?$N>19g$O$=$&GO$"$j$^$;$s!#

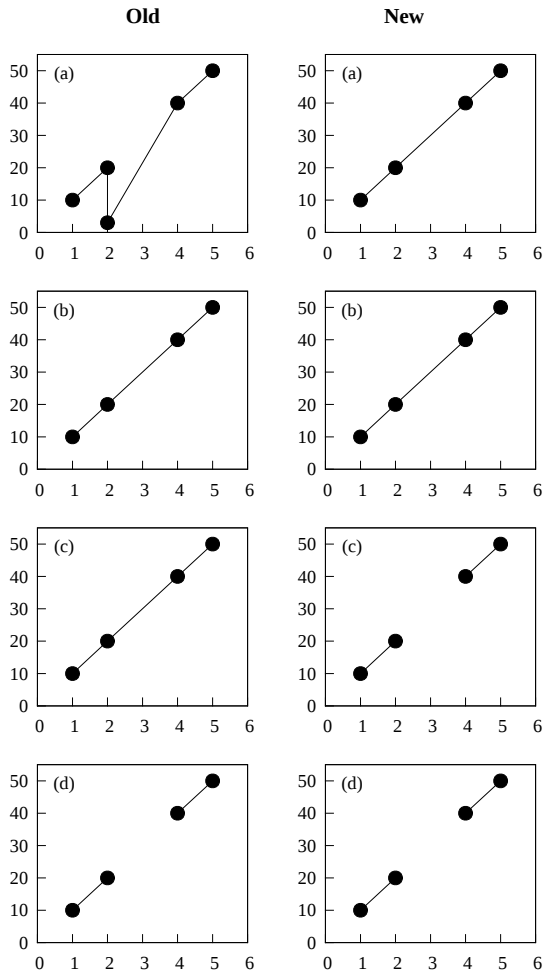
?tCM$,4|BT$5lk>1LL$G?tCM$GOJ$J8;z$,8=l?>19g$O!"$=l, **missing** $G;XDj$9$kJ8;zNs$K%^%C%A9k>19g$r=|$$F!"DL>o7gB;%G!<%?GOJ/!"L58zJCMH7F2r<a7^$9!#

5U$K!"**set datafile missing NaN** H9kH!"?t<0$d%G!<%?Cf$N?tCMGO$J$$CM(NaN) O9YF7gB;%G!<%?H7$F07$$^$9!#

Cm0U: $"$k>19g$N7gB;%G!<%?$HL58zJCMN07$$O!"8=:_$N%P!<%8%g%s$N**gnuplot** GOJQ99$5$l$F$$^$9!#0J2<$NNc$G!"**gnuplot** %P!<%8%g%s 4 $H%P!<%8%g%s 5 GN0c$$r<(7^$9!#

Nc:

```
set style data linespoints
plot '-' title "(a)"
   1 10
   2 20
   3 ?
   4 40
   5 50
   e
set datafile missing "?"
plot '-' title "(b)"
   1 10
   2 20
   3 ?
   4 40
   5 50
   e
plot '-' using 1:2 title "(c)"
   1 10
   2 20
   3 NaN
   4 40
   5 50
   e
plot '-' using 1:($2) title "(d)"
   1 10
   2 20
   3 NaN
   4 40
   5 50
   e
```



(a) $N%0%i%U$O!"3 9TL\$K$OM-8z$JCM$,$RHD7+$J$$?$a!"gnuplot 4 $Hgnuplot 5 $G0c$$,$"$j$^$9!#%P!<%8%g%s4 GO!"$=$3$K1 9T$K1 D7$+%G!<%?$,J+C?>19g$N5,B'$rE,MQ$7!"9THV9f$r"x" $K!"%G!<%?$r"y" $H8+$J$7!"8m$CF=$NE@$r(2,3) $KIA2h$7$F$$^7?!#

J8;z'?' $,7gB;%G!<%?$r0UL#9kbNH7$F;XDj$5lF$$k(b) GO!"8E$$HG$N gnuplot Gb?7$7$$HGGbF1$8%G!<%?$r@5$7$/=hM}7^$9!#

(c), (d) $N%0%i%U$K8+ilkh$&$K!"8E$$ gnuplot GO NaN $r using $N;XDj$N;EJ}KhCF0[JC$?=hM}$r7F$$$^7?!#8=:_$O!"gnuplot $OF~NONs$H7F N $H;XDj$5lF$$F$b($N) $H;XDj$5lF$$F$b NaN KBP7FOF1$8=hM}$r9T$$^$9!#0J2<$N%G%b$b;2>H$7F/$@$5$$!#imageNaN %G%b!#

%P!<%8%g%s 5.0.6 ;~E@$G!"$3lO7gB;CM%U%i%0$K4X$7Fb@5$7$$$G$9!#0JA0$N%P!<%8%g%sGO!"plot %3%^%s%I $K **using N** GOJ/ **using ($N)** $r;XDj$7$?>19g$O!"7gB;CM%U%i%0$NG'<1$K4V0c$$,$"$j$^$7$?!#$7$+$7!"8=:_$Ngnuplot G"CF$b!"7W;;<0$G!V7gB;CM!W$r;HMQ$9kH$=$N7k2I$O NaN HJj&k3HKCm0U7F$/$@$5$$!#Nc$($P!"1 NsL\$+2 NsL\$K **missing** $NJ8;zNs$,$"$k>19g!"**using ($1+$2)** Kh$kI>2A$O NaN HJj^$9!#$=$N>19g$Gb3lr7gB;CMH7$F07$$?1l$P!"%3%^%s%I **set datafile missing NaN** $r;HMQ$7F/$@$5$$!#

Set datafile separator

%3%^%s%I **set datafile separator** $O!"$3$N8e$NF~NO%U%!%$%k$N%G!<%?Ns$NJ,N%J8;z$,!"6uGr (whitespace) GJ$/$F!"$3$3$G;XDj$9$kJ8;z$G$"$k$H**gnuplot** $K;X<($7$^$9!#3N%3%^%s%I$N:G$b0lHIE*$J;HMQNc$O!"I=7W;;%=%U%H$d%G!<%?%Y!<%9%=%U%H$,:n$k csv (%3%s%^6h@Z$j) %U%!%$%k$rF I$`>19g$G7g$&!#%G%U%)%k%H$N%G!<%?Ns$NJ,N%J8;z$O6uGr (whitespace) $G$9!#

=q<0:

```
set datafile separator {whitespace | tab | comma | "<chars>"}
```

Nc:

```
# %?%V6h@Z$j$N%U%!%$%k$rF~NO
set datafile separator "\t"

# %3%s%^6h@Z$j$N%U%!%$%k$rF~NO
set datafile separator comma

# F~NO%U%!%$%k, * $+ | $N$$:$l$+$G6h@Z$i$l$?Ns$r;}$D>19g
set datafile separator "*|"
```

Set datafile commentschars

%3%^%s%I **set datafile commentschars** $O!"%G!<%?%U%!%$%kCf$N%3%a%s%H9T$N3+;OJ8;zH7FI$NJ8;z$r;H$&$+$r;XDj$7$^$9!#;XDj$7?2J8;z$NCf$N0l$D$,%G!<%?9T$N:G=i$NHs6uGrJ8;z$H7F8=ol$?>19g!"$=$N%G!<%?9T$N$=$l0J9_$NItJ,$rL5;k7^$9!#%G%U%)%k%HJ8;zNs$O!"VMS GO"#!"!"$=$l0J30GO"#"$G$9!#

=q<0:

```
set datafile commentschars {"<string>"}
show datafile commentschars
unset commentschars
```

hC$F!"%G!<%?%U%!%$%k$N0J2<$N9T$O0A4$KL5;k5l$^$9:

```
# 1 2 3 4
```

$,!"0J2<$N9T

```
1 # 3 4
```

$O!"2 NsL\$K%4%_$,$"$j!"$=$N8e$KM-8z$J%G!<%?,3 NsL\$H4 NsL\$K$"$k$HG'<1$5l^$9!#

Nc:

```
set datafile commentschars "#!%"
```

Set datafile binary

%3%^%s%I **set datafile binary** $O!"%G!<%?%U%!%$%kNFI_9~$_;~$K%P%$%J%U%!%$%k$r%G%U%)%k%H$H$_$J9kNK;Hol$^$9!#=q<0$O!"$=l, **plot** $^$?$O **splot** %3%^%s%I$G;HolkN$H@53N$KF1$8$G$9!#<binary list>$K=qlk%-!<%o!<%I$K4X$7FO!"**>\$7$/$O!"0J2<;2>H: binary matrix (p. 194),binary general (p. 87)**!#

=q<0:

```
set datafile binary <binary list>
show datafile binary
show datafile
unset datafile
```

Nc:

```
set datafile binary filetype=auto
set datafile binary array=(512,512) format="%uchar"

show datafile binary   # 8=:_$N@_Dj$N0lMwI=<(
```

>.?tE@@_Dj (desimalsign)

%3%^%s%I **set decimalsign** $O!"L\@9$j$N8+=P$7!"$"$k$$O **set label** J8;zNs$K=q$+lk?t$N>.?tE@5-9f$rA*Br7^$9!#

=q<0:

```
set decimalsign {<value> | locale {"<locale>"}}
unset decimalsign
show decimalsign
```

0z?t <value> $O!"DL>o$N>.?tE@5-9fKCV-49$($F;H$&J8;zNs$G$9!#E57?E*$JbN$O%T%j%*%I'.' $d%3%s%^',' G9$,B>KhM-MQJbN,$"kG7g$&!#0z?t <value> $r>JN,$9kH!">.?tE@$N6h@Z$j$O%G%U%)%k%H(%T%j%*%I) $+$iJQ9$5$l$^$;$s!#unset decimalsign $b <value> $r>JN,$9kN$HF1$88z2L$r;}$A$^$9!#

Nc:

B?$/$N%h!<%m%C%Q=t9qGN@5$7$$=PNO7A<0$rF@$kKO:

```
set decimalsign ','
```

<!N3HKCm0U7F$/$@$5$$:L@<(E*$JJ8;zNs$r@_Dj7?>19g!"3l$O<4$NL\@9jJINgnuplot $Ngprintf()=q<04X?t$G=PNO5l$k?tCM$N$_$K1F6A$7!"F~NO%G!<%?$N=q<0;XDj$dsprintf()=q<04X?t$G=PNO5l$k?tCM$K$O1F6A$7$^$;$s!#$=li$NF~NO$d=PNO$N7A<0$N5sF0$bJQ99$7$?$$>19g$O!"Be$ojK0J2<$r;HMQ$7F/$@$5$$:

```
set decimalsign locale
```

3l$O!"gnuplot $K!"F~NO$H=PNO$N=q<0$r!"4D6¬JQ?t LC_ALL, LC_NUMERIC, LANG $N8=:_$N@_Dj$K=>$C$?$bNr;H$o;$kh&K7$^$9!#

```
set decimalsign locale "foo"
```

3l$O!"gnuplot $K!"F~NO$H=PNO$N=q<0$r!"%m%1!<%k"foo" $K=>$C$?$bNK7^9,!"$=$N%m%1!<%k$,%$%s%9%H!<%k5l$F$$$kI,MW$,$"j^$9!#$b$7%m%1!<%k"foo" $,8+$D$+$iJ+C?>19g!"%(%i!<%a%C%;!<%8$,=PNO$5$l!">.?tE@$N@_Dj$OJQ99$5l^$;$s!#linux %7%9%F%>eGO!"$=$3$K%$%s%9%H!<%k5l$F$$$k%m%1!<%k$N0lMw$O"locale -a" $G8+$k3H$,$G$-$^$9!#linux $N%m%1!<%kJ8;zNs$O$@$$$?$s"sl_SI.UTF-8" Nh$&$J7A<0r7$F$$$^9,!"Windows $N%m%1!<%kJ8;zNs$O"Slovenian_Slovenia.1250"!"$^$?$O"slovenian" Nh$&$J7A<0$G$9!#%m%1!<%kJ8;zNs$N2r<a$O!"C $N%i%s%?%$%i%$%V%i%j$,9T$&$3HKCm0U7F$/$@$5$$!#8E$$C %i%$%V%i%j$G$O!"%m%1!<%k@_Dj$N%5%]!<%H(Nc$($P?t;z$N3 7eKh$N6h@Z$jJ8;z$J$I)$rItJ,E*K7$+Ds6!$7$F$$$J$$$+b7l^$;$s!#

```
set decimalsign locale; set decimalsign "."
```

3l$O!"8=:_$N%m%1!<%k$K9g$C$?$IsJ>.?tE@Gb!"A4FNF~=PNOKBP7$F;HMQ$9kh$&$K@_Dj7^9,!"gnuplot $NFbIt4X?tgprintf()$r;HCF=q<02=9k?tCM$OL@<(E*$K;XDj5l$?'.'$KJj$^$9(>e=q$-)!#

3J;R>u%G!<%?=hM}(dgrid3d)

%3%^%s%I **set dgrid3d** $O!"Hs3J;R>u%G!<%?$+$i3J;R>u%G!<%?$X$N<IA|5!G=$rM-8z$K$7!"$=$N?aN%Q%i%a!<%?$r@_Dj$7$^$9!#3J;R>u%G!<%?$N9=B$$K$D$$F$N>\:Y$O!"0J2<;2>H: **splot grid_data (p. 197)**!#

=q<0:

```
set dgrid3d {<rows>} {,{<cols>}}
            { splines |
              qnorm {<norm>} |
              (gauss | cauchy | exp | box | hann)
                {kdensity} {<dx>} {,<dy>} }
unset dgrid3d
show dgrid3d
```

%G%U%)%k%HGO **dgrid3d** $OL58z$KJC$F$$$^$9!#M-8z$KJk$H!"%U%!%$%k$+$iFI$_9~$^lk3 <!85$N%G!<%?$O!V;6:_7?!W%G!<%?(Hs3J;R>u%G!<%?) G"kH8+J5l^$9!#3J;R$O!"%0%i%U$HEy9b@~$NIA2hN?aK!";6:_7?%G!<%?$r0O$`6k7A$+$iF@il$k@#K!$H!"row_size/col_size $G;XDj$5lk?t$N9T$HNs$r;}$Dh&$K@8@.$5l^$9!#3J;R$O x J}8~(9T) $H y J}8~(Ns) $KEy4V3V$G$9!#z NCMO;6:_9k%G!<%?$N z NCMN=E$_IU$-$NJ?6Q!"$^$?$O%9%W%i%$%sJd4V$H7F7W;;5l$^$9!#8@$$JQ$($l$P!"5,B'E*$J4V3V$N3J;R$,@8@.5l!"A4FN3J;RE@$G85$N%G!<%?$N3j$+$J6a;wCM$,I>2A5l$^$9!#85$N%G!<%?$NBeojK3$N6a;wCM$,IA2h5l$^$9!#

%G%U%)%k%HNNsN?t$O9T$N?tKEy7$/!"$=$N%G%U%)%k%H$NCM$O10 $G$9!#

85$N%G!<%?$+$i6a;wCM$r7W;;9k$?$a$N$$$/D+$N%"%k%4%j%:%`$,MQ0U5l$F$$$F!"DI2C$N%Q%i%a!<%?$r;XDjG-kbNb$"$j$^$9!#3liNJd4V$O!"3J;RE@$K6a$$%G!<%?E@$[$I!"$=$N3J;RE@KBP7Fh$j6/$$1F6A$rM?$($^$9!#

splines %"%k%4%j%:%`$O!"'Gv$$$D$.HD" $r85$K7?Jd4V7W;;$r9T$$$^$9!#$3lODI2C%Q%i%a!<%?$r<h$j$^$;$s!#

qnorm %"%k%4%j%:%`$O3F3J;RE@$GF~NO%G!<%?$N=E$_IU$-J?6Q$r7W;;$7$^$9!#3FE@$O3J;RE@$+$i$N5wN%$N norm >h$N5U?t$G=E$_IU$1$5$l$^$9!#(<B:]$K$O!"dx, dy $r3F%G!<%?E@$H3J;RE@$H$N:9$N@.J,$G$"$k$H$9$k$H!"=E$_$O dx^norm + dy^norm $GM?$($i$l$^$9!#2 $N$Y$-$N%N%k%`!"FC$K4, 8, 16 $K4X$7FO!"$=$N=E$_$N7W;;$O%f!<%/%j%C%I5wN%$r;H$&$3HG (dx^2+dy^2)^norm/2 Nh$&$K:GE,2=5lF^9,!"G$0U$NIiGJ$$@0?t$r;H$&3H$b2DG=$G$9!#) %N%k%`$N$Y$-$NCM$r$?$@0l$D$NDI2C%Q%i%a!<%?$H$7$F;XDj$G$-$^$9!#$3$N%"%k%4%j%:%`$,%G%U%)%k%HKJCF$$$^$9!#

:G8e$K!"=E$_IU$-J?6Q$N7W;;MQ$K!"$$$/D+$NJ?3j2==E$_IU$14X?t (kernel) $,MQ0U$5lF$$$^$9: z = Sum_i w(d_i) * z_i / Sum_i w(d_i), $3$3$G z_i $O i HVL\$N%G!<%?NCMG!"d_i $O8=:_$N3J;RE@$H i HVL\$N%G!<%?E@$N0LCV$H$N5wN%$G$9!#$9YF$N=E$_IU$14X?t$,!"8=:_$N3J;RE@$K6a$$J}$N%G!<%?E@$KOBg-$J=E$_!"1s$$J}$N%G!<%?E@$K$O>.$5$$=E$_$rIU1^$9!#

0J2<$N=E$_IU$14X?t$,;HMQG-$^$9:

```
gauss :     w(d) = exp(-d*d)
cauchy :    w(d) = 1/(1 + d*d)
exp :       w(d) = exp(-d)
box :       w(d) = 1                      d<1 $N>l9g
                 = 0                      $=$NB>
hann :      w(d) = 0.5*(1-cos(2*pi*d))    d<1 $N>l9g
            w(d) = 0                      $=$NB>
```

3l$i5 DNJ?3j2==E$_IU$14X?tN&$A0lDr;HMQ9k>l9g!"2 D^GNDI2C%Q%i%a!<%?dx $H dy $r;XDj$G$-$^$9!#$3li$O!"5wN%$N7W;;;~$K:BI8$N0c$$$r%9%1!<%kJQ49$9$kNK;H$($^$9: d_i = sqrt(((x-x_i)/dx)**2 + ((y-y_i)/dy)**2), $3$3$G!"x,y $O8=:_$N3J;RE@$N:BI8$G!"x_i,y_i $O i HVL\$N%G!<%?E@$N:BI8$G$9!#dy $N%G%U%)%k%H$NCM$O dx $G!"$=$N%G%U%)%k%H$NCM$O1 KJCF$$$^$9!#%Q%i%a!<%?dx $H dy $O!"%G!<%?E@$,3J;RE@$X!V%G!<%?$=$l<+?H$NC10L$G!W$N4sM?$r9T$&HO0O$N@)8f$r2DG=K7$^$9!#

%*%W%7%g%s%-!<%o!<%I **kdensity** $O!"=E$_IU$14X?tL>$N8emG(%*%W%7%g%s$N) %9%1!<%kJQ49$N%Q%i%a!<%?$NA0$KCV$/$bNG!"3l$O%"%k%4%j%:%`$rJQ99$7$F!"3J;RE@MQ$K7W;;$9kCMr=E$_$NOB(z = Sum_i w(d_i) * z_i) GO3diJ$$$h$&$K7^$9!#z_i $,$9YFDj?t$N>l9g!"$3lO;v<B>e2 JQ?t$N=E$_IU$1I>2A$rIA2h7^$9: (>e$N5 DN$&$A$N0l$D$N) =E$_IU$14X?t$,3F%G!<%?E@KCV+$l!"$=li$N=E$_NOB,9YFN3J;RE@$GI>2A$5$l!"$=7F85$N%G!<%?$NBeojK3$N3j$i$+$J6JLL$,IA2h$5l^$9!#$3lO!"1 <!85$N%G!<%?=89g$KBP9k **smooth kdensity** %*%W%7%g%s$,9T$&3HH*$*$^$+$K$OF1$8$G$9(;HMQNc$O kdensity2d.dem $r;2>H$7F/$@$5$$)!#

8eJ}8_49@-N?aK!"o:$+$K0[Jk=q<0$b%5%]!<%H$5lF$$$^$9!#$I$N%"%k%4%j%:%`$bL@<(E*$KA*Br$7$J$+$C$?>l9g!"**qnorm** %"%k%4%j%:%`$,2>Dj5l!"3 $D0J2<$N!"%3%s%^(,) 6h@ZjN%*%W%7%g%s%Q%i%a!<%?$r;XDj$7$?>l9g$O!"$=$lir$=$l$>$l9T?t!"Ns?t!"$=$7$F norm CM$G$"$k$H2r<a$7$^$9!#

%*%W%7%g%s **dgrid3d** $O!";6:_$9$k%G!<%?$r=E$_IU$-J?6Q$G5,B'E*$J3J;RKCV-JQ$($kC1=c$J;EAH$_$K2a$.$^$;$s!#$3$NLdBj$KBP9khj@vN}5l$?<jK!$,B8:_7^9N$G!"$3$NC1=c$JJ}K!$,IT==J,$G$"$l$P!"**gnuplot** $N30$G$=$Nh&$JJ}K!$G%G!<%?$rA0=hM}$9kY$-$G7g$&!#

0J2<$b;2>Hdgrid3d.dem: dgrid3d $N%G%b

$*$h$Sscatter.dem: dgrid3d $N%G%b

2>JQ?t (dummy)

%3%^%s%I **set dummy** $O%G%U%)%k%H$N2>JQ?tL>$rJQ99$7$^$9!#

=q<O:

```
set dummy {<dummy-var>} {,<dummy-var>}
show dummy
```

%G%U%)%k%HGO!"**gnuplot** $O **plot** GO!"G^2pJQ?t%b!<%I!"$"$k$$$O6K:BI8%b!<%IGO"t", $=$&GJ1l$P "x" $rFHN)JQ?t (2>JQ?t) $H$7!"F1MM$K**splot** GO!"G^2pJQ?t%b!<%IGO (**splot** $O6K:BI8%b!<%I$G$O;H$($^$;$s) "u" $H"v", $=$&GJ1l$P "x" $H"y" $rFHN)JQ?t$H7^$9!#

2>JQ?t$O!"J*M}E*$K0UL#N"$kL>A0!"$"$k$$$OhjJXMx$JL>A0$H7F;H$&J}$,JXMxG7g&!#Nc$($P!";~4V$N4X?t$rIA2h9k>l9g:

```
set dummy t
plot sin(t), cos(t)
```

Nc:

```
set dummy u,v
set dummy ,s
```

BhFsNNcO!"2 HVL\$NJQ?t$rs H7$^$9!#2>JQ?tL>$r%G%U%)%k%H$NCMKLa9KO0J2<Nh$&$K7F$/$@$5$$!#

```
unset dummy
```

J8;z% (%s%3!<%I (encoding)

%3%^%s%I **set encoding** $OJ8;z$N% (%s%3!<%I (encoding) $rA*Br$7$^$9!#

=q<O:

```
set encoding {<value>}
set encoding locale
show encoding
```

M-8z$JCM (value) $O0J2<$NDIjG$9!#

```
default     - =PNO7A<0$K%G%U%)%k%H$N% (%s%3!<%I$N;HMQ$rL?Na
iso_8859_1  - UTF-8 $h$j:G$b0lHLE*$J@>%h!<%m%C%Q% (%s%3!<%I!#$3$N%(
              %s%3!<%I$O PostScript $N@$3&$G$N 'ISO-Latin1' $G$9!#
iso_8859_15 - %f!<%m5-9f$r4^$`iso_8859_1 $N0!<o
iso_8859_2  - Cfl{/El%h!<%m%C%Q$G;HMQ$5$l$k% (%s%3!<%I
iso_8859_9  - (Latin5 $H$7$FCN$i$l$k) %H%k%3$G;HMQ$5$l$k% (%s%3!<%I
koi8r       - NI$/;H$o$l$k Unix $N%-%j%kJ8;z% (%s%3!<%I
koi8u       - Unix $N%&%/%i%$%JCOJ}$N%-%j%kJ8;z% (%s%3!<%I
cp437       - MS-DOS $N%3!<%I%Z!<%8
cp850       - @>%h!<%m%C%Q$N OS/2 $N%3!<%I%Z!<%8
cp852       - Cfl{/El%h!<%m%C%Q$N OS/2 $N%3!<%I%Z!<%8
cp950       - MS HG$N Big5 (emf terminal $N$_)
cp1250      - Cfl{/El%h!<%m%C%Q$N MS Windows $N%3!<%I%Z!<%8
cp1251      - %m%7%"!"%;%k%S%"!"%V%k%,%j%"!"%^%1%I%K%"81 (8 %S%C%H)
cp1252      - @>%h!<%m%C%Q$N MS Windows $N%3!<%I%Z!<%8
cp1254      - %H%k%3$N MS Windows $N%3!<%I%Z!<%8 (Latin5 $N3HD%)
sjis        - Shift_JIS F|K\81% (%s%3!<%I
utf8        - 3FJ8;z$N Unicode %(%s%H%j%]%$%s%H$N!"2DJQD9 (%^%k%A%P
              %$%H) I=8=
```

%3%^%s%I **set encoding locale** $O!"B>$N%*%W%7%g%sHCOc$$!"3l$O8=:_$N%m%+!<%k$r<B9T;~$N4D6-$+$i7h Dj7h$&$H7^$9!#$?$$F$$N%7%9%F%'GO3l$O4D6-JQ?t LC_ALL, LC_CTYPE, LANG $N$$:l+Kh$C $F@)8f$5l^$9!#$3$N;EAH$_$O!"Nc$ ($P wxt, cairopdf =PNO7A<0$G!"UTF-8 $d EUC-JP Nh$&$J%^%k%A%P%$ %HJ8;z% (%s%3!<%IrDL9$?a$KI,MW$G$9!#3N%3%^%s%I$OF|IU$d?t;zJI$N%m%+!<%kF'CM-$NI=8=KO1F6A$rM? $($^$;$s!#0J2<$b;2>H: **set locale (p. 144)**, **set decimalsign (p. 125)**!#

0lHI$K% (%s%3!<%I$N@_Dj$O!"$=l,E,@Z$J%U%)%s%H$NA*Br$K1F6A$rM?$($kh&$K!"=PNO7A<0$N@_Dj$NA0$K9T$J $&I,MW$,$"$j$^$9!#

8m:9@~$NC< (errorbars)

%3%^%s%I **set errorbars** $O!"8m:9%0%i%U (errorbar) $NN>C<!"$*hSboxplot KD$/H"$R2NN>C<$N%^!<%/$r @)8f7^$9!#

=q<0:

```
set errorbars {small | large | fullwidth | <size>} {front | back}
              {line-properties}
unset errorbars
show errorbars
```

small $O0.0 (8r:9@~$J$7)!"**large** $O1.0 $HF1$8$G$9!#%5%$%:$r;XDj7J1l$P%G%U%)%k%H$NCM$O1.0 $G$9!#

%-!<%o!<%I **fullwidth** $O!"errorbar $rH<$& boxplot $H histograms KN$_4XO"7^$9!#3l$O errorbar $NN>C<$NI}$r!"BP1~$9$kH"$NI}$HF1$8$K@_Dj$7$^$9,!"H"$NI}<+BN$rJQ99$9$k3HO"j^$;$s!#

%-!<%o!<%I **front**, **back** $O!"EI$jDY$7D9J}7A$N$D$$?errorbar N_$K4XO"$7$^$9 (boxes, candlesticks, histograms)!#

8m:9@~ (errorbar) $O!"%G%U%)%k%H$G$O4XO"$9$kH"$N6-3&@~$HF1$8@~B0@-$GIA2h$7$^$9,!"3l$r8m:9@~MQ$KMQ 0U7?@~B0@-$KJQ99$G$-$^$9!#

```
set errorbars linecolor black linewidth 0.5 dashtype '.'
```

Hs@~7A4X?t2s5" (fit)

%3%^%s%I **set fit** $O!"**fit** %3%^%s%IMQ$N%*%W%7%g%s$r@)8f$7$^$9!#

=q<0:

```
set fit {nolog | logfile {"<filename>"|default}}
        {{no}quiet|results|brief|verbose}
        {{no}errorvariables}
        {{no}covariancevariables}
        {{no}errorscaling}
        {{no}prescale}
        {maxiter <value>|default}
        {limit <epsilon>|default}
        {limit_abs <epsilon_abs>}
        {start-lambda <value>|default}
        {lambda-factor <value>|default}
        {script {"<command>"|default}}
        {v4 | v5}
unset fit
show fit
```

%*%W%7%g%s **logfile** $O!"**fit** %3%^%s%I$,$=$N=PNO$r=q$-=P$9>l=j$rDj5A7^$9!#0z?t <filename> $O!"C10l0z MQId$+F's=E0zMQId$GO0$'I,MW$,$"j^$9!#%U%!%$%kL>$r;XDj$7$J+$C$?>19g!"$^$?$O **unset fit** $r;HMQ$7$?>19g$O!"%m%0%U%!%$%k$O%G%U%)%k%HNCMG$"$k"fit.log"!"$^$?$O4D6-JQ?t **FIT_LOG** NCMK%j;%C%H5l$^$9!#M?$($il?%m%0%U%!%$%kL>$, / $+\ $G=*$C$F$$k>19g!"$=$l$O%G%#%l%/%H%jL>$H2r<a5l!"%m%0%U%!%$%k$O=$N%G%#%l%/%H%j$N"fit.log" HJj^$9!#

%G%U%)%k%HGO! "$=$N%m%0%U%!%$%k$K=q$+$l$k>pJs$O! "BPOC7?=PNOKb=PNO7^$9! #**set fit quiet** O=$NBPOC7?=PNO$r%*%U$K$7! "**results** $O:G=*7k2L$N$_$r=PNO7^$9! #**brief** $O! "DI2C$G fit N9YF$N7+$jJV7K4X7F1 9T$NMWLs$rDs6!7^$9! #**verbose** $O! "%P!<%8%g%s 5 0JA0$G%G%U%)%k%H$@$C$?! ">\:Y$J7+jJV7$NJs9p$r9T$$$^$9! #

%*%W%7%g%s **errorvariables** $r ON K9kH! "**fit** %3%^%s%I$G7W;;$5l?8D! 9NEvFOa%Q%i%a!<%?$N8m:9$,!"$=$N%Q%i%a!<%?$NL>A0$K"_err" rD1?L>A0$N%f!<%6Dj5AJQ?t$K%3%T!<5l$^$9! #3l$O<g$K! "EvFO$a4X?t$H%G!<%?$NIA2h%0%i%U$N>e$K%Q%i%a!<%?$H$=$N8m:9$r;2>HMQ$K=PNO9kNK;Hol$^$9! #Nc:

```
set fit errorvariables
fit f(x) 'datafile' using 1:2 via a, b
print "error of a is:", a_err
set label 1 sprintf("a=%6.2f +/- %6.2f", a, a_err)
plot 'datafile' using 1:2, f(x)
```

%*%W%7%g%s **errorscaling** $r;XDj$9kH(%G%U%)%k%H)! "%Q%i%a!<%?$N7W;;8m:9$rJd@5&V<+>h(reduced &V-square) $G?-=L$7$^$9! #3l$O! "7k2L$H7FJd@5&V<+>hCMKJ$k! "Ev$FOa7W;;$NI8='UP:9 (FIT_STDFIT) KEy7$$%G!<%?8m:9$rDs6!$9k3HHF1EyKJj^$9! #%*%W%7%g%s **noerrorscaling** GO! "I>2A8m:9$O! "?-=L$5lJ$$EvFO$a%Q%i%a!<%?$NI8='UP:9KJj^$9! #G!<%?$N=E$_$r;XDj7J1l$P! "%Q%i%a!<%?$N8m:9$O>o$K?-=L5l$^$9! #

%*%W%7%g%s **prescale** $r%*%s$K9k$H! "Marquardt-Levenberg %k!<%A%sKEO9A0$K! "3F%Q%i%a!<%?$NCMr=1i$N=i4|CM$K=>CF;vA0$K%9%1!<%kJQ4 9$7$^$9! #3l$O! "3F%Q%i%a!<%?$NBg$-$5K+JjBg$-$J0c$$$,$"$k>19g$K! "BgJQM-8z$G$9! #$?$@$7! "=i4|CM$,40A4$K0 NEvFOa%Q%i%a!<%?KO! "7h7F3N%9%1!<%kJQ4 9$O9T$$$^$;$s! #

H?I|?t$N8B3&CM$O! "%*%W%7%g%s **maxiter** $G@)8B$G$-$^$9! #$=lr0 $+**default** H9kH! "$=lO8B3&$,$J$$$3Hr0UL#7^$9! #

%*%W%7%g%s **limit** $O! "<}B+$r8!=P9k$?$aNbCH$b>.$5$?t;z$N8B3&(1e-5) $N%G%U%)%k%H$NCM$rJQ9 9$9kN$K;H$($^$9! #<+>h;D:9NOB,3N?tCML$K~$NHfN($NJQ2=$7$+$7J?>19g$O! "Ev$FOa$O! V<}B+$7$?! W$HH=CG5l$^$9! #

%*%W%7%g%s **limit_abs** $O! "<+>h;D:9$NOB$NJQ2=$N8B3&(@dBPCM) $rDI2C$7$^$9! #%G%U%)%k%H$O0 $G$9! #

%"%k%4%j%:%'$K4X$9kJLN@)8fr7$?$>19g! "$=$7$F Marquardt-Levenberg %"%k%4%j%:%'rNI/CNCF$$$k>19g! "$=$l$K1F6A$rM?$($k0J2<$N%*%W%7%g%s$,MxMQG-$^$9: **lambda** $N=i4|CM$O! "DL>o<+F0E*$K ML-9TNs$+$i7W;;$5l^9,! "I,MWJi$P%*%W%7%g%s **start_lambda** $r;H$CF=lrM?$($k3H$,$G$-$^$9! #$=lr **default** H9kH! ":F$S<+F0@_Dj$,M-8zKJj^$9! #%*%W%7%g%s **lambda_factor** $O! "BP>]$H9k4X?t$N&V<+>hCM$,0UL#$"$j2KA}2C9k/8:>/9kH-$O>o$K **lambda** $rA}2C5$;$k/8:>/$5$;$k0x;R$r@_Dj$7$^$9! #$=$l$r **default** H9kH! "%G%U%)%k%H$N0x;R$G$"$k10.0 K7$^$9! #

%*%W%7%g%s **script** $O! "fit $rCfCG$7$?$H$-$K<B9T9k **gnuplot** %3%^%s%I$r;XDj$9kbNG$9! #0J2<;2>H: **fit (p. 75)**! #3N@_Dj$O%G%U%)%k%H$N **replot** $d4D6-JQ?t **FIT_SCRIPT** hj$bM%@h=g0L$O>e$G$9! #

%*%W%7%g%s **covariancevariables** $r%*%s$K9k$H! ":G=*E*$J%Q%i%a!<%?4V$N6&,;6$r%f!<%6Dj5AJQ?t$KJ]B8$7$^$9! #3F%Q%i%a!<%?NAHKBP7F$=$N6&,;6$rJ]B8$9$kJQ?tL>$O! ""FIT_COV_" $K:G=i$N%Q%i%a!<%?L>$H"_" $H2 $DL\$N%Q%i%a!<%?rDJ2$?L>A0$KJj$^$9! #Nc:($P%Q%i%a!<%?! "a" $H"b" KBP7FO! "$=$N6&,;6JQ?tL>$O"FIT_COV_a_b" HJj^$9! #

%P!<%8%g%s 5 GO! "%3%^%s%I fit $N=q<0$OJQ9 9$5$1! "%-!<%o!<%I **error** $,;XDj$5lF$$$J$>19g$OC10I=E$_(**unitweights**) $,%G%U%)%k%H$KJj$^$7$?! #%*%W%7%g%s **v4** $G gnuplot %P!<%8%g%s 4 $N%G%U%)%k%H$N5sF0KLaj$^$9! #0J2<$b;2>H: **fit (p. 75)**! #

%U%)%s%H%Q%9 (fontpath)

fontpath $N@_Dj$O! "%U%)%s%H%U%!%$%k$rFI$_9~$>19g$N%U%!%$%k$N8!:w%Q%9$rDI2CDj5A7^$9! #:#$NH3$m! "postscript =PNO7A<0$N$_$, **fontpath** $r%5%]!<%H$7$F$$$^$9! #%U%!%$%k,8=:_$N%G%#%l%/%H%j$K8+D+iJ$+$C$?>19g! "**fontpath** $N%G%#%l%/%H%j,8!:w$5l^$9! #%5%]!<%H$7$F$$k%U%)%s%H%U%!%$%k$N7A<0$K4X$9kh$j>\$7$$$@bL@$O **terminal postscript** %;%/%7%g%s$NJ8=qCf$K$"$j$^$9! #

=q<0:

```
set fontpath {"pathlist1" {"pathlist2"...}}
show fontpath
```

%Q%9L>$CC10l$N%G%#%l%/%H%jL>!"$^$?$OJ#?t$N%Q%9L>$N%j%9%H$H7FF~NC7^$9!#J#?t$N%Q%9$+$iJk%Q%9%j%9%H$O OS 8GM-$N%Q%96h@Z$j!"Nc$($P Unix GO%3%m%s(':'), MS-DOS, Windows, OS/2 GO%;%_%3%m%s(';') Ey$G6h@Z$j$^$9!#**show fontpath**, **save**, **save set** %3%^%s%I$O!"2DHB@-$N$?a$K OS 8GM-$N%Q%96h@Z$j$r%9%Z!<%9(' ') GCV-4 9$($^$9!#%G%#%l%/%H%jL>$,%(%/%9%/%i%a!<%7%g%s%^!<%/('!') $G=*$C$F$$$k>19g!"$=$N%G%#%l%/%H%j$N%5%V%G%#%l%/%H%j$b8!:w5l$^$9!#

4D6-JQ?t GNUPLOT_FONTPATH $,@_Dj$5lF$$$k>19g!"$=$NFbMF$O **fontpath** $KDI2C$5l^9,!"$=$l$,@_Dj$5lF$$$J$>19g%7%9%F%'$K0MB8$7$?%G%U%)%k%HNCM,;HMQ5l$^$9!#:G=i$K%U%)%s%H%Q%9$r;HC?H-$K!"$=$N4v$D$+$N%G%#%l%/%H%j$,B8:_$9k+%F%9%H5l!"%;%C%H5l$^$9!#hC$F!"0lHV:G=i$N**set fontpath**, **show fontpath**, **save fontpath** $d!"Kd$a9~$_%U%)%s%H$r;HMQ7?>19g$N **plot**, **splot** $O!">/$7;~4V$,$+$+$j$^$9!#$=$l$r>/$7GbC;$/$7$?$1lP!"4D6-JQ?t GNUPLOT_FONTPATH $r@_Dj$7F/$@$5$5$!#$=$&9l$P%G%#%l%/%H%j$N%A%'%C%/$O OFF KJj^$9!#%G%U%)%k%H$N%U%)%s%H%Q%9$,2?G"k+$O!"**show fontpath** $G8+$k3H$,$G$-$^$9!#

show fontpath $O!"%f!<%6Dj5A$N fontpath $H%7%9%F%'$N fontpath $rJL!9$KI=<(7^9,!"**save**, **save set** %3%^%s%I$O!"%f!<%6Dj5A$N **fontpath** N_$rJ]B8$7$^$9!#

gd %i%$%V%i%j$rDL8F%U%!%$%kL>$G%U%)%s%H$K%"%/%;%9$9$k=PNO%I%i%$%P$K4X$7FO!"%U%)%s%H8!:w%Q%9$O4D6-JQ?t GDFONTPATH $G@)8f$5l^$9!#

<4$N9o$_=q<0 (format)

:EI8<4$N9o$_$N8+=P$7$O!"%3%^%s%I **set format** $^$?$O **set tics format** $^$?$O8DJL$K%3%^%s%I **set {**<4**}tics format** $G=q<0$r@_DjG-$^$9!#

=q<0:

```
set format {<axes>} {"<format-string>"} {numeric|timedate|geographic}
show format
```

$3$3$G!"<axes> (<4) $O **x**, **y**, **xy**, **x2**, **y2**, **z**, **cb**!"$^$?$O2?$b;XDj7J$$$+($=$N>19g$=$N=q<0O9YF$N<4$KE,MQ5l$^$9) $N$$:l+$G$9!#0J2<$N2 DN%3%^%s%I$OA4$/F1Ey$G$9:

```
set format y "%.2f"
set ytics format "%.2f"
```

=q<0J8;zNs$ND9$5$O100 J8;z$^$G!"$H@)8B5l$F$$$^$9!#%G%U%)%k%H$N=q<0J8;zNs$O"% h" $G!"LaTeX 7O$N=PNO7A<0GO"$%h$" $G$9!#B>$K"%.2f" $d"%3.0em" Nh$&$J=q<0$,9%^lk3HbB?$$$G7g$&!#"set format" $N8e$m$K2?$b$D$1:$K<B9T$9kH!"%G%U%)%k%HKLa7$^$9!#

6uJ8;zNs"" $r;XDj$7$?>19g!"9o$_<+?H$OI=<($7$^$9$,8+=P$7OD1^$;$s!#9o$_<+?H$r>C9K$O!" **unset xtics** $^$?$O **set tics scale 0** $r;HMQ$7F/$@$5$$!#

=q<0J8;zNsGO!"2~9TJ8;z(\n) $d3HD%J8;zNs=hM}(enhanced text) MQ$N%^!<%/%"%C%W$b;H$($^$9!#$3$N>19g$O!"C10l0zMQId(') GJ$/(") $r;H$CF/$@$5$$!#0J2<$b;2>H: **syntax (p. 49)**!#"%" $,F,$KD+JJJJ8;zO=N^$^I=<($5l^$9!#$hCF!"=q<0J8;zNsFb$K%9%Z!<%9$dJ8;zNsJI$rF~$lk3H,G-$^$9!#Nc$($P"%g m" H9lP!"?tCM$N8e$K" m" $,I=<($5l^$9!#"%" <+?H$rI=<(9k>19gKO"%g %%" Nh$&$K2 $D=E$M$^$9!#

9o$_$K4X9khj>\$7$$pJsKD$$F$O!"0J2<$b;2>H: **set xtics (p. 186)**!#$^$?!"3NJ}K!$G=PNO$5lk?t;z$K%G%U%)%k%H0J30$N>.?tJ,N%J8;z$r;H$&djJ}KD$$F$O!"0J2<;2>H: **set decimalsign (p. 125)**!#0J2<$b;2>H!#%(%l%/%H%m%s(EE;R) %G%b(electron.dem).

Gprintf

J8;zNs4X?tgprintf("format",x) $O!"gnuplot %3%^%s%I$N**set format**, **set timestamp** JJI$HF1MM$N!"gnuplot FHK+$N=q<0;XDj;R$r;H$$^$9!#$3li$N=q<0;XDj;R$O!"I8=`E*$JC8@8l$N4X?tG"$k sprintf() NbNHA4$/F1$8GO$"j^$;$s!#gprintf() $O!"@07A2=$5lk0z?t$O0l$D7+<u1D1$^$;$s!#$=N?a$K!"gnuplot KO sprintf("format",x1,x2,...) 4X?t$bMQ0U$5lF$$$^$9!#gnuplot $N=q<0%*%W%7%g%s$N0lMwKD$$F$O!"0J2<;2>H**format specifiers (p. 131)**!#

=q<0;XDj;R **(format specifiers)**

;HMQ2DG=$J=q<0(;~4V/F|IU%b!<%I$G$J$$>l9g) $O0J2<$NDLjG$9:

L\@9$j%i%Y%k$N?tCM=q<0;XDj;R	
=q<0	@bL@
%f	8GDj>.?tE@I=5-
%e, %E	;X?tI=5-; ;X?t$NA0$K"e", "E" rD1k
%g, %G	%e ($^$?$O%E) $H%f $NN,5-
%h, %H	%g $K "e%S" GJ$/ "x10^{%S}" $+ "*10^{%S}" rD1k
%x, %X	16 ?JI=5-
%o, %O	8 ?JI=5-
%t	10 ?J$N2>?tIt
%l	8=:_$NBP?t<\$NDl$r4p?t$H9k2>?tIt
%s	8=:_$NBP?t<\$NDl$r4p?t$H9k2>?tIt; Jd=uC10L (scientific power)
%T	10 ?J$N;X?tIt
%L	8=:_$NBP?t<\$NDl$r4p?t$H9k;X?tIt
%S	Jd=uC10L$N;X?tIt (scientific power)
%c	Jd=uC10LJ8;z
%b	ISO/IEC 80000 5-K! (ki, Mi, Gi, Ti, Pi, Ei, Zi, Yi) $N2>?tIt
%B	ISO/IEC 80000 5-K! (ki, Mi, Gi, Ti, Pi, Ei, Zi, Yi) $N@\F,<-
%P	&P$NG\?t

Jd=uC10L('scientific' power) $O!";X?t$,3 $NG\?t$G$"$kh&JbNG$9!#Jd=uC10L;X?t("%c") $NU8;z$X$NUQ49$O-18 $+$i+18 $^$G$N;X?t$KBP7F%5]!<%H5l$F$$$^$9!#$3$NHO0O3$0$N;X?t$N>l9g!"=q<0$OCDL>o$N;X?t7A<0KLaj$^$9!#

$[$+$K;H$&3HNG$-$k=$>~;l("%" $H=q<0;XDj;R$N4V$K=q$/bN) KO!"<!$N$$$/D+$,$"j^$9: "-" $O?t;z$r:85MaK$7!""+" $O@5$N?tKbId9frD$1!"" "(6uGr0l$D) OIiN?t$K"-" rD1kY->l=j$K@5$N?t$N>l9g$K6uGr$r0lDD$1!""#" $O>.?tE@0J2<$N?t;z$,0 $@$1G"CF$b>.?tE@$r$D$1!"@5$N@0?t$O=PNOI}rDja!"=PNOI};XDj$ND>A0$N"0" (J8;zGJ$/?t;z) $O@hF,$K6u$$?ItJ,$r6uGr$GKdakBeoj$K0 GKda!">.?tE@$N8e$KHsIi$N@0?t$r=q$$?bN$O@:EY$r0UL#7^$9(@0?t$N>l9g$O:G>.7e!">.?t$N>l9g$O>.?tE@0J2<$N7e?t)!#

3liNA4FN=$>~;l$r%5]!<%H7F$$$J$$OS b"kG7g&!#5?o7$$>l9g$O!"E,@Z$J;qNA$rD4$Y!"$=$7$F<B83$7F_F/$@$5$$!#

Nc:

```
     set format y "%t"; set ytics (5,10)          # "5.0" $H "1.0"
     set format y "%s"; set ytics (500,1000)      # "500" $H "1.0"
     set format y "%+-12.3f"; set ytics(12345)    # "+12345.000  "
     set format y "%.2t*10^%+03T"; set ytic(12345)# "1.23*10^+04"
     set format y "%s*10^{%S}"; set ytic(12345)   # "12.345*10^{3}"
     set format y "%s %cg"; set ytic(12345)       # "12.345 kg"
     set format y "%.0P pi"; set ytic(6.283185)   # "2 pi"
     set format y "%.0f%%"; set ytic(50)          # "50%"

     set log y 2; set format y '%l'; set ytics (1,2,3)
     #"1.0", "1.0", "1.5" $HI=<($5$l$k (3 $O 1.5 * 2^1 $J$N$G)
```

4]aH;X?t$,I,MW$HJkh&$J=q<0$G9.999 NMMJ?t;z$,=q$+lk>l9g$OLdBj$,5/3k3H$,$"j^$9!#

<4$N%G!<%?7?$,F|;~%G!<%?(time/date) $N>l9g!"=q<0J8;zNs$O'strftime' 4X?t('gnuplot' 30!#"man strftime" H7F_F/$@$5$$) $K4X$9$kM-8z$J;XDj$r9T$&I,MW$,$"j^$9!#;H$($kF~NO=q<0;XDj$N0lMw$K4X$7FO!"0J2<;2>H:**set timefmt (p. 178)**!#

F|;~%G!<%?;XDj;R **(time/date specifiers)**

F|;~%G!<%?%b!<%I(time/date mode) GO!"<!$N=q<0$,;HMQG-$^$9:

F|IU;XDj;R	
=q<0	@bL@
%a	MKF|L>$N>JN,7A (Sun,Mon,...)
%A	MKF|L> (Sunday,Monday,...)
%b, %h	7nL>$N>JN,7A (Jan,Feb,...)
%B	7nL> (January,February,...)
%d	F| (01–31)
%D	"%m/%d/%y" $N4JN,7A (=PNO$N$_)
%F	"%Y-%m-%d" $N4JN,7A (=PNO$N$_)
%k	;~ (0–23; 1 7e$^$?$O2 7e)
%H	;~ (00–23; >o$K2 7e)
%l	;~ (1–12; 1 7e$^$?$O2 7e)
%I	;~ (01–12; >o$K2 7e)
%j	$=$NG/$NDL;;F| (001–366)
%m	7n (01–12)
%M	J, (00–60)
%p	"am" $^$?$O"pm"
%r	"%I:%M:%S %p" $N4JN,7A (=PNO$N$_)
%R	"%H:%M" $N4JN,7A (=PNO$N$_)
%S	IC (=PNOGO00–60 $N@0?t!"F~NO$G$O<B?t)
%s	1970 G/:G=i$+$i$NIC?t
%T	"%H:%M:%S" $N4JN,7A (=PNO$N$_)
%U	$=$NG/$NDL;;=5 (=5$OF|MKF|$+$i$H?t$ ($k)
%w	MKF|HV9f (0–6, F|MK= 0)
%W	$=$NG/$NDL;;=5 (=5$O7nMKF|$+$i$H?t$ ($k)
%y	@>Nq (0-99!"1969-2068 G/$N2<2 7e)
%Y	@>Nq (4 7e)

?t;z$rI=$9=q<0KO!"@hF,$K0 rKdak?aK"0" (%<%m) $rA0$KD1k3H,G-!"$^$?:G>.$N=PNOI}$r;XDj 9k$?$a$K@5$N@0?t$rA0$KD1k3HbG-$^$9!#=q<0%S $H%t $O@:EY;XDj$b<u1D1kNG!">.?t$N;~/J,/IC$r=q$/$3HbG-$^$9!#

;~9o;XDj;R	
=q<0	@bL@
%tH	%(%]%C%/;~XNAjBPE*$J@5Ii$N;~(24 GN4,La7J$7)
%tM	%(%]%C%/;~XNAjBPE*$J@5Ii$NU,
%tS	D>A0$NtH, tM 9'L\$KBP1~9k@5Ii$NIC?t

Nc (Examples) F\|IU=q<0$NNc:

x NCM,!"1976 G/12 7n25 F\|$N?<Lk>/$7A0$N;~9o$KBP1~9kIC?tG"kH2>Dj7^$9!#$3$N0lCV$N<4$N9o$_%i%Y%kJ8;zNs$O!"0J2<$Nh&KJj^$9:

```
set format x                # %G%U%)%k%H$G$O "12/25/76 \n 23:11"
set format x "%A, %d %b %Y" # "Saturday, 25 Dec 1976"
set format x "%r %D"        # "11:11:11 pm 12/25/76"
```

;~9o=q<0$NNc:

F\|IU=q<0;XDj$O!"IC?t$G$N;~4V$NCM$r!"$"$kFCDj$NF\|$N;~7W$N;~9o$K%(%s%3!<%I$7$^$9!#%hCF!";~$O0 $+$i23 $^$G!"J,$O0 $+$i59 $^$GN_$rF0$-$^$9$,!"$=liNIiNCM$O!"%(%]%C%/(1970 G/1 7n1 F\|) hjA0$N F\|IU$KBP1~7^$9!#IC?t$G$N;~4V$NCM$r!";~4V0 KBP9$kAjBPE*$J;~/J,/IC$N?tCM$H7F=PNO5;kK$O!";~4V=q<0%tH %tM %tS $r;HMQ$7$^$9!#-3672.50 ICNCMO0J2<Nh$&$K=PNO5l$^$9!#

```
set format x                # %G%U%)%k%H$G$O "12/31/69 \n 22:58"
set format x "%tH:%tM:%tS"  # "-01:01:12"
set format x "%.2tH hours"  # "-1.02 hours"
set format x "%tM:%.2tS"    # "-61:12.50"
```

Function style

3N%3%^%s%I$N7A<0$O8=:_$O?d>)$5lF$$^$;$s!#0J2<;2>H:**set style function (p. 172)**!#

Functions

show functions %3%^%s%I$O%f!<%6!<$,Dj5A7?4X?tH=$NDj5AFbMF$rI=<(7^$9!#

=q<0:

```
       show functions
```

gnuplot K*1k4X?t$NDj5A$H$=$N;H$$J}KD$$$F$O!"0J2<;2>H:**expressions (p. 29)**!#0J2<$b;2>H%f!<%6Dj5A4X?t$G$N%9%W%i%$%s (spline.dem)

$*$h$S4X?t$HJ#AGJQ?trMcK;HMQ (airfoil.dem)!#

3J;R@~ (grid)

%3%^%s%I**set grid** $O3J;R@~$rIA$-$^$9!#

=q<0:

```
     set grid {{no}{m}xtics} {{no}{m}ytics} {{no}{m}ztics}
              {{no}{m}x2tics} {{no}{m}y2tics} {{no}{m}rtics}
              {{no}{m}cbtics}
              {polar {<angle>}}
              {layerdefault | front | back}
              {<line-properties-major> {, <line-properties-minor>}}
     unset grid
     show grid
```

3J;R@~OG0U$N<4$NG$0U$NBgL\@9$j/>.L\@9$jKBP7$FM-8z/L58z$KG-!"$=$NBgL\@9jH>.L\@9jKBP9k@~<o!"@~I}$b;XDj$G$-!"8=:_$N=PNOAuCV$,%5%]!<%H$9$kHO0O$G!"$"$i$+$8$aDj5A$7$?%i%$%s%9%?%$%k$r;HMQ9k3HbG$-$^$9(0J2<;2>H:**set style line (p. 172)**)!#

2<!85IA2hGO6K:BI83J;R$bA*Br$G$-$^$9!#$3lO!"gnuplot $,6K:BI8%b!<%I(polar) NH$-$N**set grid** $N%G%U%)%k%H$N5sF0G9$,!"L@<(E*$K**set grid polar <angle> rtics** H9lP!"6K:BI8%b!<%IG"kJ7K4Xoi$:<B9T$G$-$^$9!#F1?41_$Or<4$N<gL\@9/I{L\@9$G8r:9$9$kh&KIA-!"F07B$O<angle> $N3Q$r6u1FIA$-$^$9!#F1?41_$N<~0O$NL\@9$j$N9o$_$O!"**set ttics** $G@)8f$7$^$9$,!"$3lOF07B$N3J;R@~$r?7$?$K$O@8@.$7$^$;$s!#

set grid $,IA$/A0$K!"I,MW$JL\@9jOM-8zKJCF$$$J1lPJj^$;$s!#**gnuplot** $O!"B8:_$7$J$$L\@9jKBP9k3J;R$NIA2h$NL?Na$OC1$KL5;k7^$9!#$7$+$7!"8eG=$NL\@9$j$,M-8z$KJ1lP$=$lKBP9$k3J;R$bIA$-$^$9!#

>.3J;R@~KBP9$k@~<o$r2?$b;XDj$7J1lP!"Bg3J;R@~$HF1$8@~<o$,;H$ol^$9!#%G%U%)%k%H$N6K:BI8$N3QEY$O30EY$G$9!#

front $r;XDj$9kH!"3J;R@~$O%0%i%U$N%G!<%?$N>e$KIA$+$l$^$9!#**back** $,;XDj$5l?>19g$O3J;R@~$O%0%i%U$N%G!<%?$N2<KIA+l^$9!#**front** $r;H$($P!"L)=8$7$?%G!<%?G3J;R@~$,8+$($J$/$Jk3HrKI$0$3H,G-$^$9!#%G%U%)%k%HGO**layerdefault** $G!"$3lO2D IA2hGO**back** $HF1$8$G$9!#3D IA2h$N%G%U%)%k%H$O!"3J;R$H%0%i%U$NOH$r2 DNIA2hC10I$KJ,N%$7!"3J;R$O8emK!"OH$OIA2h%G!<%?$^?$O4X?t$NA0$K=q$-$^$9!#$?$@$7!"**hidden3d** %b!<%IGO!"$=$l$,$=$l<+?H$NJB$S49$(r7$F$$^9N$G!"3J;R@~$N=gHV$N%*%W%7%g%s$OA4$FL5;k$5$l!"3J;R@~$b1#@~=hM}K+1i$l^$9!#3liN%*%W%7%g%s$O!"<B:]$K$O3J;R@~$@1GJ/!"**set border** Kh$k6-3&@~$H$=$NL\@9jN9o$_(0J2<;2>H:**set xtics (p. 186)**) Kb1F6A$r5Z$\$7$^$9!#

z $N3J;R@~$OIA2h$NDlLL$KIA$+$l$^$9!#3l$OIA2h$N<~jKItJ,E*$JH"$,IA2h5l$F$$$k>19gKO$$$G7g$&!#0J2<;2>H:**set border (p. 115)**!#

1#@~=hM} (hidden3d)

set hidden3d %3%^%s%I$O6JLLIA2h(0J2<;2>H:**splot (p. 193)**) $G1#@~=hM}$r9TJ&h&$K;X<($7$^$9!#$=$N=hM}$NFbIt%"%k%4%j%:%'$K4X9kD12C5!G=b3$N%3%^%s%I$G@)8fG-$^$9!#

=q<0:

```
set hidden3d {defaults} |
             { {front|back}
               {{offset <offset>} | {nooffset}}
               {trianglepattern <bitpattern>}
               {{undefined <level>} | {noundefined}}
               {{no}altdiagonal}
               {{no}bentover} }
unset hidden3d
show hidden3d
```

gnuplot $NDL>o$NI=< (HO0 [Jj! "1#@~=hM}GQM?$ (il$?4X?t! "$^$?$O%G! <%?$N3J;R@~$r! "<B:]$N6JLL$,$=$N6JLL$NGX8e$K$"$C$F1#$5lF$$$kIA2hMWAG$O8+$;$J$$N$HF1$8h&$K=hM}$7$^$9! #3l$,5!G=$9k?aK$O! "$=$N6JLL$,'3J;R>u' (0J2<;2>H: **splot datafile (p. 194)**) G"kI,MW,$"$j! "$^$?$=$liO **with lines** $+ **with linespoints** GIA+lF$$$J1l$P$$1$^$;$s! #

hidden3d $,M-8z$JH-$O! "3J;R@~$@1GJ/! "LLItJ,$dEZBf$N>e$NEy9b@~(0J2<;2>H: **set contour (p. 121)**) $b1#$5l^$9! #J#?t$NLL$rIA2h$7$F$$k>l9g$O! "3F6JLL$O<+J,<+?H$HB>$N6JLL$G1#$5lkItJ,$b;}$A$^$9! #6JLL>eXNEy9b@~$NI=<((**set contour surface**) $O5!G=$7$^$;$s! #

gnuplot %P! <%8%g%s 4.6 GO! "%0%i%U>e$K6JLL$,0lDbJ>uBVGb! "hidden3d $O **points**, **labels**, **vectors**, **impulses** $N3<!85$NIA2h%9%?%kK1F6A$rM?$ ($^$9! #**vectors** $O! "1#$5lJ$ItJ,$O@~J,(Lp@h$J$7) H7$FI=<($5l^$9! #%0%i%UFb$N3F! 9$NIA2h$r3N=hM}$+$iL@<(E*$K=|30$7$?$$H$-$O! **"with ;**XDj$KFCJL$N%*%W%7%g%s **nohidden3d** $rDI2C$7F/$@$5$$! #

hidden3d $O! "pm3d %b! <%I$GIA2h5l$?! "EI$jDY5l$?6JLL$K$O1F6A$rM?$ ($^$;$s! #pm3d $N6JLL$KBP7FF1MM$N8z2L$r=c?h$KF@$?$$JiP! "3lNBeojK **set pm3d depthorder** $r;H$CF/$@$5$$! #J#?t$N pm3d 6JLL$KDL>o$N **hidden3d** =hM}$rAH$_9g$o$;$kKO! "%*%W%7%g%s **set hidden3d front** $r;HMQ$7F/$@$5$$! #3l$O! "hidden3d =hM}$NA4FNMWAG$r! "pm3d 6JLL$r4^$'; D$j$NB>$NIA2hMWAG$N8e$K6/@)E*$KIA2h$9kbNG$9! #

4X?tCM$O3J;R8IN)@~$N8rE@$GI>2A$5l^$9! #8+$k3H$N=PMh$k@~J,$r5a$akH$-$O8D! 9$N4X?tCM! "$"$k$$O%G!<%?E@$N4V$O$=$N%"%k%4%j%:%'KhCF@~7AJd4V5l$^$9! #3l$O! "**hidden3d** $GIA2h$9$k>l9g$H **nohidden3d** $GIA2h$9$k>l9g$G4X?t$N8+$+1,0[Jk3H$r0UL#$7$^$9! #J<Ji$P! "8e<T$N>l9g4X?tCM$O3FI8K\E@$GI>2A5lk+iG$9! #$3$N0c$$K4X9k5DO@KD$$F$O! "0J2<;2>H: **set samples (p. 167)**, **set isosamples (p. 135)**!#

6JLL$N1#$5lkItJ,$r>C5n$9kN$K;H$olk%"%k%4%j%:%'$O! "$3$N%3%^%s%I$G@)8f5l$k$$/D+$NDI2C%*%W%7%g%s$r;}CF$$^$9! #**defaults** $r;XDj$9lP$=$liO9Y$F! "0J2<$G=RYkh&$J%G%U%)%k%H$NCM$K@_Dj$5l^$9! #**defaults** $,;XDj$5lJ$+$C$?>l9g$K$O! "L@<(E*$K;XDj5l$?%*%W%7%g%s$N$_$,1F6A$r<u$1! "$=$l0J30NbNC0JA0NCM,0z$-7Q$,l^$9! #$hCF! "$=$liN%*%W%7%g%sNCMr$$$A$$A=$@5$9k3HJ$/! "C1$K **set {no}hidden3d** N_$G1#@~=hM}$r%*%s/%*%UG-k3HKJj$^$9! #

:G=i$N%*%W%7%g%s **offset** $O'N"B&'$N@~$rIA2h$9$k@~$N@~<o$K1F6A$rM?$ ($^$9! #DL>o$O6JLL$NI=N"$r6hJI$9k?aK! "N"B&$N@~<o$O! "I=B&$N@~<o$h$j0l$DBg$-$$HV9f$N@~<o$,;Hol$^$9! #**offset** <**offset**> KhCF! "$=$NDI2C9kCM$r! "%G%U%)%k%H$N1 HO0[JkA}J,CM$KJQ9$G$-$^$9! #**nooffset** %*%W%7%g%s$O **offset 0** $r0UL#$7! "3l$OI=N"$GF1$8@~<o$r;H$&$3HKJj$^$9! #

<!$N%*%W%7%g%s$O **trianglepattern** <**bitpattern**> $G$9! #<bitpattern> $O0 $+$i7 $^$G$N?t;z$G! "%S%C%H%Q%?! <%s%H2r<a5l$^$9! #3F6JLL$O;03Q7A$KJ,3d5l$^$9$,! "$3$N%S%C%H%Q%?! <%s%N3F%S%C%H%O$=$liN;03Q7A$N3FJU$NI=<($r7hDj$7$^$9! #%S%C%H0 $O3J;R$N?eJ?JU! "%S%C%H1 $O3J;R$N?hD>JU! "%S%C%H2 $O! "85!9$N3J;R$,2 DN;03Q7A$KJ,3d$5lkH-$NBP3QJU$G$9! #%G%U%)%k%H$N%S%C%H%Q%?! <%s$O3 $G! "$3lOA4FN?eJ?JU$H?hD>JU$rI=<($7! "BP3QJU$OI=<(7J$$3Hr0UL#7^$9! #BP3QJU$bI=<(9k>l9g$O7 $r;XDj$7$^$9! #

%*%W%7%g%s **undefined** <**level**> $O! "Dj5A$5lF$$J$(7g$1$F$$k%G! <%?$^$?OLDj5A$N4X?tCM) $+! "$^$?$OM?$($il?x,y,z $NHC0O$rD6$($F$$k%G! <%?E@KE,MQ5;$k%"%k%4%j%:%'$r;X<(7^$9! #$=Nh$&$JE@$O! "$=lG$bI=<($5lF7^$&$+! "$^$?$OF~NO%G! <%?+$i<h$j=|$+l^$9! #<h$j=|$+$lF7$^$&E@$K@\$9$kA4$F$N6JLIMWAG$OF1MM$K<h$j=|$+$l! "hC$F6JLL$K7j$,@8$8$^$9! #<level> = 3 $N>l9g! "$3lO **noundefined** $HF1$8$G! "$IsJE@$b<N$Fil$^$;$s! #$3lOB>$N>l=j$G$"$ifk<oN'$NLoBj$r0z$-5/$3$7F@$kNG;HoJ$$Y$-$G$9! #<level> = 2 GOL$Dj5A$NE@$O<NFil^9,! "HC0O$rD6$($?E@$O<NFil^$;$s! #<level> = 1 GO! "3l$,%G%U%)%k%H$G9,! "HC0O$rD6$($?E@$b<NFil^$9! #

noaltdiagonal $r;XDj$9kH! **"undefined** $,M-8z$NH-(9JoA <level> $,3 GJ$$>l9g) $K5/$3$k0J2<

$N>19g$N%G%U%)%k%HGN<h07$$$rJQ99G-$^$9!#F~NO6JLL$N3F3J;R>u$NItJ,$C01lJ}$NBP3Q@~KhCF2 DN;03Q7A$KJ,3d$5$1$^$9!#DL>o$O$=$1iNBP3Q@~$NA4$F$,3J;R$KBP7FF1$8J}8~$r8~$$F$$^$9!#$b$7!"$"$k3J;R$N4 DN3QN&$A01$D$, **undefined** =hM}$KhjHj=|$+$1$F$$F!"$=$N3Q$,DL>o$NU}8~$NBP3Q@~$K>hCF$$$k>19g$O!"$=$NN>J}$N;03Q7A$,<h$j=|$+$1F7$^$$$^$9!#$7$+$7!"b7%G%U%)%k%H$N@_Dj$G$"$k**altdiagonal**$,M-8z$KJC$F$$$k>19g!"$=$N3J;RKD$$$F$OB>J}8~$NBP3Q@~$,Be$ojKA*Br$5$1!"6JLL$N7j$NBg$-$5$,:G>.$KJkh&K7$^$9!#

bentover %*%W%7%g%s$O:#EY$O**trianglepattern** HHbK5/3kJLN3Hr@)8f7^$9!#$+Jj7o$/$AcN6JLLGO!"2<$NASCII J8;z3($K=q$$?h&$K!"6JLL$N1 DN3J;R$,2 DKJ,1i$1?;03Q7A$NI=$HN"$NH?BPB&$,8+$(F7$^$&>19g(9JoA!"85$N;M3Q7A$,@^$j6J$2i1F$$$k('bent over')>19g)$,$"j^$9:

```
                                                          C----B
     85$N 4 3Q7A:       A--B       I=<($5$1$k 4 3Q7A:      |\   |
("set view 0,0")         | /|    ("set view 75,75" perhaps)  | \  |
                         |/ |                                |  \ |
                         C--D                                |   \|
                                                             A    D
```

6JLL$N3J;R$NBP3QUU$,<bitpattern> $N2 bit KhCF8+$($kh&KOJCFO$$J$>19g!">e$NBP3QUUCBOI3K$b=q$+1J$$$3HKJj!"$=$1$,7k2L$NI=<($rM}2r$7K/$$bNK7^$9!#%G%U%)%k%H$GDj5A$5$1$k**bentover** %*%W%7%g%s$O!"3Nh&$J>19g$=1rI=<(9kh&K7$^$9!#b7=$&$7?/$J$$$J$i!"**nobentover** $rA*Br$7F$/$@$5$$!#0J2<$b;2>H1#@~=hM}$N%G%b (hidden.dem)

$*$h$SJ#;($J1#@~$N%G%b (singulr.dem).

Historysize

(Hs?d>)) **set historysize N** $O!"**set history size N** $HF1$8$G$9!#**unset historysize** $O!"**set history size -1** $HF1$8$G$9!#

%3%^%s%IMzNr (history)

=q<O:

```
  set history {size <N>} {quiet|numbers} {full|trim} {default}
```

gnuplot $N=*N;;~$K%R%9%H%j%U%!%$%k$KJ]B8$9$k9T?t$r!"history size NCMK@)8B7^$9!#**set history size -1** H9kH!"%R%9%H%j%U%!%$%k$K=q$-=P$99T?t$N@)8B$,J/Jj$^$9!#

%G%U%)%k%HGO!"%3%^%s%I**history** $O3F%3%^%s%I$NA0$K9THV9f$r=PNO7^$9!#**history quiet** $O!":#2s$N<B9TKBP7FN$_HV9f$r>JN,7^9,!"**set history quiet** $O!":#8e$N9YFN**history** $NHV9f$r>JN,7^$9!#

%*%W%7%g%s**trim** $O!"8=:_$N%3%^%s%IKBP9$kA0$NF1$8$bNr:o=|9k3H$G!"%3%^%s%IMzNrFb$N=EJ#9k9T$N?t$r8:i7$^$9!#gnuplot $N%P!<%8%g%s 50JA0$G$O!"$3l,%G%U%)%k%H$N5sF0$G7?!#

%G%U%)%k%H$N@_Dj:**set history size 500 numbers trim**

8IN)@~%5%s%W%k?t (isosamples)

4X?trLLH7FIA2h9k>19g$N8IN)@~(3J;R)$NL)EY$O%3%^%s%I**set isosamples** $GJQ99$G$-$^$9!#

=q<O:

```
     set isosamples <iso_1> {,<iso_2>}
     show isosamples
```

3F6JLL%0%i%U$O<iso_1> 8D$Nu-8IN)@~$H<iso_2> 8D$Nv-8IN)@~$r;}$A$^$9!#<iso_1> N_;XDj9l$P!"<iso_2> $O<iso_1> $HF1$8CM$K@_Dj$5l^$9!#%G%U%)%k%H$G$O!"u, v $=$1$>$l10K\$NI8K\2=$,9T$ol^$9!#I8K\?t$rbC$HB?$/9lPh$j@53N$J%0%i%U$,:n$il^9,!";~4V$,$+$+$j$^$9!#3liN%Q%i%a!<%?$O!"%G!<%?%U%!%$%k$NA2h$K$O2?$b1F6A$rM?$($^;$s!#

8IN)@~HO!"6JLL$N0l$D$NG^2pJQ?t$r8GDj7F!"b&0lDNG^2pJQ?tKhCFIA$+$l$k6J@~$N3H$G$9!#8IN)@~$O!"6JLL$rI=<(9kC1=cJJ}K!$rM?$($^$9!#6JLLs(u,v) $NG^2pJQ?tu $r8GDj$9k3HGu-8IN)@~c(v) = s(u0,v) $,:n$i$l!"G^2pJQ?tv $r8GDj$9k3HGv-8IN)@~c(u) = s(u,v0) $,$G$-$^$9!#

4X?t$N6JLL%0%i%U$,1#@~=hM}J7GIA+lF$$$k>l9g!"**set samples** $O3F8IN)@~>e$GI8K\2=5l$kE@$N?t$r@)8f$7$^$9!#0J2<;2>H: **set samples (p. 167)**,**set hidden3d (p. 133)**!#Ey9b@~IA2h%k!<%A%s$O!"4X?t$NE@$NI8K\2=$O3F8IN)@~$N8rE@$G9TolkH2>Dj7F$$$kNG!"4X?t$N6JLL$HEy9b@~$N2rA|EY$rJQ99$9$kH-$O!"**isosamples** $HF1$8h&$K**samples** $rJQ99$9kN$,K>$^$7$$G7g$&!#

Jitter

=q<O:

```
set jitter {overlap <yposition>} {spread <factor>} {wrap <limit>}
           {swarm|square}
```

Nc:

```
set jitter                      # 1 J8;zI}Fb$NE@$N jitter
set jitter overlap 1.5          # 1.5 J8;zI}Fb$NE@$N jitter
set jitter over 1.5 spread 0.5  # F1>e!"$7$+$7 x $N0\F0$OH>J,I}
```

%G!<%?$N1 $D!"$^$?$ON>J}$N:BI8$,N%;6CM$K@)8B$5lF$$$k>l9g!"B?$/$NE@$,40A4$K8_$$$N?>e$K>h$C$+$k>l9g$,$"j^$9!#jitter (MI$i$.) $O!"$3li=EJkE@$r!"$=li$N:BI8$K$:$i$7CM$rM?$($k3HG=$NE@$rK<>u$K9-$2$^$9!#E@$,=E$JCF$$$k$H8+$J9?aNogCM$O!"J8;zI}C10L!"$"$k$$$OG$0U$N:BI8%*%W%7%g%s$r;H$C$F;XDj$G$-$^$9!#0J2<;2>H: **coordinates (p. 26)**!#jitter $O!"2<!85%0%i%U$N**with points** $H**with impulses** KN$_1F6A$rM?$($^$9!#

%G%U%)%k%H$Njitter F0:n$O!"E@$r x J}8~$N$_0\F0$7$^$9!#3l$O!"V%S!<%9%)!<%'(bee swarm plot)$H8F$PlkFHFC$N%Q%?!<%s$r:nj^$9!#%*%W%7%g%s$N%-!<o!<%I**square** $O!"0\F0$9$kE@$N x :BI8$K2C$($F!"**overlap** $G;XDj$7$?5wN%$@$1O>/$J$/$H$bN%$l$?JL!9$N3,AX$K$$kh&$Ky :BI8$bB7$($^$9!#

J8;zC10LGN:GBg$N0\F05wN%$O!"%-!<o!<%I**wrap** $G@)8B$r$+$1il$^$9!#

=EJj$NH=Dj4p=`$H!"MI$i$.$NBg$-$5$O!"$$$:$l$b%G%U%)%k%H$G$O1 J8;zC10L$G$"$k$3$H$KCm0U$7$F$/$@$5$$!#$h$C$F%0%i%U$N8+$?L\$O!"=PNO7A<0$N%U%)%s%H%5%$%:!"%-%c%s%P%9%5%$%:!"3HBgN($K$h$C$FJQ99$7$F$7$^$$$^$9!#$3$l$rHr$1$k$K$O!"=E$J$j$NH=Dj4p=`$ry :BI87C$NC10L(%-!<o!<%I**first**) $G;XDj$7!"E@$N%5%$%:!$H3HBg78?t$rE,@ZJCMKD4@0$7$F$/$@$5$$!#0J2<;2>H:**coordinates (p. 26)**, **pointsize (p. 165)**, **jitter (p. 136)**!#

K^Nc (key)

%3%^%s%I**set key** $O!"IA2hNN0hFb$N3F%0%i%UKBP9$k%?%$%H%k$H%5%s%W%k(@~J,!"E@!"H") $r;}$DK^Nc($^$?$OI=Bj) $rM-8z$K7^$9!#K^Nc$N5!G=$O!"**set key off** $+**unset key** H9k3HGL58zKG$-$^$9!#K^Nc$N8D!9$N9`L\$K$D$$F$O!"BP1~$9$k plot %3%^%s%I$G%-!<o!<%I**notitle** $r;HMQ$9k3HGL58zKG$-$^$9!#K^Nc$N%?%$%H%kJ8;zNs$O!"%*%W%7%g%s**set key autotitle** $d!"8D!9$N**plot** $d**splot** %3%^%s%I>e$N**title** %-!<o!<%I$G@)8f$G$-$^$9!#>\:Y$OJ2<;2>H: **plot title (p. 105)**!#

=q<O:

```
set key {on|off} {default}
      {{inside | outside | fixed}
        | {lmargin | rmargin | tmargin | bmargin}
        | {at <position>}}
      {left | right | center} {top | bottom | center}
      {vertical | horizontal} {Left | Right}
      {{no}enhanced}
      {{no}opaque}
      {{no}reverse} {{no}invert}
      {samplen <sample_length>} {spacing <line_spacing>}
      {width <width_increment>} {height <height_increment>}
      {{no}autotitle {columnheader}}
      {title {"<text>"} {{no}enhanced} {center | left | right}}
      {font "<face>,<size>"} {textcolor <colorspec>}
      {{no}box {linestyle <style> | linetype <type> | linewidth <width>}}
      {maxcols {<max no. of columns> | auto}}
```

```
        {maxrows {<max no. of rows> | auto}}
    unset key
    show key
```

K^Nc (key) $O3FMWAG$r **vertical** (=D) $+ **horizontal** (2#) $N;XDj$K=>CF=EM^$9!#**vertical** $N>l9g!"K^Nc$O 2DG=Ji$P 2,3 8D$N=DNNsr;H$$^$9!#$9Jo$A!"?bD>J}8~$N>l=j$,$"$k4V$O3FMWAG$r1 DNNsKJBY$^9,!" $=$N<!$O?7$7NsKJB$Y;O$a$^$9!#?bD>J}8~$N9T?t$O!"**maxrows** $r;H$C$F@)8B$G$-$^$9!#**horizontal** $N>l9g $O!"K^Nc$O2#$N9T?t$rJkY/>/J/7h$&$H7^$9!#?eJ?J}8~$NNs?t$O **maxcols** $G@)8B$G$-$^$9!#

%G%U%)%k%HGO!"K^Nc$O%0%i%UNN0h$NFbB&$N1&>e$N3QKCV+l^$9!#%-!<%o!<%I **left**, **right**, **top**, **bottom**, **center**, **inside**, **outside**, **lmargin**, **rmargin**, **tmargin**, **bmargin** (, **above**, **over**, **below**, **under**) $O!"%0 %i%UNN0h$NB>$N>l=j$X$N<+F0E*$JG[CVN?aK;HMQ7^$9!#K^Nc$NIA2hrI3KCV$/$+rh$j>\$7$/;X<($9k $?$a$N **at** <**position**> b"j^$9!#$3$N>l9g!"%-!<%o!<%I **left**, **right**, **top**, **bottom**, **center** $,F1MM$N4p=` E@9go;$N@_Dj$NL\E*$G;H$ol^$9!#$h$j>\$7$/$O!"0J2<;2>H **key placement (p. 138)**!#

%0%i%U$N%?%$%H%k$N9TB7$($O **Left**, **Right** (%G%U%)%k%H) $G;X<($7$^$9!#%i%Y%kJ8;zNs$H6J@~$N%5%s%W%k$O:81& F~$lBX$($k3H$,$G$-$^$9 (**reverse**) $7!"A4BN$rOHGOC`3HbG$-$^$9 (**box {...}**)!#$=NOHN@~$O!"@~<o (**linetype**), @~I} (**linewidth**)!"$"$k$$$CDj5A:Q$N%i%$%s%9%?%$%k (**linestyle**) $r;XDj$9k3HbG-$^$9!#

K^Nc$NJ8;zNs$O!"%G%U%)%k%H$G3HD%J8;zNs%b!<%I (**enhanced**) $K@_Dj$5lF$$$^9,!"3l$O%*%W%7%g%s **{no}enhanced** $GJQ9$G$-!"%-!<%N%?%$%H%k$@$1$d!"8D!9$N%0%i%UKh$KJQ9$9k3Hb2DG=$G$9!#

%G%U%)%k%HGO!"K^Nc$O0l$D$N%0%i%U$HF1;~$K:n$il^$9!#$9Jo$A!"K^Nc$N5-9f$H%?%$%H%k$O!"$=lKBP1~ 9k%0%i%U$HF1;~$KIA$+$l$^$9!#$=$l$O!"?7$7$$%0%i%U$,;~$KOK^NcN>e$KMWAG$r$+$V$;$FG[CV7&k3Hr 0UL#7^$9!#**set key opaque** $O!"K^Nc$r9YFN%0%i%U$NIA2h$,=*C?8e$K@8@.$5$;$^$9!#$3$N>l9g!"K^Nc $NNN0h$OGX7J?'GEIjDV5lFK^NcN5-9f$H%?%$%H%k$,IA$+l^$9!#$hCF!"K^Nc<+?H$O$$/D+$NIA2hMW AG$rJ$$$1#7F7^Fk3HKJj$^$9!#**set key noopaque** $G%G%U%)%k%H$KI|5"G-$^$9!#

%G%U%)%k%HGO!":G=i$NIA2h$N%i%Y%k$,K^Nc$N0lHV>e$K8=$o$l!"$=lKB3$/%i%Y%k$,$=$N2<KJBs$G9T$-$^$9!# %*%W%7%g%s **invert** $O!":G=i$N%i%Y%krK^NcN0lHV2<KCV-!"$=$l$KB3$/%i%Y%kr=$N>e$KJBYF9T$-$^$9!#$3 $N%*%W%7%g%s$O!"K^Nc$N%i%Y%k$N=DNJBS$N=gHV$r!"@Q$_>e$27A<0$N%R%9%H%0%i%`(**histograms**) $NH"$N=gHV $K9g$o$;$kH-$KJXMx$G7g$&!#

<height_increment> $O!"K^Nc$NH"$N9b$5$K2C$($?$j8:i7$?$j9k9b$5(2?J8;zJ,$+) $rI=$9?tCM$G$9!#3l $O<g$K!"K^Nc$N2s$j$KH"$rIA$/>l9g$G!"K^NcNJBS$N2s$j$N6-3&@~$rhjBg$-$/7?$$>l9gNbNG$9!#

A4BNKEOk%?%$%H%k$rK^Nc$N>e$KD1k3HbG-$^$9(**title** "<**text**>")!#C10l0zMQId(') $HFs=E0zMQId(") $N0c$$K$D$$F$O!"0J2<;b;2>H **syntax (p. 49)**!#%?%$%H%k$N9TB7$($O%G%U%)%k%HGOCfl{9go;$G!"$=lO %-!<%o!<%I **right** $d **left** $GJQ9$9k3HbG-$^$9!#

set key $N%G%U%)%k%H$O!"**bn**, **right**, **top**, **vertical**, **Right**, **noreverse**, **noinvert**, **samplen 4**, **spacing 1**, **notitle**, **nobox** $G$9!#K^NcNOHN@~<o$O%G%U%)%k%H$G%0%i%UIA2h$N3`OH$HF1$8$bN,;Hol$^$9!#**set key default** H9kH%G%U%)%k%H$N@_Dj$KLaj^$9!#

K^Nc$O!"l 9T$K1 6J@~J,$:$D$N?t9T$N$^$H$^$jH7$F=g$+l^$9!#BF9T$N1&B&KO(**reverse** $r;H$C$F$$$l$P:8 B&$K$O) $=$N6J@~$HF1$8<dN`$ND>@~$N%5%s%W%k$,0z$+$l!"B>$NB&KO **plot** %3%^%s%I$+$iF@il$kJ8;zNs (title) $,CV$+l^$9!#$3li$N9T$O!"2M6u$ND>@~$,K^Nc$N:8B&$H1&B&$rJ,$1k+Nh$&$K?tD>$K@0Ns$5l^$9!#%3%^ %s%I **set key** $G;XDj$9$k:BI8$O3N2M6u$N@~J,$N>e$NC<$N:BI8$G$9!#**plot** GOD>@~$N0lCV$r;XDj9k?aK x $Hy $@$1$r;H$$^$9!#

TeX, LaTeX 7O$N=PNO7A<0$d!"@07A>pJs$,J8;zNs$KKd$a9~$^lk=PNO7A<0$r;H$&>l9g$O!"**gnuplot** OK^NcN0L CV7haN$?$a$NJ8;zNs$NI}$rI>2A$9k3$H$7+G-$^$;$s!#$hCFK^Nc$r:8$KCV$/>l9g$O!"**set key left Left reverse** $H$$&AH9g$;$r;H$&$N$,$$$$G7g$&!#

3 <!85%0%i%U$NK^Nc (3D key)

3<!85%0%i%U(**splot**) NK^NcNG[CV$O!"%G%U%)%k%H$G$O **fixed** %*%W%7%g%s$r;HMQ7^$9!#$3lO!"0JA0NHGN gnuplot HOO[Jk5sF0G"k3$KCm0U$7F/$@$5$$!**fixed** Kh$kG[CV$O!"**inside** Kh$kG[CV$K;w$F$$$^$9 $,!"=EMW$J0c$$,0lD"j^$9!#3<!85%0%i%U$N;kE@$,2sE>$7$?$j%9%1!<%kk9kH!"$=$l$KH<$JCFIA2h$N6-3&$bJQ2=7^$9!#K^Nc$NG[CV$,**inside** $N>l9g$O!";kE@$,JQ9$9kH$-$K3liN6-3&$,0\F0$9k?$a!"K^Nc $b0\F0$7$^$9!#**fixed** $N>l9g$O!";k3Q$d%9%1!<%k$NUQ9$rL5;k$7FK^NcrG[CV9kNG!"%0%i%U$,2sE>$7Fb!" K^Nc$N0lCV$O%-c%s%P%9$N0l$D$N>l=j$K8GDj5l$?$^$^$KJj$^$9!#

J*!"2<!85%0%i%UGO!"**fixed** %*%W%7%g%s$O4 0A4$K **inside** $HF1$8$G$9!#

splot $GEy9b@~$r=q$/>l9g! "%G%U%)%k%H$G$O0 [$J$k@~<o$N8D! 9$NEy9b@~%l%Y%k$KBP7F! "JL! 9NK^NcN9 'L\$r @8@.7^$9! #$3lrJQ99$9$kKO! "0J2<;2>H:**set cntrlabel (p. 118)**!#

K^Nc$N%5%s%W%k **(key examples)**

0J2<$O%G%U%)%k%H$N0LCVKK^NcrI=< (7^$9:

```
set key default
```

0J2<OK^NcrI=< (7J$/$7$^$9:

```
unset key
```

0J2<$O%G%U%)%k%H$N(Bh0l$N) :BI87O$G$N(2,3.5,2) $N0LCV$KK^Nc$rI=< ($7$^$9:

```
set key at 2,3.5,2
```

0J2<OK^Ncr%0%i%U$N2<$KI=< (7^$9:

```
set key below
```

0J2<OK^Ncr:82<3Q$KI=< ($7! "%F%-%9%H$O:8$K9TB7$ ($G! "%?%$%H%krD$1! "@~<o3 $N300H$r=q$-$^$9:

```
set key left bottom Left title 'Legend' box 3
```

K^Nc$N<+F0%?%$%H%k **(key autotitle)**

set key autotitle $O! "K^Nc$N3F%0%i%U$r! "plot %3%^%s%I$G;HMQ7?%G! <%?%U%!%$%k$d4X?t$NL>A0$KhC$FFC Dj$9kh$&$K7^9,! "3l$,%G%U%)%k%H$N5sF0$G$9! #**set key noautotitle** $O! "$=$N<+F0E*$J%0%i%U$N%?%$ %H%kIU1rL58zK7$^$9! #%3%^%s%I **set key autotitle columnheader** $O! "3FF~NO%G! <%?$N@hF,9T$N3FNs$N %(%s%H%jr%F%-%9%HJ8;zNs$H2r<a$7! "BP1~9kIA2h%0%i%U$N%?%$%H%kH7F;HMQ7^$9! #IA2h$5lkNL$,! "J# ?t$NNs%G! <%?$N4X?t$G$"$k>l9g$O! "gnuplot OINNsr%?%$%H%k$NIA2h$K;H$ ($P$$$$N$+$o$+$j$^$;sN$G! " $=$N>l9g! "plot %3%^%s%I>e$G! "Nc$ ($P0J2<$Nh&$KL@<(E*$K%?%$%H%k$NNs$r;XDj$9kI,MW,$"$j$^$9! #

```
plot "datafile" using (($2+$3)/$4) title columnhead(3) with lines
```

Cm0U: **set key autotitle columnheader** H9kH! "$?$H$(K^Nc(key) $,**unset key** $GL58z$KJC$F$$$k>l 9gGb! "l NsL\$r%G! <%?H7FGOJ$/! "Ns$N%X%C%@H7$F=hM}$7$^$9! #3l$O! "**stats** $d**fit** Nh$&KK^Ncr :niJ$$%3%^%s%IKBP7FbF1MM$G$9! #

$^$?! "$$$:lN>l9gGb! "plot %3%^%s%I$KL@<(E*$J**title** $d**notitle** %-! <%o! <%I$r;XDj$9lP! "$=$l$O**set key autotitle** Kh$k@_Dj$h$jM%@h$5l^$9! #

K^Nc$NG[CV **(key placement)**

3N@aGO! "<+F0E*$K@8@.$5lkDL>oNK^NcNG[CV$N@bL@$r7^$9! #Fs<!E*$JK^Nc$N9=@.$d! "B>$N>l=j$X$NIA 2h%?%$%H%k$NG[CV$K$D$$$F$O! "0J2<;2>H:**multiple keys (p. 139)**!#

G[CV$N;EAH$_$rM}2r$?aN:G$b=EMW$J35G0$O! "%0%i%UNN0h! "$9JoAFb+30$+$H$$$&3H$H! "%0%i%UNN0h$N6- 3&HN4V$NM>Gr(margin) $r9M$(k3HG$9! #%0%i%UNN0h$K1hCF! "%-! <%o! <%I**left/center/right** (l/c/r) $H **top/center/bottom** (t/c/b) $O! "K^Nc(key) r=$NNN0h$NFbB&NI3KCV$/$+$r@)8f7^$9! #

%b! <%I**inside** GO! "K^Nc$O%-! <%o! <%I**left** (l), **right** (r), **top** (t), **bottom** (b), **center** (c) KhCF0J2<$N ?^$Nh&$KIA2hNN0h$N6-3&$K8~$+CF=PNO5l$^$9:

```
t/l   t/c   t/r

c/l    c    c/r

b/l   b/c   b/r
```

%b!<%I **outside** Gb>e$HF1MM$K<+F0E*$KG[CV$5$1$^9,!"%0%i%UNN0h$N6-3&$KBP7F!"$H$$$&hjb‘7m 8+$?L\$KBP7F!"$H$$$&Y-G7g&!#9JoA!"%0%i%US N6-3&$O!"%0%i%UNN0h$N30NK^NcN>l=j$r:n$k$?$a $K!"F‘bB&$K0\F0$9$k3HKJj^$9!#$7$+$7!"$3$1$OB>$N%i%Y%k$N<YKb$r7^$9$7!"b7$+$7$?$i=PNO%G%P%$ %9KhCF$O%(%i!<$r0z$-5/$3$9$+b7$1$^;$s!#K^Nc$N=PNO$K9g$o$;$FINIA2h6-3&$,0\F0$9k+$O!">e$K =RY?K^Nc$N0LCV!"$*hS=E$M>e$2$NJ}8~$K0MB8$7$^$9!#4J}8~$NCf?4B7$($N%*%W%7%g%s(**center**) $K4X$7$F $O!"$I$N6-3&$,F0$/$N$+$K4X9k$"$$^$$5O"j^$;$s$,!"3Q$X$N=PNO$N%*%W%7%g%sKD$$F$O!"=E$M>e$2 J}8~$,**vertical** $N>19g$O:8$^$?$O1&$N6-3&$,!"**horizontal** $N>19g$O>e$^$?$O2<$N6-3&$,!"$=1>$1FbB&$KE,@Z$K0\F0$7$^$9!#

M>Gr(margin) $N=q$-J}$O!"=E$M>e2NJ}8~K+$+$o$J$$<+F0E*$JG[CV$r2DG=K7$F$$$^$9!#**lmargin** (lm), **rmargin** (rm), **tmargin** (tm), **bmargin** (bm) N&AN01Dr!"L7=b7J$$1J}8~$N%-!<%o!<%I$HAH$_9g$o $;$F;HMQ7?>19g!"0J2<$N?^K<($7$?>l=j$KK^Nc$,G[CV$5$1$^$9:

```
          l/tm   c/tm   r/tm

     t/lm                    t/rm

     c/lm                    c/rm

     b/lm                    b/rm

          l/bm   c/bm   r/bm
```

%-!<%o!<%I **above** $H **over** $O **tmargin** $HF1$80UL#$G$9!#0JA0$N%P!<%8%g%s$H$N8_49@-$N$?$a$K!"**above** $H **over** $Ol/c/r $d=E$M>e$2J}8~$N%-!<%o!<%IJ7$G;HMQ$9kH!"**center** $G **horizontal** $r;H$$^$9!#%-!<%o!<%I **below** $H **under** $O **bmargin** $HF1$80UL#$G$9!#8_49@-N?aK!"**below** $H **under** $Ol/c/r $d=E$M>e$2J}8~$N%-!<%o!<%IJ7$G;HMQ$9kH**center** $G **horizontal** $r;H$$^$9!#$5iK!"**outside** $b8_49@-$N$?$a$Kt/b/c $d=E$M>e$2J}8~$N%-!<%o!<%I$,$J1l$P!"**top**, **right**, **vertical** (D^$j>e$Nt/rm $HF1$8) $r;HMQ$7$^$9!#

K^Nc$N0LCV(<position>) $O!"0JA0$N%P!<%8%g%s$HF1MMC1$Kx,y,z $r;XDj$7Fb$$$$G9,!"$=$N:G=i$N%5%s %W%k9T$N:BI8$N:BI=7O$rA*Br9k$?$a$N5$D$N%-!<%o!<%I(**first**, **second**, **graph**, **screen**, **character**) $rF,$KD1k3HbG-$^$9!#>\:Y$O!"0J2<;2:H **coordinates (p. 26)**!#<position> $,M?$(i1$?>19g$N **left**, **right**, **top**, **bottom**, **center** $N8z2L$O!"label %3%^%s%I$GG[CV$5$1$kJ8;zNs$N>19g$HF1$8$h$&$K4p=‘0LCV$N0L CVB7$($K;HMQ$5$1$^$9!#$9Jo$A!"**left** OK^Nc,<position> $N1&$KCV$+$1$F:89g$o$;$G=PNO$5$1$^$9!#B>$N >19g$bF1MM$G$9!#

K^Nc$N%5%s%W%k (key samples)

%G%U%)%k%HGO!"%0%i%U>e$N3FIA2h$OK^Nc(key) FbK=1>1KBP1~9k%(%s%H%j$r@8@.$7$^$9!#3N%(%s%H %jKO!"IA2h%?%s%H%k$H!"$=$NIA2h$G;Ho1kN$HF1$8?’!"F1$8EI$jDV$7B0@-$Khk@~/E@/H"$N%5%s%W%k$,F~j^$9!#font $H textcolor B0@-$O!"K^NcFb$K8=$o1k8D!9$NIA2h%?%s%H%k$N8+$?L\$r@)8f7^$9!#textcolor $r"variable" $K%;%C%H$9kH!"K^Nc$N3F%(%s%H%j$NU8;zNs$O!"IA2h%0%i%U$N@~dEIjDV$7?’$HF1$8?’$KJj $^$9!#$3$1$O!"0JA0$N$"$k;~4|$N gnuplot $N%G%U%)%k%H$N5sF0$G$7?!#

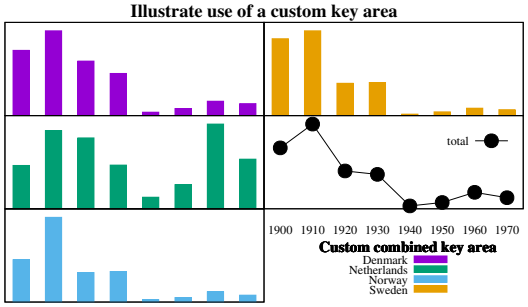
%0%i%U6J@~$N%5%s%W%k$N@~J,$ND9$5$O **samplen** $G;XDj$G$-$^$9!#$=$ND9$5$OL\@9$j$ND9$5$H!"<sample_length>*(J8;zI}) NDBH7F7W;;$5$1$^$9!#**sapmlen** $O!"%0%i%U>e$NE@$N%5%s%W%k$N0LCVKb($b $7%5%s%W%k@~J,<+?H$,=q$+$1JJ$/$F$b)1F6A$rM?$($F$$$^$9!#$=1O!"E@$N5-9f$O%5%s%W%k@~J,$NCf{$K=q$+ 1k$?aG$9!#

K^Nc$N%Y!<%9%i%s4V3V$O!"8=:_$N%U%)%s%H%5%$:KBP9$k!V1 9T6u$-!W(single space) KJCF$$$^$9!#$3$1 $O**set key spacing** <**line-spacing**> $GJQ99$G$-$^$9!#

<width_increment> $O!"J8;zNs$ND9$5$K2C$($?$j8:$i7?j9$kI}(2?J8;zJ,$+) $rI=$9?tCM$G$9!#$3$1$O!" K^Nc$K3OOH$r=q$-!"U8;zNs$K@)8fJ8;z$r;H$&>19g$K$@$1M-MQG7g&!#**gnuplot** $O3OOH$NI}$r7W;;$9kH$-$O!" %i%Y%kJ8;zNs$NJ8;z?t$rC1=c$K?t$(k@1JNG!"$=$1$r=$@5$9$kNK;H$($^$9!#

J#?tNK^NcN=8Ls (multiple keys)

3F%0%i%U$N%?%$%H%k$r!"$9YF<+F0E*$K@8@.$5lkK^Nc (key) Fb$KI=<($5$;$kBeoj$K!"I=Bj$dK^Nc$r<jF0$GG[CV9k3H$,$G$-$^$9!#$3lKhj!"Nc$($PB?=EIA2h%b!<%I (multiplot) GN3F%0%i%UMWAGKBP9$kI=Bj$r1 2U=j$K=8Ls$7$F:n$k3H$,$G$-$kh&KJj^$9!#0J2<$O$=$N0lNc:




```
set multiplot layout 3,2 columnsfirst
set style data boxes
plot $D using 0:6  lt 1 title at 0.75, 0.20
plot $D using 0:12 lt 2 title at 0.75, 0.17
plot $D using 0:13 lt 3 title at 0.75, 0.14
plot $D using 0:14 lt 4 title at 0.75, 0.11
set label 1 at screen 0.75, screen 0.22 "Custom combined key area"
plot $D using 0:($6+$12+$13+$14) with linespoints title "total"
unset multiplot
```

%i%Y%k (label)

set label %3%^%s%I$r;H$&3HKhCFG$0U$N8+=P$7 (label) $r%0%i%UCf$KI=<(9k3H$,$G$-$^$9!#=q<0:

```
set label {<tag>} {"<label text>"} {at <position>}
          {left | center | right}
          {norotate | rotate {by <degrees>}}
          {font "<name>{,<size>}"}
          {noenhanced}
          {front | back}
          {textcolor <colorspec>}
          {point <pointstyle> | nopoint}
          {offset <offset>}
          {boxed}
          {hypertext}
unset label {<tag>}
show label
```

0ICV(<position>) $Ox,y $+x,y,z NIAi$+$G;XDj$7!":BI87O$r;XDj9kKO$=$N:BI8$NA0$K **first**, **second**, **polar**, **graph**, **screen**, **character** rD1^$9!#>\:Y$O!"0J2<;2>H: **coordinates (p. 26)**!#

%?%0(<tag>) $O8+=P$7$r<1JL$9k?aN@0?tCM$G$9!#%?%0$r;XDj$7J+O?>19gL$;HMQ$NbN$G:G$b>.$5$$CM$,<+F0E*$K3djEvFil$^$9!#8=:_$N8+=P$7$rJQ9$9kH$-$O$=$N%?%0$HJQ9$7$?$9'L\$r;XDj7F **set label** %3%^%s%I$r;H$$^$9!#

<label text> $OJ8;zNsDj?t$G$b9=$$^;s7!"J8;zNsJQ?t!"$^?$OJ8;zNsNCMr;}$D<0$G$b9=$$^;$s!#0J2<;2>H: **strings (p. 47)**, **sprintf (p. 32)**, **gprintf (p. 130)**!#

%G%U%)%k%HGO!";XDj7?E@x,y,z $K8+=P$7$NJ8>O$N:8C<,Mhkh$&$KG[CV5l$^$9!#x,y,z $r8+=P$7NI3KB7$($k$+$rJQ9$9$kKOJQ?t<justification> $r;XDj$7$^$9!#3lKO!"**left**, **right**, **center** $N$$:1+$,;XDj$G$-!"$=l>$lJ8>O$N:8!"1&!"?:Cf$,;XDj$7$?E@$KMhkh$&$KG[CV5kh&KJj^$9!#IA2hHO0O$N30KO$_=P$kh&$J;XDj$b5v5l$^$9$,!":BI8<4$N8+=P7dB>$NJ8;zNs$H=EJk>19g$,$"j^$9!#

H"OHIU$-$N%i%Y%k$r%5%]!<%H$9$k=PNO7A<0$b$"$j$^$9!#0J2<;2>H:**set style textbox (p. 175)**!#2sE>5;$?J8;zNs$NH"IU1O!"9YFN=PNO7A<0$,2DG=$Jo1GO$"$j$^;$s!#

rotate $r;XDj$9kH%i%Y%k$O=D=q$-KJj^$9!#**rotate by** <degrees> $r;XDj$9kH!"J8;zNs$N%Y!<%i%$%s$r;XDj$7$?3Q$K@_Dj7^$9!#$?$@$7!"J8;zNs$N2sE>$r%5%]!<%H7F$$$J$$=PNO7A<0b"j^$9!#

%U%)%s%HH=$N%5%$%::$O!"=PNO7A<0$,%U%)%s%H$N@_Dj$r%5%]!<%H7F$$$1$P **font** "<name>{,<size>}" $GL@<(E*$KA*BrG-$^$9!#$=$&GJ$$=PNO7A<0GO!"%G%U%)%k%H%U%)%s%H$,;H$ol^$9!#

DI>o$O!"8=:_$N=PNO7A<0$,%5%]!<%H$P!"%i%Y%kJ8;zNs$NA4$F$NJ8;zNs$K3HD%J8;zNs=hM}%b!<%I(enhanced text mode) $,;HMQ$5l^$9!#**noenhanced** $r;HMQ$9k3HG!"FCDj$N%i%Y%k$r3HD%J8;zNs=hM}$+$i30$9$3H,

G-$^$9!#3l$O!"%i%Y%k$,Nc$($P%"%s%@!<%9%3%"(_) $r4^$s$G$$$k>l9gJI$KM-MQ$G$9!#0J2<;2>H: **enhanced text (p. 27)**!#

front $,M?$(ilkH!"8+=P7O%G!<%?$N%0%i%U$N>e$K=q$+l^$9!#**back** $,M?$(ilkH(%G%U%)%k%H)!"8+=P7O%0%i%U$N2<$K=q$+$l$^$9!#**front** $r;H$&3H$G!"L)$J%G!<%?KhCF8+=P7,1#5lF7$^$&3HrHr1k3H,=EMh$^$9!#

textcolor <**colorspec**> $O8+=P$7J8;zNs$N?'$rJQ9$7$^$9!#<colorspec> $O@~<o!"rgb ?'!"$^$?$O%Q%l%C%HXN3dEv$N$$:l+$,;XDj$G$-$^$9!#0J2<;2>H: **colorspec (p. 41)**, **palette (p. 160)**!#**textcolor** $O!"**tc** $H>JN,2DG=$G$9!#

‘tc default‘ $O!"J8;z?'$r%G%U%)%k%HK7$^$9!#
‘tc lt <n>‘ $O!"J8;z?'$r@~<o <n> (line type) $HF1$8bNK7$^$9!#
‘tc ls <n>‘ $O!"J8;z?'$r line style <n> $HF1$8bNK7$^$9!#
‘tc palette z‘ $O!"8+=P$7$N z $N0LCV$KBP1~7?%Q%l%C%H?'KJj^$9!#
‘tc palette cb <val>‘ $O!"?'8+K\ (colorbar) $N <val> $N?'$KJj$^$9!#
‘tc palette fraction <val>‘ (0<=val<=1) $O!"[0:1] $+$i ‘palette‘ $N 3%?'3,D4/%+%i!<$X$N<IA|$KBP1~7??'KJj^$9!#
‘tc rgb "#RRGGBB"‘, ‘tc rgb "0xRRGGBB"‘ $O!"G$0U$N 24-bit RGB ?'$r@_Dj7^$9!#
‘tc rgb 0xRRGGBB‘ $bF1$8$G$9 (16 ?JDj?tCMKO0zMQId$OITMW)!#

<pointstyle> $,%-!<%o!<%I **lt**, **pt**, **ps** HHbKM?$($ilk$H(0J2<;2>H: **style (p. 106)**)!"M?$($il?%9%?%$%k$H!"M?$($il?@~<o$N?'$G8+=P$70LCV$KE@(point) $,IA2h$5$l!"8+=P$7J8;zNs$O>/$70\F0$5$l$^$9!#3N%*%W%7%g%s$O **mouse** 3HD%$5l?=PNO7A<0GN%i%Y%k%NG[CV$K!"%G%U%)%k%H%G;HMQ$5lF$$$^$9!#8+=P$7J8;zNs6a$/$NE@$NIA2h5!G=$r off (3l$,%G%U%)%k%H) K9kK$O!"**nopoint** $r;HMQ$7F/$@$5$$!#

$=$N0\F0$O!"%G%U%)%k%H$G$O!"<pointstyle> $,M?$(illP **pointsize** $NC10L$G1,1 $G!"<pointstyle> $,M?$(il$F$$$J1l$P0,0 $G$9!#0\F0$O!"DI2C$N **offset** <**offset**> Gb@)8fG-$^$9!#$3$3$G!"<offset> $Ox,y $+$^$?$Ox,y,z $N7A<0$G9,!"$=$l$K:BI87O$rA*Br7F!"$=$NA0$K **first**, **second**, **graph**, **screen**, **character** $N$$:l+rD1k3HbG$-$^$9!#>\:Y$O!"0J2<;2>H: **coordinates (p. 26)**!#

b70l$D($"$k$$$O$=$l0J>e$N)<4$,;~4V<4G"$k>l9g!":BI8$O **timefmt** $N=q<0$K7?;,CF0zMQId$G0O$^l?J8;zNs$GM?$(kI,MW,$"$j$^$9!#0J2<;2>H: **set xdata (p. 182)**, **set timefmt (p. 178)**!#

set label $K4X$7$FM-8z$J*%W%7%gsO!"IA2h%9%?%$%k **labels** GbM-8z$G$9!#0J2<;2>H: **labels (p. 64)**!#3N>l9g!"**textcolor**, **rotate**, **pointsize** $NB0@-$N8emK%-!<%o!<%I **variable** rD1F!"$=$lir8GDjCMGJ$$$h$&$K9k3H$,2DG=$G$9!#$=$N>l9g8D!9$N%i%Y%k$NBP1~$9$kB0@-CM$O!"**using** ;XDj$NDI2CNs$Khj7hDj7^$9!#

Examples

Nc:

(1,2) $N0LCV$K"y=x" $H=q$/>l9g:

```
set label "y=x" at 1,2
```

Symbol %U%)%s%H$N%5%$%:24 $N"%7%0%^"(&2) $r%0%i%U$N?Cf$K=q$/>l9g:

```
set label "S" at graph 0.5,0.5 center font "Symbol,24"
```

8+=P$7"y=x^2" $N1&C<$,(2,3,4) KMhkh&$K$7!"%?%0HV9fH7$F3 $r;H$&>l9g:

```
set label 3 "y=x^2" at 2,3,4 right
```

$=$N8+=P7rCf1{B7$($K9k>l9g:

```
set label 3 center
```

%?%0HV9f2 $N8+=P$7$r:o=|$9$k>l9g:

```
unset label 2
```

A4FN8+=P7r:o=|9k>l9g:

```
unset label
```

A4FN8+=P7r%?%0HV9f=g$KI=< ($9$k>l9g:

```
     show label
```

x <4$,;~4V<4$G$"$k%0%i%U$K8+=P$7$r@_Dj$9$kNc:

```
     set timefmt "%d/%m/%y,%H:%M"
     set label "Harvest" at "25/8/93",1
```

%G!<%?$H!"?7$?KEvFOail$?%Q%i%a!<%?$KhkEvFO$a4X?t$rIA2h7?$$>l9g!"**fit** $N8e$G$+$D **plot** $NA0$K0J2<$r<B9T$7$^$9:

```
     set label sprintf("a = %3.5g",par_a) at 30,15
     bfit = gprintf("b = %s*10^%S",par_b)
     set label bfit at 30,20
```

EvFOailk%Q%i%a!<%?ND$$$?4X?t$ND j5A<0$rI=< (7?$$>l9g:

```
     f(x)=a+b*x
     fit f(x) 'datafile' via a,b
     set label GPFUN_f at graph .05,.95
     set label sprintf("a = %g", a) at graph .05,.90
     set label sprintf("b = %g", b) at graph .05,.85
```

8+=P$7J8;zNs$r>.$5$$E@$+$i>/7@$10\F0$9$k>l9g:

```
     set label 'origin' at 0,0 point lt 1 pt 2 ps 3 offset 1,-1
```

pm3d $r;H$C$?3<!85$N%+%i!<6JLI>eN"$kE@$N0lCV$K!"$=$Nz $NCM($3$N>l9g5.5) $KBP1~$7$??'$r8+=P$7J8;zNs$KD1$k>l9g:

```
     set label 'text' at 0,0,5.5 tc palette z
```

%O%$%Q!<%F%-%9%H **(hypertext)**

=PNO7A<0NCfK$O(wxt, qt, svg, canvas, win) %0%i%U>e$NFCDj$N0lCV$d%-%c%s%P%9Fb$N$=$NB>$NItJ,$K%O%$%Q!<%F%-%9%H$rE=jIU1k3H,G-kbN,$"$j$^$9!#%^%&%9r$=$N>l=j$K;}$C$F$$$/$H!"U8;zNs$r4^$'H"$,%]%C%W%"%C%W5l$^$9$,!"%O%$%Q!<%F%-%9%H$r%5%]!<%H$7$J$$=PNO7A<0GO!"$=$l$O2?$bI=<(7^$;$s!#%O%$%Q!<%F%-%9%H$rE=jIU1kK$O!"$=$N%i%Y%k$N **point** B0@-$rM-8z$K9kI,MW$,$"j^$9!#Nc:

```
     set label at 0,0 "Plot origin" hypertext point pt 1
     plot 'data' using 1:2:0 with labels hypertext point pt 7 \
          title 'mouse over point to see its order in data set'
```

;n83CJ3,$N5!G=(;EMM$N:Y$+$$ItJ,$OJQ99$N2DG=@-$"$j): "image{<xsize>,<ysize>}:<filename>{\n<caption text>}" $N7A<0$NJ8;zNs$O%]%C%W%"%C%W%\%C%/%9Fb$G2hA|%U%!%$%k$rI=<(5;kh$&$K7$^$9!#%5%$%:;XDj$Khj%G%U%)%k%H$N%5%$%:300x200 $rJQ99$G$-$^$9!#G'<1$9$k2hA|%U%!%$%kN7?$O=PNO7A<0$KhC$F0c$$$^9,!"*.png $O>o$K OK $G$9!#2hA|%U%!%$%kL>$N8emK=q$$$?J8;zNs$O!"DL>o$N%O%$%Q!<%F%-%9%H$HF1MM$KI=<($7$^$9!#

@<o (linetype)

%3%^%s%I **set linetype** $O3F<oIA2h$K;HMQ5l$k4pK\E*$J@<o(linetype) $r:FDj5A$9k3Hr2DG=K7$^$9!#3N%3%^%s%I$N%*%W%7%g%s$O!""set style line" NbNHA4$/F1$8$G$9!#%i%$%s%9%?%$%k$H0c$&H3mO!"**set linetype** Kh$k:FDj5A$O1JB3E*J3HG!"3l$O **reset** $N1F6A$r<ul^$;$s!#

Nc$($P!"@<o1 $H2 $r0J2<$Nh&$K:FDj5A$7F_$^$9:

```
     set linetype 1 lw 2 lc rgb "blue" pointtype 6
     set linetype 2 lw 2 lc rgb "forest-green" pointtype 8
```

9k$H!"$=li$N@<o$N:G=i$N8+$?L\$,I&G"C?$+$K4Xci$:!"lt 1 $r;HMQ$7$F$$$k9YFNbN$,!"$=$N8e$OB@$$@D@~KJj^$9!#$3$N@<A$O!"lt 1 KhCF:nil$?0l;~E*$J%i%$%s%9%?%$%k$ND j5A$Nh&JbNKbE,MQ5l^$9!#F1MM$K!"@<o2 $O!"$=$N8e$OB@$$NP@~KJj^$9!#

3N;EAH$_$O!"gnuplot $G;HMQ$9$k@<oNs$KBP9k8D?ME*$J9%$_$r@_Dj$9kNKb;H$($^$9!#$=lr9T$&$K$O!"<B9T;~i4|2=%U%!%$%k~/.gnuplot $K!"Nc$($P0J2<$Nh&J=lMQN%3%^%s%INs$rDI2C$9k3Hr*4+a7$^$9:

```
set linetype 1 lc rgb "dark-violet" lw 2 pt 1
set linetype 2 lc rgb "sea-green"   lw 2 pt 7
set linetype 3 lc rgb "cyan"        lw 2 pt 6 pi -1
set linetype 4 lc rgb "dark-red"    lw 2 pt 5 pi -1
set linetype 5 lc rgb "blue"        lw 2 pt 8
set linetype 6 lc rgb "dark-orange" lw 2 pt 3
set linetype 7 lc rgb "black"       lw 2 pt 11
set linetype 8 lc rgb "goldenrod"   lw 2
set linetype cycle 8
```

3&9k$H!"$"J?$, gnuplot $r<B9T$9kEYK@~<oO3$1$iNCMK=i4|2=$5$1$^$9!#@~<oO"J?$,9%$'?t$@$1=i4|2=G-$^$9!#:FDj5A7J$>19g$O!"$=$1$O%G%U%)%k%H$NB0@-$r;}$AB3$1$^$9!#Nc$($P@~<o3 $r:FDj5A$+$i30$;$P!"$=1O@D$G pt 3, lw 1 HJj^$9!#J*!"%5%s%W%k%9%/%j%W%H$N:G=i$N2,3 $N9T$O!"8E$$%P!<%8%g%s$N gnuplot GO%9%-%C%W5;k?aNJ]81$G$9!#

F1MM$N%9%/%j%W%H%U%!%$%k$G!"%F!<%^%Y!<%9$N?'A*Br$NDj5A$r9TC?$j!"FCDj$NIA2h%?%$%W!"$"$k$$$OFCDj$N=PNO7A<0MQ$K?'$r%+%9%?%^%$:7?j9k3Hb2DG=$G$9!#

%3%^%s%I **set linetype cycle 8** $O!"Bg$-$JHV9f$N@~<oKBP7FO?'$d@~I}$K4X9k3liNDj5A$r:EMxMQ$9k3Hr gnuplot KEA($^$9!#9JoA!"@~<o (linetype) 9-16, 17-24 EyKBP7FO!"3l$HF1$8?'!"I}NNsr;HMQ7^$9!#$?$@$7!"E@$NB0@-(pointtype, pointsize, pointinterval) $O!"$3$N%3%^%s%I$NlF6A$O<u$1$^$;$s!# **unset linetype cycle** O3$N5!G=$rL58zK7$^$9!#Bg$-$J@~<oHV9f$N@~$NB0@-$rL@<(E*$KDj5A7?>19g$O!"$=lO>.$5$$HV9f$N@~<o$NB0@-$N:EMxMQ$hjbM%@h5l$^$9!#

Bh 2 <4HNBP1~ (link)

=q<0:

```
set link {x2 | y2} {via <expression1> inverse <expression2>}
unset link
```

%3%^%s%I **set link** $O!"x<4$Hx2<4!"$^$?$Oy<4$Hy2<4$N4V$NBP1~$r@_Dj$7$^$9!#<expression1> $O!"Bh1<4$N:BI8$rBh2<4$K<IA|9k?t<0G9$,!"<expression2> $OBh2<4$N:BI8$rBh1<4$K<IA|9k?t<0$G$9!#

Nc:

```
set link x2
```

3l$O!"$3$N%3%^%s%I$N:G$bC1=c$J7A<0$G!"x2<4$rHOOO(range) $b?-=L(scale) $bJ}8~$bx<4$HA4$/F1$8$K7^$9!#**set xrange**, **set x2range** $d**set auto x** JI$N%3%^%s%I$O!"3N>19gx<4Kbx2<4Kb:nMQ7^$9!#

```
set link x2 via x**2 inverse sqrt(x)
plot "sqrt_data" using 1:2 axes x2y1, "linear_data" using 1:2 axes x1y1
```

3N%3%^%s%I$O!"x<4$Hx2<4$N!"=gJ}8~$H5UJ}8~$NBP1~$r@_Dj7F$$$^$9!#=gJ}8~$NBP1~$O!"x2<4$N9o$_%i%Y%k$H!"%^%&%9$Nx2:BI8$r@8@.9kNK;H$$!"5UJ}8~$NBP1~$O!"x2<47O$G;XDj$5l?:BI8$rIA2h$9kN$K;H$$$^$9!#$3$NBP1~$O!"HsIi$Nx:BI8$KN_M-8zG"k3HKCm0U7F$/$@$5$$!#y2<4$KBP1~$5$;$?>19g!"<expression1> $H<expression2> KO2>JQ?tH7$F y $r;H$&I,MW$,$"j^$9!#

Lmargin

%3%^%s%I **set lmargin** $O:8$NM>Gr$N%5%$:$r%;%C%H$7$^$9!#▶\:Y$O!"0J2<;2>H: **set margin (p. 145)**!#

FI$_9~$_8!:w%Q%9 (loadpath)

loadpath $N@_Dj$O!"**call**, **load**, **plot**, **splot** %3%^%s%I$N%G!<%?%U%!%$%k!"%3%^%s%I%U%!%$%k$N8!:w%Q%9$rDI2CDj5A$7$^$9!#%U%!%$%k,8=:_$N%G%#%l%/%H%j$K8+$D$+$iJ+$C?>19g!"**loadpath** $N%G%#%l%/%H%j,8!:w$5l^$9!#

=q<0:

```
set loadpath {"pathlist1" {"pathlist2"...}}
show loadpath
```

%Q%9L>$CC10l$N%G%#%l%/%H%jL>!"$^$?$QJ#?t$N%Q%9L>$N%j%9%H$H7FF~NC7^$9!#J#?t$N%Q%9$+$iJk%Q%9%j%9%H$O OS 8GM-$N%Q%96h@Z$j!"Nc$($P Unix GC%3%m%s(':'), MS-DOS, Windows, OS/2 GC%;%_%3%m%s(';') Ey$G6h@Z$j$^$9!#**show loadpath**, **save**, **save set** %3%^%s%I$O!"OS 8GM-$N%Q%96h@Zjr%9%Z!<%9(' ') GCV-4$9($^$9!#

4D6-JQ?t GNUPLOT_LIB $,@_Dj$5lF$$k>19g!"$=$NFbMF$O **loadpath** $KDI2C$5l^9,!"**show loadpath** $O!"**set loadpath** $HGNUPLOT_LIB NCMrJL!9$KI=<(7^$9$7!"**save**, **save set** %3%^%s%I$O!"GNUPLOT_LIB NCMNJ}$OL5;k7^$9!#

%m%1!<%k (locale)

locale $N@_Dj$O **{x,y,z}{d,m}tics** $,=q$/F|IU$N8@81$r7hDj7^$9!#

=q<0:

```
set locale {"<locale>"}
```

<locale> KO%$%s%9%H!<%k$5l?%7%9%F%'$G;H$&3H$N=PMh$kG$0U$N8@81$r;XDj$G$-$^$9!#2DG=$J%*%W%7%g%sKD$$F$O%7%9%F%'$N%I%-%e%a%s%H$r;2>H$7F$/$@$5$$!#%3%^%s%I **set locale** "" $O!"4D6-JQ?t LC_TIME, LC_ALL, $^$?$OLANG $+$i%m%+!<%kNCMr7hDj$7h$&H7$^$9!#

>.?tE@$K4X$9$k locale $rJQ99$7$?$$>19g$O!"0J2<;2>H: **set decimalsign (p. 125)**!#J8;z%(%s%3!<%I$r8=:_$N%m%+!<%kNbNKJQ99$7$?$$>19g$O!"0J2<;2>H:**set encoding (p. 127)**!#

BP?t<4 (logscale)

=q<0:

```
set logscale <axes> {<base>}
unset logscale <axes>
show logscale
```

$3$3$G!"<axes>(<4)$O!"**x**, **x2**, **y**, **y2**, **z**, **cb**, **r** NG0U$N=g=x$NAH$_9g$;$,2DG=$G$9!#<base> $O!"BP?tL\@9$j$ND1$G$9(%G%U%)%k%H$ND1$O10)!#<4$r;XDj7J$+$C$?>19g$O!"**r** 0J30N9YF$N<4$,BP>]HJj^$9!#%3%^%s%I **unset logscale** $O!"$9YF$N<4$NBP?tL\@9jr2r=|7^$9!#BP?t<4$KBP7FD1i1$kL\@9$j$N9o$_$O!"Ey4V3V$GOJ$$$3HKCm0U7F$/$@$5$$!#0J2<;2>H: **set xtics (p. 186)**!#

Nc:

x, z N><4KD$$$FBP?tL\@9jr@_Dj9k:

```
set logscale xz
```

y <4KD$$$FD12 H9$kBP?tL\@9$j$r@_Dj$9$k:

```
set logscale y 2
```

pm3d plot MQ$Kz $H?'$N<4$KBP?tL\@9$j$r@_Dj$9$k:

```
set logscale zcb
```

z <4$NBP?tL\@9$j$r2r=|$9$k:

```
unset logscale z
```

%^%/%m (macros)

8=:_$N%P!<%8%g%s$Ngnuplot GO!"%^%/%mCV49$O>o$KM-8z$G$9!#%3%^%s%I%i%$%sFb$N@<stringvariablename>$N7A<0$NIntJ,J8;zNs$O!"J8;zNsJQ?t<stringvariablename> $K4^$^lk%F%-%9%HJ8;zNsKCV-49$($il^$9!#0J2<;2>H: **substitution (p. 48)**!#

3 <!85:BI87O (mapping)

%G!<%?$, **splot** $K5eLL:BI8$dl_Cl:BI8$GM?$ (il$?>l9g!"**set mapping** %3%^%s%I$O **gnuplot** K=lrIN h&$K07$&$+$r;XDj9kNK;Hol$^$9!#

=q<0:

```
set mapping {cartesian | spherical | cylindrical}
```

%G%U%)%k%HGO%+!<%F%7%"%s:BI8(DL>o$Nx,y,z :BI8) $,;H$ol^$9!#

5eLL:BI8GO!"%G!<%?$O2 D+3 DNNs($^$?O=$N8D?t$N **using** %(%s%H%j) H7$FM?$(il$^$9!#:G=i$N2 DO!"**set angles** $G@_Dj$5l?C10LGNJ}0L3Q(theta) $H6D3Q(phi) ($9Jo$A"7PEY" $H"0^EY") H_$J$5 l^$9!#H>7Br $O!"$b$73 NsL\$N%G!<%?$,$"lP$=$l$,;H$o$l!"$b7J1l$P1 $K@_Dj$5l^$9!#3FJQ?t$N x,y,z HNBP1~$C0J2<$NDLjG$9:

```
x = r * cos(theta) * cos(phi)
y = r * sin(theta) * cos(phi)
z = r * sin(phi)
```

3l$O!""6K:BI87O" $H$$$&hj!"$`'$7$m"CO3X>e$N:BI87O"(0^EY!"7PEY) $KAjEv$9k3HKCm0U7F$/$@$5$$(9JoA!"phi $Oz<4$HJ93Q!"$H$$$&hj@VF;$+$i7WC?6D3Q!"KJj^$9)!#

1_Cl:BI8GO!"%G!<%?Od$Oj2 D+3 DNNs$GM?$(il!":G=i$N2 DOtheta (**set angle** $G;XDj$5l?C10L$N) $Hz $H8+$J5l$^$9!#H>7Br $O5eLL:BI8$N>l9g$HF1MM!"3 NsL\$N%G!<%?$,$"lP$=$l$,!"$J1l$P1 $H@_Dj$5l^$9!#3FJQ?t$Nx,y,z HNBP1~$C0J2<$NDLjG$9:

```
x = r * cos(theta)
y = r * sin(theta)
z = z
```

mapping $N8z2L$O!"**splot** %3%^%s%I>e$N **using** Kh$k%U%#%k%?$G<B8=9k3H$b2DG=$G9,!"B?$/$N%G!<%?%U%!%$%k$,=hM}5l$k>l9g$O **mapping** $NJ}$,JXMxG7g&!#7+$7!"**mapping** $r;H$C$F$$$F$b!"$b$7%U%!%$%k$N%G!<%?$N=gHV$,E,@Z$GJ+C?$i7k6I **using** $,I,MW$KJCF7$^$$$^$9!#

mapping $O **plot** GO2?b7$^$;$s!#world.dem: mapping $N%G%b!#

<~0O$NM>Gr (margin)

margin (<~0O$NM>Gr) HO!"IA2hNN0h$N6-3&$+$i%-%c%s%P%9$N0lHV30B&$^GN4V3V$N3H$G$9!#3NM>GrNBg-5O<+F0E*KHil$^$9,!"%3%^%s%I **set margin** $GJQ9$9k3HbG-$^$9!#**show margin** $O8=:_$N@_Dj$rI=<($7$^$9!#IA2hNN0h$N6-3&$+$iFbB&$NIA2hMWAG$^$G$N4V3V$rJQ9$7$?$>l9g$O0J2<;2:H **set offsets** (**p. 155**)!#

=q<0:

```
set lmargin {{at screen} <margin>}
set rmargin {{at screen} <margin>}
set tmargin {{at screen} <margin>}
set bmargin {{at screen} <margin>}
set margins <left>, <right>, <bottom>, <top>
show margin
```

<margin> $N%G%U%)%k%H$NC10LKO!"E,@Z$H;W$olk!"U8;z$N9b$5$HI}$,;Hol$^$9!#@5NCMOM>Gr$N@dBPE*$JBg$-$5$rDj5A$7!"Ii$NCM($^$?$OL5;XDj)$O **gnuplot** KhCF<+F07W;5lkCMr;H$&$3HKJj$^$9!#3<!85IA2hGO:8$NM>Gr(lmargin) N_$,J8;zNBg-5rC10L$H7F@_DjG-$^$9!#

%-!<%o!<%I **at screen** $O!"$=$NM>Gr$N;XDj$,A4BN$NIA2hNN0hKBP9$k3d9g$G$"$k$,3$H$r0UL#$7$^$9!#3l$O!"B?=EIA2h(multiplot) %b!<%IGN2D, 3D %0%i%U$N3Q$r@53N$KB7$(kN$K;H$($^$9!#3NG[CV$O8=:_$N **set origin** dd **set size** NCMrL5;k9kh&KJCF$$$F!"$=$l$OB?=EIA2hFb$N%0%i%U$NG[CV$NUL$NJ}K!$H7F;Holk3Hr0U?^7F$$$^$9!#

IA2h$NM>Gr$CDI>oL\@9$j!"L\@9$j$N8+=P$7!"<4$N8+=P$7!"IA2h$N%?%$%k!"F|IU!"$=$7$F6-3&$N30K"$k>l9g$NK^Nc(key) $N%5%$%:Ey$r85$K7W;5l$^$9!#7+$7!"L\@9$j$N9o$_$,6-3&$GJ/<4$NJ}$K$D$$F$$k>l9g(Nc($P **set xtics axis** KhCF)!"L\@9jN9o$_<+?H$H$=$N8+=P7OM>Gr$N7W;$K$O4^$^l^$;$s$7!"M>Gr$K=q$+$l$kB>$NJ8;zNs$N0LCV$N7W;Kb4^$^$l$^$;$s!#$3lO!"<4$H6-3&$,Hs>o$K6a$$>l9g!"<4$N8+=P$7$,B>$NJ8;zNs$r>e=q$-9k2DG=@-$r<(:6$7$^$9!#

Micro

%G%U%)%k%HGO! "<4$N9o$_%i%Y%k$N@8@.$K; HMQ9k2J3X7O=PNON?aN=q<0; XDj; R "%c" $O! "V%^%$%/%m! W(10^-6) $r<($9@\F,<-H7$F>.J8; z$N u $r; H$$^$9! #%3%^%s%I **set micro** $O! "$=lH$O0[$J$k0u; zMQJ8; z (unicode U+00B5) $r; HMQ$9kh$& gnuplot $K; X<($7$^$9! #$=$NJ8; z$rI=8=$9kN$K; HMQ$5lk%P%$%HNs$O! "8=:_$N encoding $K0MB8$7$^$9! #0J2<; 2>H: **format specifiers (p. 131)**, **encoding (p. 127)**! #

3N%3%^%s%I$O; n83CJ3,$NbN$G! "@)8B$,$"$j$^$9$7! "; EMM$N: Y$+$$ItJ,$OJQ9$9$k2DG=@-$,$"$j$^$9! #

Minussign

gnuplot O[HsIN=q<0IU$-F~NO$O C 8@8l$N%i%$%V%i%j%k! <%A%sG"$k sprintf() $G=hM}$7$^$9! #7+$7! " gnuplot KOFH<+$N=q<02=%k! <%A%s **gprintf()** b"$j! "$=lO<4$N9o$_J8; zNs$N@8@.$K; Hol$F$$$^$9! #C $N %i%$%V%i%j%k! <%A%s$O! "-7 Nh$&JIiN?t$NI=< (KO>o$K%O%$%U%sJ8; z (ASCII \055) $r; HMQ$7$^$9$,! "$'$7 m=$NL\E*GO! "$=lH$O0[Jk0u; zMQ$N%^%$%J%9Id9fJ8; z (Unicode U+2212) $r; H$$!]7 Nh$&$KI=< ($7 $?$$$HB?$/$N?M! 9$O; W$&G7g& (LuCm 86J8GO'7' $NA0$O Unicode $N! V%^%$%J%95-9f! W$,; H$olF$$$k$,! " $3$3GO JIS $NA43Q%^%$%J%95-9f245D $rMQ$$?)! #%3%^%s%I

```
set minussign
```

$O! "gprintf() $N?t; z$N=PNO$K! "%O%$%U%sNBeojK%^%$%J%9Id9fJ8; z$r; HMQ9kh&; X<(7^$9! #UTF-8 %m %1! <%k$GO=lO Unicode U+2212 $KBP1~$9$k%^%k%A%P%$%HJ8; zNsKJ$j! "Window %3! <%I%Z! <%8 1252 %m %1! <%kGO! "3l$O 8 %S%C%HJ8; z$N ALT+150 ("en dash") KJj^$9! #%3%^%s%I **set minussign** $O! "<4$N 9o$_$N%i%Y%k$H! "gprintf $rL@<(E*$K8F$S=P$7$F@8@.$5l?J8; zNs$K1F6A$rM?$($^9,! "$=$NB>$N>19g$N%O%$%U %s$r4^$'J8; zNs$K$O2?$i1F6A$rM?$($^$;$s! #0J2<; 2>H: **gprintf (p. 130)**! #

LaTeX $O! "$=$l<+?H$,Ii$NId9f$r<+A0$G=hM}$9$k; EAH$_$r; }$C$F$$$k$?$a! "3N%3%^%s%I$O! "LaTeX 7O$N =PNO7A<0$r; HMQ$7$F$$$k>19g$OL5; k$5lk3H$KCm0U$7F/$@$5$$! #postscript =PNO7A<0$r; HMQ$9$k>19g$b! " gnuplot $Npostscript MQA0=hM}%k! <%A%s$, ascii $N%O%$%U%s%3! <%I\055 $r **minus** $H$$&L>A0$N0[$J$kJ8; z$K JQ4$9$kNG! "3N%3%^%s%IOI,MWO$"$j$^$;$s! #

3N%3%^%s%I$O; n83CJ3,$NbN$G! "@)8B$,$"$j$^$9$7! "; EMM$N: Y$+$$ItJ,$OJQ9$9$k2DG=@-$,$"$j$^$9! #

Nc (utf8 %m%1! <%k$r2>Dj):

```
set minus
A = -5
print "A = ",A                  # %O%$%U%s$r4^$'J8; zNs$r=PNO
print gprintf("A = %g",A)       # U+2212 J8; z$r4^$'J8; zNs$r=PNO
set label "V = -5"              # %O%$%U%s$r4^$'%i%Y%k
set label sprintf("V = %g",-5) # %O%$%U%s$r4^$'%i%Y%k
set label gprintf("V = %g",-5) # U+2212 $r4^$'%i%Y%k
```

Gr9u%b! <%I (monochrome)

=q<0:

```
set monochrome {linetype N <linetype properties>}
```

%3%^%s%I **set monochrome** $O! "@~<o72$NJL$N@_DjK!$rA*Br7^9,! "$=$l$O?'$N0c$$$GOJ$/! "E@@~/GK @~%Q%?! <%s$d@~I}$N0c$$KhkbN$G$9! #3N%3%^%s%I$O! "gnuplot $N0JA0$N%P! <%8%g%sN"$k=PNO7A<0$G monochrome %*%W%7%g%sH7$FDs6!$7$F$$?bNKCV-49okbN$G! "8eJ}8_49@-$N$?$a! "$=$liN=PNO7A<0 $G "mono" %*%W%7%g%s$r; XDj9k$H! "0EL[$G **set monochrome** $r8F$S=P7^$9! #Nc$($P! "

```
set terminal pdf mono
```

$O! "0J2<$HF1Ey$G$9! #

```
set terminal pdf
set mono
```

Gr9u%b! <%I (monochrome) $NA*Br$O! "L@< (E*$J RGB ?'! "%Q%l%C%H?'$r; HMQ7F$N%+%i! <$N@~$NIA2h$rK8$2$k bNGO$"$j$^$;s,! "0J2<$b; 2>H: **set palette gray (p. 164)**! #%G%U%)%k%HGO6 DNGr9u@~<o$,Dj5A$5$l $F$$$^9,! "$=$liNB0@-$rJQ99$7$?$j! "Gr9u@~<o$rDI2C$9k3HO! "%U%k7A<0G=$N%3%^%s%I$r; HMQ9k$3 HGG-$^$9! #Gr9u@~<oK [I3$5l?JQ99$O! "%+%i! <$N@~<oKO1F6A$rM?$ ($^$;s7! "$=$N5U$bF1MM$G$9! # %+%i! <@~<o$KI|5"9kKO! "**unset monochrome** $+! "**set color** H7F/$@$5$$! #

%^%&%9 (mouse)

%3%^%s%I **set mouse** $O! "8=:_$NBPOC7?=PNO7A<0KBP7$F%^%&%95!G=$rM-8zK7$^$9! #BPOC7?%b! <%IGCDL>o %G%U%)%k%HG3lCM-8zKJCF$$$^9,! "%3%^%s%I$,%U%!%$%k$+$iFI$_9~$^lk>l9g$O%G%U%)%k%H$G$CL58z KJCF$$$^$9! #

%^%&%9%b! <%I$O2 <oN'MQ0U$5lF$$$^$9! #2 <!85%b! <%I$O! "**plot** %3%^%s%I$H **splot** $N2 <!85<M1F ($9Jo$A! "z $N2sE>3Q$, 0, 90, 180, 270, 360 EY$N **set view**! "$*hS **set view map**) $GF0:n$7$^$9! #3N%b! <%IGO! "%^%&%90LCV$,DI@W$5$l! "%^%&%9%\%?%s$dLp0u%-! <$r; H$C$F3HBg$7$?$j; kE@0\F0$7$?jG$-$^$9! #%0%i%U$KBP1~ 9kK^Nc$N%?%$H%kdJLJ%&%#%8%"%C%H%"%$%3%s$JIr%/%j%C%/9k3H$G! "8D! 9$N%0%i%U$NIA2h$r%*s/%*%U $K@Z$jBX$ (k3Hr%5%]! <%H9k=PNO7A<0b"j^$9! #

splot Kh$k3 <!85%0%i%U$KBP7F$O! "%0%i%U$N;kJ}8~ (view) $H=L<\$NUQ99$,! "$=l>$l%^%&%9%\%?%s1 $H2 ($Khk%I%i%C%0) $G9T$ ($^$9! #%\%?%s2 $N?bD>J}8~$N%I%i%C%0$r shift %-! <$HF1;~$K9T$&&$H! "z <4$N0lHV2<$N0L CV (**xyplane**) $r>e2<$7$^$9! #3liN%\%?%sK5iK <ctrl> %-! <$r2!$9$H! ":BI8<4$OI=< (5l$^$9$,! "%G! <%?$NI=< ($O>C$ ($^$9! #3lOBg-$J%G! <%?$KBP7EM-MQG7g&! #%^%&%9%\%?%s3 $O! "z <4$N8~$- (azimuth) $r@)8f$7$^$9 (0J2<; 2>H: **set view azimuth (p. 181)**)! #

%^%&%9$OB?=EIA2h (multiplot) %b! <%IFbGOL58zG9$,! "**unset multiplot** $GB?=EIA2h$,407k9l$P! "%^%&%95!G=$O ON KJj^$9! #$?$@$7! "$=$N:rMQ$Omultiplot Fb$N:G8e$NIA2h (replot $GIA2h$5lkh&Jb$N) KBP7FN$_$G$9! #

=q<0:

```
set mouse {doubleclick <ms>} {nodoubleclick}
          {{no}zoomcoordinates}
          {zoomfactors <xmultiplier>, <ymultiplier>}
          {noruler | ruler {at x,y}}
          {polardistance{deg|tan} | nopolardistance}
          {format <string>}
          {mouseformat <int>/<string>}
          {{no}labels {"labeloptions"}}
          {{no}zoomjump} {{no}verbose}
unset mouse
```

%*%W%7%g%s **noruler** $H **ruler** $O! "Dj5, (ruler) 5!G=$roff, on K7$^$9! #**ruler** KO:BI8$rM?$ ($F86E@$r@_Dj 9k3HbG$-$^$9! #**ruler** $, on $N4V! "ruler $N86E@$+$i%^%&%9$^GN%f! <%6C10LGN5wN%$,O"B3E*$KI=< ($5 l^$9! #%G%U%)%k%HGO! "ruler $N%H%0%k%9%$%C%A$O'r' $K%-! <3d$jEvF5lF$$$^$9! #

%*%W%7%g%s **polardistance** $O! "%^%&%9%+! <%=%k$+$iDj5, (ruler) $^$G$N5wN%$r6K:BI8GbI=<((5wN%! "$*$h$S 3QEY$^$?$O7 9$-) 9k$+I&$+$r7hDj7^$9! #3l$O%G%U%)%k%H$N%-! <3djEvF'5' $KBP1~$7$^$9! #

%\%?%s2 $Ngnuplot $N1JB3E*$J%i%Y%k$rDj5A$9kK$O! "%*%W%7%g%s **labels** $r; HMQ$7$^$9! #%G%U%)%k%H$O **nolabels** $G! "%\%?%s2 $OC1$K01; ~E*$J%i%Y%k$r%^%&%90LCV$KIA2h$7$^$9! #%i%Y%k$O8=:_$N **mouseformat** $N@_Dj$K=>$C $F=q$+l^$9! #**labeloptions** J8; zNs$O! "%3%^%s%I **set label** %3%^%s%IKEO5l^$9! #$=$N%G%U%)%k%H$O "point pointstyle 1" $G! "$3lO%i%Y%kOLCV$K>.$5$%W%i%9 (+) $rIA2h$7$^$9! #01; ~E*$J%i%Y%k$O! "$=$N<!$N **replot**! "$^$?$O%^%&%9:! <%'A':nGO8=l^$;$s! #1JB3E*$J%i%Y%k$O! "%i%Y%k$NE@$N>e$GCtrl %-! <$r2!7F%\%?%s2 $r%/%j%C%/$9k3HG>C$9$3H,G-$^$9! #<B:]$N%i%Y%k$N0LCVKI$l0L6a$/$G%/%j%C%/$7J1lP$$1$J$$ $+$NbgCM$b **pointsize** $G7hDj$5l^$9! #

%*%W%7%g%s **verbose** $, ON $N>l9g! "<B9T;~$NJs9p%3%^%s%I$,I=< ($5l^$9! #$3$N%*%W%7%g%s$O%I%i%$%P%&%#%s %I%&>e$G **6** rBGD3H$G ON/OFF $,%9%$%C%AG-$^$9! #%G%U%)%k%HGO **verbose** $O OFF KJCF$$$^$9! #

%I%i%$%P%&%#%s%I%&>e$G'h' rBGD$H! "%^%&%9%H%-! <3dEv$NC;$$@bL@$,I=< ($5l^$9! #$3lO! "%f! <%6Dj5A$N %-! <3dEv! "$9Jo$A **bind** %3%^%s%I$Khk **hotkeys** (0J2<; 2>H: **bind (p. 44)**) $bI=< ($5l^$9! #%f! <%6Dj5A $N **hotkeys** $O%G%U%)%k%H$N%-! <3dEv$rL58z$K7^$9! #0J2<$b; 2>H: **bind (p. 44)**, **label (p. 140)**! #

Doubleclick

%@%V%k%/%j%C%/$N2rA|EY$O%_%jIC(ms) C10L$GM?$($^$9!#3l$O!"%\%?%s1MQ$NbN$G!"8=:_$N%^%&%90LCV$r%/%j%C%W%\!<%I(**clipboard**) $K%3%T!<$9kN$K;H$&=PNO7A<0$,$"j^$9!#%G%U%)%k%H$NCM$O300 ms $G$9!#3l$r0 ms $K@_Dj$9kH%7%s%0%k%/%j%C%/G=$N%3%T!<$r9T$&$h$&$KJj$^$9!#

Mouseformat

%3%^%s%I **set mouse format** $O!"sprintf() KBP9$k=q<0J8;zNs$N;XDj$G!"%^%&%9%+!<%=%k$N[x,y] :BI8$rIA2h%&%#%s%I%&$H%/%j%C%W%\!<%IKINh$&$KI=<(9k$+$r7hDj7^$9!#%G%U%)%k%H$O"% #g" $G$9!#

set mouse mouseformat $O!"%\%?%s1 $H%\%?%s2 $N:nMQ;~(:BI8$r%/%j%C%W%\!<%I$X%3%T!<$7!"%^%&%90LCV$K0l;~E*$KCm<arD1k) $NJ8;zNs$N=q<0MQ$K;H$ol^$9!#0z?t$,@0?t$N>19g!"0J2<$NI=K"$k=q<0%*%W%7%g%s$N0lDrA*Br7^$9!#0z?t$,J8;zNs$N>19g$O!"=q<0%*%W%7%g%s6 $N sprintf() $N=q<0J8;zNs$H7F;Hol$^$9NG!"2 DN<B?t$N;XDj;R$r4^$`I,MW$,$"$j$^$9!#Nc:

```
'set mouse mouseformat "mouse x,y = %5.2g, %10.3f"'.
```

3NJ8;zNs$r^$?%*%UK9kK$O!"**set mouse mouseformat** "" H7$^$9!#

0J2<$N=q<0$,MxMQ2DG=G:

```
0   %G%U%)%k%H (1 $HF1$8)
1   <4$N:BI8                              1.23, 2.45
2   %0%i%U:BI8 (0 $+$i 1 $^$G)           /0.00, 1.00/
3   x = timefmt     y = <4:BI8           [('set timefmt' $N@_Dj), 2.45]
4   x = F|IU        y = <4:BI8           [31. 12. 1999, 2.45]
5   x = ;~9o        y = <4:BI8           [23:59, 2.45]
6   x = F|IU/;~9o   y = <4:BI8           [31. 12. 1999 23:59, 2.45]
7   'set mouse mouseformat' $K$h$k=q<0!"Nc: "mouse x,y = 1.23,     2.450"
```

%^%&%9%9%/%m!<%k **(scrolling)**

2<!85%0%i%U$H3<!85%0%i%U$NN>J}$G!"X $HY<4$N?-=L$O%^%&%9%[%$!<%k$r;H$&3H$GD4@0$G$-$^$9!#<wheel-up> $O%9%/%m!<%k"%C%W$7(YMIN $HYMAX $NN>J}$rY $NHO0O$N10 %Q!<%;%s%H$:$DA}2C5;!"Y2MIN $HY2MAX KbF1MMN3Hr9T$$^$9)!"<wheel-down> $O%9%/%m!<%k%@%&s$7$^$9!#<shift-wheel-up> $O:8%/%m!<%k$7(XMIN $HXMAX $NN>J}!"$=7FX2MIN $HX2MAX $NN>J}$r8:>/)!"<shift-wheel-down> $O1&%9%/%m!<%k$7$^$9!#<control-wheel-up> $O%0%i%U$NCf?4J}8~$K%:!<%'%$%s$7!"<control-wheel-down> $O%:!<%'%"%&%H$7$^$9!#<shift-control-wheel-up> $OX $HX2<4$N$_$K1hCF%:!<%'%$%s$7!"<shift-control-wheel-down> $OX $HX2<4$K1hCFN_%:!<%'%"%&%H7^$9!#

X11 GN%^%&%9 **(X11 mouse)**

x11 $N=PNO7A<0$N%*%W%7%g%s **set term x11** <n> $r;H$C$FJ#?t$NX11 IA2h%&%#%s%I%&$,3+$$F$$k>19g!"%^%&%9%3%^%s%I$H%[%C%H%-!<$N5!G=rAcs$H;H$(kN$O=:_$NIA2h%&%#%s%I%&N_$G$9!#7+$7!"B>$N%&%#%s%I%&$b:82<$K%^%&%9$N:BI8$rI=<(0LO7F/lkG7g&!#

Zoom

3HBg(zoom) $O!"DL>o$O:8%^%&%9%\%?%s$r2!$9$3$H$G9T$o$l!"3HBgHO0O$N@~0z$-$O%^%&%9$N%I%i%C%0$G9T$$^9,!"3lHO0[Jk%^%&%9%\%?%s$rMW5a$9$k<B9T4D6-$b$"$k$+$b7l$^$;$s!#85$N%0%i%U$O!"%0%i%U%&%#%s%I%&>e$G%[%C%H%-!<'u' $r%?%$%W9k3H$GI|85$G$-$^$9!#%[%C%H%-!<'p' $H'n' $O!"3HBgA':n$NMzNr$r8eJ}$HA0J}K?Ij$^$9!#

%*%W%7%g%s **zoomcoordinates** $O!"3HBg$N:]$K!"3HBg$NOH$NC<$K$=$N:BI8$r=q$/$+$I$&$+$r7hDj$7!"%G%U%)%k%HGO ON KJCF$$^$9!#

%*%W%7%g%s **zoomjump** $, ON $N>19g!"%\%?%s3 Kh$k3HBgHO0O$NA*Br$r3+;O$9kH!"%^%&%9%]%$%s%?$O<+F0E*$K>/7@$1:l?0LCV$K0\F0$7$^$9!#3l$O!"$4/>.$5$$($^$?$O(u$G5(%"$k)3HBgHO0O$rA*Br7F$7^$&3HrHr1kN$KJXMx$G7g$&!#%G%U%)%k%H$G$O **zoomjump** $O OFF $G$9!#

Mttics

6K:BI8%0%i%U$N<~0O$N>.L\@9$j9o$_$N0u$O**set mttics** $G@)8f$5l^$9!#0J2<;2>H: **set mxtics (p. 151)**!#

B?=EIA2h%b!<%I (multiplot)

%3%^%s%I **set multiplot** $O **gnuplot** $rB?=EIA2h%b!<%I$K7^$9!#$3lO!"U#?t$N%0%i%U$rF1$8%Z!<%8$dF1$8%9%/%j!<%s%&%#%s%I%&$KNY$jF1;N$KJBYFI=<(7^$9!#

=q<O:

```
set multiplot
    { title <page title> {font <fontspec>} {enhanced|noenhanced} }
    { layout <rows>,<cols>
      {rowsfirst|columnsfirst} {downwards|upwards}
      {scale <xscale>{,<yscale>}} {offset <xoff>{,<yoff>}}
      {margins <left>,<right>,<bottom>,<top>}
      {spacing <xspacing>{,<yspacing>}}
    }
set multiplot {next|previous}
unset multiplot
```

=PNO7A<0 (terminal) KhCF$O!"%3%^%s%I **unset multiplot** $,M?$(ilk^$G2?$NIA2h$bI=<($5lJ$$$3H,$"$j$^$9!#3N>l9g3N%3%^%s%IKh$j%Z!<%8A4BN$NIA2h$,9T$Jo1!"gnuplot $OI8=`$NC10lIA2h%b!<%IKJj^$9!#$=$l0J30$N=PNO7A<0GO!"3F **plot** %3%^%s%I$,$=l>$lI=<($r99?7$7$^$9!#

%3%^%s%I **clear** $O!"<!$NIA2h$K;H$&D9J}7ANN0h$r>C$9NK;H$($^$9!#E57?E*$K$O!"Bg$-$$%0%i%U$NFbIt$K>.5J%0%i%U$rA^F~$9kh$&$J>l9gKI,MWG$9!#

Dj5A:Q$N8+=P$7$d%Y%/%H%k$O!"3FIA2hK*$$F!"Kh2s8=:_$N%5%$:$H8GE@$K=>CF=q$+$l$^$9($=$li, **screen**:BI=7O$GDj5A$5lF$$J$>l9g)!#$=$l0J30$NA4FN **set** $GDj5A$5lkbN$b3FIA2h$9YFKE,MQ5l^$9!#$b$71EY$NIA2hK@$18=$olFM_$7$$bNr:nj?$$J$i!"$=l,Nc$($PF|IU(timestamp) $@$H7?$i!"**set multiplot** $H **unset multiplot** GOC^l?%V%m%C%/Fb$N **plot** ($^$?$O **splot**, **replot**) L?Na$N0l$D$r **set time** $H **unset time** GO5sG/$@$5$$!#

multiplot $N%?%$%H%k$O!"8D!9$NIA2h%?%$%H%k$,$"$C$?$H7F$b!"$=lHOJLNbN$G!"%Z!<%8$N>eItK=N?aN%-%c%s%P%9A4BN$NI}$Ko?$k%9%Z!<%9$,3NJ]5l$^$9!#

layout $,;XDj$5lF$$J$>l9g!"$"$k$$$OhjNI$$0lCV7har7?$$>l9g$O!"%3%^%s%I **set origin** $H **set size** 3FIA2h$G@5$7$$0lCV$K@_Dj$9kI,MW,$"$j$^$9!#>\:Y$O!"0J2<;2>H: **set origin (p. 155)**, **set size (p. 168)**!#

Nc:

```
set multiplot
set size 0.4,0.4
set origin 0.1,0.1
plot sin(x)
set size 0.2,0.2
set origin 0.5,0.5
plot cos(x)
unset multiplot
```

3l$O!"cos(x) $N%0%i%U$r!"sin(x) $N>e$K@Q$_=E$M$FI=<($7$^$9!#

set size $H **set origin** $OA4BN$NIA2hNN0h$r;2>H$7!"$=$l$O3FIA2h$GMxMQ5l$^$9!#0J2<$b;2>H: **set term size (p. 25)**!#IA2h6-3&$r0lNs$KB7$($?$$JiP!"**set margin** %3%^%s%I$G!"6-3&$N3O$NM>Gr%5%$:$rF1$8%5%$:$KB7$($k3H$,=PMh$^$9!#$=$N;HMQ$K4X7F$O!"0J2<;2>H: **set margin (p. 145)**!#M>Gr%5%$:$OJ8;z%5%$:C10L$N@dBPE*$J?tCMC10L$r;HMQ9k3H$KCm0U$7F/$@$5$$!#hC$F;D$C$?%9%Z!<%9$KIA$+$l$k%0%i%U$O=<(9k%G%P%$%9$NI=<(%5%$:$K0MB8$7$^$9!#Nc$(P!"%W%j%s%?%H%G%#%W%l%$$NI=<($OJ,0c$C$?$bNKJkG7g&!#

%*%W%7%g%s **layout** Kh$j!"3FIA2h$NA0K=l>$lM?$($F$$?**set size** $d **set origin** %3%^%s%IJ7$K!"C1=c$JJ#?t%0%i%U$NIA2h$r:n@.G-$^$9!#$=$liN@_Dj$O<+F0E*$K9TJo$l!"$$$DGb$=$N@_Dj$rJQ99$G$-$^$9!#**layout** GOI=<($O<rows>9T$H<cols>Ns$N3J;R$KJ,3d5l!"3F3J;R$O!"$=$N8e$KB3$/BP1~9kL>A0$N%*%W

%7%g%sKhCF9T (rowsfirst)!"$"$k$$ONs (columnsfirst) $,@h$KKdailF9T$-$^$9!#IA2h%0%i%U$N@Q$_>e$2 $O2<J}8~(**downwards**) $K!"$^$?$O>eJ}8~(**upwards**) $K?-$Skh$&$KG-$^$9!#%G%U%)%k%H$O**rowsfirst** $G **downwards** $G$9!#%3%^%s%I**set multiplot next** $H**set multiplot previous** $O!"%l%$%"%&%H%*%W%7%g%s$r ;HMQ$7$F$$k>l9gN_$K4X78$7$^$9!#**next** $O!"3J;RFb$N<!$N0lCV%r%9%-%C%W$7!"6uGr$r;D$7$^$9!#**prev** $O!" D>A0$KIA2h7?0lCV$ND>A0$N3J;R0lCVKLaj$^$9!#

3FIA2h$O**scale** $G?-=L$r!"**offset** $G0lCV$NJ?9T0\F0$r9T$J$&$3H,G-$^$9!#scale $d offset $N y NCM,>J N,5l$?>l9g$O!"x NCM,$=lK;HMQ$5l^$9!#**unset multiplot** Kh$j<+F0G[CV5!G=$O%*%UKJ$j!"$=7F **set size** $H**set origin** NCMO**set multiplot layout** $NA0$N>uBV$KI|5"$5l^$9!#

Nc:

```
     set size 1,1
     set origin 0,0
     set multiplot layout 3,2 columnsfirst scale 1.1,0.9
     [ $3$3$K$O 6 $D$^$G$NIA2h%3%^%s%I ]
     unset multiplot
```

>eNNcG$O6 DNIA2h$,2 NsNCfK>e$+$i2<$X!":8$+$i1&XHKdailF9T$-$^$9!#3FIA2h$O?eJ?%5%$%:$, 1.1/2!"?bD>%5%$%:$,0.9/3 HJj^$9!#

B>Kb!"$=$N%l%$%"%&%HFb$N9YFN%0%i%U$K0lMM$J%^!<%8%s$r%*%W%7%g%s**layout margins** $H**spacing** $G @_Dj$9k3H,G-$^$9$,!"$3lO0l=o$K;H&I,MW$,$"$j$^$9!#**margins** $O!"3J;RG[CV$NJ#?t%0%i%UA4BN$N30 B&$KBP9k%^!<%8%s$r@_Dj$7$^$9!#

spacing $O!"NY@\$9$kItJ,%0%i%U4V$N7d4V$rM?$($^$9$,!"**character** $+**screen** C10L$G;XDj9k3HbG$-$^ $9!#C10l$NCM$r;XDj$9kH!"$=$l$Ox, y $NN>J}$NJ}8~$K;HMQ$5l^9,!"2 DN0[JkCM$r;XDj$9k3Hb$G $-$^$9!#

0lDNCM$KC10L$,J1lP!"D>A0$N%^!<%8%s@_Dj$NbN$r;HMQ$7$^$9!#

Nc:

```
     set multiplot layout 2,2 margins 0.1, 0.9, 0.1, 0.9 spacing 0.0
```

3N>l9g!":8K"$k%0%i%U$N:8$N6-3&$O!"%9%/%j!<%s:BI8$N0.1 KCV+$l!"1&K"$k%0%i%UN1&$N6-3&$O%9%/ %j!<%s:BI80.9 $N>l=j$KCV$+$l$k!"Ey$HJj$^$9!#3F%0%i%U$N7d4V$O0 $K;XDj$7$F$$kNG!"FbB&$N6-3&@~$O =EJj$^$9!#

Nc:

```
     set multiplot layout 2,2 margins char 5,1,1,2 spacing screen 0, char 2
```

3l$O!":8$N%0%i%U$N6-3&$O!"%-%c%s%P%9$N:8C<+$i5 J8;zI}$N>l=j$K!"1&$N%0%i%UN1&$N6-3&$O!"%-%c%s%P %9$NC<+$i1 J8;zI}$N>l=jK"$k%l%$%"%&%H$r@8@.$7$^$9!#2<$N%^!<%8%s$O1 J8;zJ,$N9b$5!">e$N%^!< %8%s$O2 J8;zJ,$N9b$5KJj^$9!#%0%i%U4V$N?eJ?J}8~$N7d4V$O$"$j$^$;$s,!"=DJ}8~$K$O2 J8;zJ,$N9b5K Ey$7$7d4V$,$"j^$9!#

Nc:

```
     set multiplot layout 2,2 columnsfirst margins 0.1,0.9,0.1,0.9 spacing 0.1
     set ylabel 'ylabel'
     plot sin(x)
     set xlabel 'xlabel'
     plot cos(x)
     unset ylabel
     unset xlabel
     plot sin(2*x)
     set xlabel 'xlabel'
     plot cos(2*x)
     unset multiplot
```

0J2<$b;2>H**multiplot $N%G%b (multiplt.dem)**

Mx2tics

x2 (>e) <4$N>.L\@9$j9o$_$N0u$O**set mx2tics** $G@)8f$5l^$9!#0J2<;2>H**set mxtics (p. 151)**!#

> .L\@9$j9o$_ (mxtics)

x <4$N> .L\@9$j9o$_$N0u$O **set mxtics** $G@)8f$5l^$9! **#unset mxtics** KhCF$=$l$rI=< ($5$;$J$/$9k3H,=PMh$^$9! #F`lMM$N@)8f%3%^%s%I$,3F<4Kh$KMQ0U$5lF$$^$9! #

=q<0:

```
set mxtics {<freq> | default}
unset mxtics
show mxtics
```

3liN=q<0$O **mytics**, **mztics**, **mx2tics**, **my2tics**, **mrtics**, **mttics**, **mcbtics** KBP7FbF1$8$G$9! #

<freq> $OBgL\@9$j4V$N! "> .L\@9$jKhCFJ,3d5l$k6h4V$N?t(> .L\@9jN?tGO$"$j$^$;$s) $G$9! #DL>o$N@~7A<4$KBP7F$O%G%U%)%k%H$NCM$O2 $+5 $G! "$3lOBgL\@9jKhC$FJQ2=$7$^$9! #hC$FBgL\@9$j4V$K1$D! "$^$?$O4 DN> .L\@9j,F~k3HKJj$^$9! **#default** $r;XDj$9k3HKhC$F> .L\@9$j$N?t$O%G%U%)%k%HNCMKLaj^$9! #

<4$,BP?t<4$G$"$k>19g! "U,3d6h4V$N?t$O%G%U%)%k%HGOM-0U$J?t$K%;%C%H5l$^$9(10 8D$ND9$5$r85$K7F)! #<freq> $,M?$(il$F$$$lP=Ai$,M%@h$5l^$9! #$7$+$7! "BP?t<4GODL>o$N> .L\@9$j(Nc$($P1 $+$i10 $^$G$N2, 3, ..., 8, 9 $N9o$_) $O! "9 DNItJ,6h4V7+$"j^$;s,! "<freq> $N@_Dj$O10 H9k3HG$=$&Jj$^$9! #

> .L\@9jrG$0U$N0ICV$K@_Dj$9kK$O! "("<label>" <pos> <level>, ...) $N7A<0$r **set {x|x2|y|y2|z}tics** $G;HMQ$7F/$@$5$$! #$?$@$7! "<label> $O6u("") $G! "<level> $r1 K7$^$9! #

%3%^%s%I **set m{x|x2|y|y2|z}tics** $O! "BgL\@9$j$,0lMM$N4V3V$N>19g$KN_F/$-$^$9! #$b$7A4$F$NBgL\@9$j$, **set {x|x2|y|y2|z}tics** KhCF<jF0$GG[CV$5l?>19g$O! "$3$N> .L\@9$j$N%3%^%s%I$OL5;k5l$^$9! #<+F0E*$JBgL\@9$j$NG[CV$H<jF0$N> .L\@9$j$NG[CV$O! "**set {x|x2|y|y2|z}tics** $H**set {x|x2|y|y2|z}tics add** Hr;H$&$3HG6&B8G-$^$9! #

Nc:

```
set xtics 0, 5, 10
set xtics add (7.5)
set mxtics 5
```

3N>19g! "BgL\@9jO0,5,7.5,10! "> .L\@9jO1,2,3,4,6,7,8,9 $N>l=j

```
set logscale y
set ytics format ""
set ytics 1e-6, 10, 1
set ytics add ("1" 1, ".1" 0.1, ".01" 0.01, "10^-3" 0.001, \
              "10^-4" 0.0001)
set mytics 10
```

3N>19g! "BgL\@9jO;XDj5l$?=q<0$G! "> .L\@9jOBP?tE*$KG[CV%G%U%)%k%H$G$O> .L\@9$j$NI=<($O! "@~7A<4GO%*%U$G! "BP?t<4$G$O%*%s$KJC$F$$$^$9! #$=$N@_Dj$O! "BgL\@9jKBP9k **axis|border** $H **{no}mirror** $N;XDj$r7Q>5$7$^$9! #$3li$K4X$9$k>pJs$K$D$$$F$O! "0J2<;2>H**set xtics (p. 186)**! #

My2tics

y2 (1&) <4$N> .L\@9$j9o$_$N0u$O **set my2tics** $G@)8f$5l^$9! #0J2<;2>H**set mxtics (p. 151)**! #

Mytics

y <4$N> .L\@9$j9o$_$N0u$O **set mytics** $G@)8f$5l^$9! #0J2<;2>H**set mxtics (p. 151)**! #

Mztics

z <4$N> .L\@9$j9o$_$N0u$O **set mztics** $G@)8f$5l^$9! #0J2<;2>H**set mxtics (p. 151)**! #

Nonlinear

=q<0:

```
set nonlinear <axis> via f(axis) inverse g(axis)
unset nonlinear <axis>
```

[version 5.2 GN?7%3%^%s%I] 3N%3%^%s%I$O%3%^%s%I **set link** $K;w$F$$$^9,!"2 DN%j%s%/5l$?<4$N0l J}N_$rI=<($9$kE@$,0c$$$^$9!#L#$5lk<4$O@~7A<4$N$^$^$G$9!#I=<(9k<4Klh&:BI8$O!"g(x) rE,MQ7$F 1#lF$$k<4$N:BI8$+$i3d$jEvFi$l!"f(x) $OI=<($9$k<4$N:BI8$r1#$l$F$$k@~7A<4$KBP1~$5$;$^$9!#

Nc:

```
set xrange [1:1000]
set nonlinear x via log10(x) inverse 10**x
```

3NNc$OBP?t<4$r:n@.7F$$F!"**set log x** $HF1$88z2L$r@8$\$b$&0l$D$NJ}K!$G$9!#$3$N>l9g1#$l$F$$k<4$O!" [log10(xmin):log10(xmax)] $r7W;;$9k3$HG[0:3] $H$$$&HC0C$r;}$A$^$9!#JQ49<0$H5UJQ49<0$O!"$=$NN>J}$r ;XDj$9kI,MW,$"$j$^$9!#

Nc:

```
set xrange [-3:3]
set nonlinear x via norm(x) inverse invnorm(x)
```

3NNc$O3NN(%9%1!<%k("%W%m%S%C%H") $Nx<4$r:n@.$7!"N_@Q@55,J,I[4X?tPhi(x) $N%0%i%U$,@~7A$Ny<4$K BP7FD>@~HJj^$9!#

Nc:

```
logit(p) = log(p/(1-p))
logistic(a) = 1. / (1. + exp(-a))
set xrange [.001 : .999]
set nonlinear y via logit(y) inverse logistic(y)
plot logit(x)
```

3NNc$O%m%8%C%H%9%1!<%k$Ny<4$r:n@.$7!"@~7A$Nx<4$KBP9klogit(x) $N%0%i%U$,D>@~KJj^$9!#

Nc:

```
f(x) = (x <= 100) ? x : (x < 500) ? NaN : x-390
g(x) = (x <= 100) ? x : x+390
set xrange [0:1000] noextend
set nonlinear x via f(x) inverse g(x)
set xtics add (100,500)
plot sample [x=1:100] x, [x=500:1000] x
```

3NNc$O"@ZCG<4" $r:n@.$7$^$9!#x:BI8$O:8$K0 $+$i100!"1&$K500 $+$i1000 $,JB$S!"$=$N4V$K10I}$N >.5J7d4V$,$G$-$^$9!#100 < x < 500 $N4V$N%G!<%?$OIA2h$5l:!"3l$O4|BTDL$j$NF0:n$r7^$9!#

?^7A%*%V%8%'%/%H (object)

%3%^%s%I **set object** $O!"$=$N8e$N9YFN%0%i%U$K8=$l$kC10l$N%*%V%8%'%/%H$rDj5A$7$^$9!#%*%V%8%'%/%H$O $$/DG$bDj5A$G$-$^$9!#%*%V%8%'%/%H$N7?$O!"8=:_$O **rectangle** (D9J}7A)!"**circle** (1_)!"**ellipse** (BJ1_) $r%5%]!<%H$7F$$^$9!#D9J}7A$O!"%3%^%s%I **set style rectangle** KhCF@_j5l$?%9%?%$%k$NB0@-$NAH(EI jDY7!"?'!"6-3&) $r%G%U%)%k%H$H$7F<u$17Q$.$^$9,!"8D!9$N%*%8%'%/%H$rJL!9$N%9%?%$%kB0@-$GIA2h9k 3HbbAm$s2DG=$G$9!#1_$HBJ1_$O!"**set style fill** KhkEIjDY$7%9%?%$%k$r<u$17Q$.$^$9!#2 <!85%0%i%U $N%*%V%8%'%/%H$O!"<4:BI8!"%0%i%U:BI8(**graph**), 6K:BI8!"%9%/%j!<%s:BI8(**screen**) $N$$:lNAH$_9g$o$;$G$bDj5A$G$-$^$9!#

3 <!85%0%i%U$N%*%V%8%'%/%H;XDj$G$O!"%0%i%U:BI8$O;H$($^;$s!#3 <!85$ND9J}7A$HBJ1_$O!"%9%/%j!<%s:BI8$@$1$K@)8B$5lF$$^$9!#

=q<0:

```
set object <index>
    <object-type> <object-properties>
    {front|back|behind} {clip|noclip}
    {fc|fillcolor <colorspec>} {fs <fillstyle>}
    {default} {lw|linewidth <width>} {dt|dashtype <dashtype>}
unset object <index>
```

<object-type> $O! "**rectangle**, **ellipse**, **circle**, **polygon** $N$$:l+$G$9!#8D!9$N%*%V%8%'%/%H$N7?$O!"$=$N7?$KF'CM-$N@-<A$b$$$/D+;}CF$$^$9!#

front $r;XDj$9kH!"%*%V%8%'%/%HO9YF$NIA2hMWAG$NA0(>e) $KIA2h$5l^9,!"**front** $H;XDj$5l?i%Y%khj$O8e$m(2<) KJj^$9!#**back** $r;XDj$9kH!"9YFNIA2hMWAG!"9YFN%i%Y%k$N8e$m$KG[CV$5l^$9!#**behind** $O!"<4$d**back** $ND9J}7A$r4^$'$9YFNbNN8emKG[CV5l$^$9!#hC$F!"

```
set object rectangle from screen 0,0 to screen 1,1 behind
```

$O!"%0%i%U$d%Z!<%8A4BN$NGX7J$K?'rD1kNKMxMQG-$^$9!#

%G%U%)%k%HGO!"%*%V%8%'%/%H$O!">/$J$/$H$b1 DND:E@$,%9%/%j!<%s:BI8$GM?$($ilF$$$J$$$8B$j!"%0%i%U6-3&$G%/%j%C%T%s%0$5$l$^$9!#**noclip** $H@_Dj$9kH!"%0%i%U6-3&GN%/%j%C%T%s%0$OL58z$KJj$^$9$,!"%9%/%j!<%s%5%$:KBP9$k%/%j%C%T%s%0$O9Tol$^$9!#

%*%V%8%'%/%HNEIjDY7N?'$O <colorspec> $G;XDj$7$^$9!#**fillcolor** $O**fc** $H>JN,$G$-$^$9!#EI$jDY$7%9%?%$k$O <fillstyle> $G;XDj$7$^$9!#>\:Y$O!"0J2<;2>H: **colorspec (p. 41)**, **fillstyle (p. 171)**!#%-!<%o!<%I **default** $r;XDj$9kH!"3liNB0@-$OIA2h$,<B:]$K9T$olkH-$N%G%U%)%k%H$N@_Dj$r<u$17Q$.$^$9!#0J2<;2>H: **set style rectangle (p. 174)**!#

D9J}7A **(rectangle)**

=q<O:

```
set object <index> rectangle
    {from <position> {to|rto} <position> |
     center <position> size <w>,<h> |
     at <position> size <w>,<h>}
```

D9J}7A$N0LCV$O!"BP3Q$K8~$+$$9g$&2 DND:E@(:82<$H1&>e) $N0LCV!"$"$k$$$OCf?4E@$N0LCV$H2#I}(<w>) $H=DI}(<h>) $G;XDj$G$-$^$9!#$$:lN>19g$bE@$N0LCV$O!"<4$N:BI8(**first**, **second**)!"%0%i%UNN0hFb$NAjBP:BI8(**graph**)!"%9%/%j!<%s:BI8(**screen**) $N$$:l+$r;HMQ$G$-$^$9(0J2<;2>H: **coordinates (p. 26)**)!#%*%W%7%g%s **at** $H **center** $OF1$80UL#$G$9!#

Nc:

```
# :BI8<4$G0O$^$l$?NN0hA4BN$NGX7J$r?e?'$K
set object 1 rect from graph 0, graph 0 to graph 1, graph 1 back
set object 1 rect fc rgb "cyan" fillstyle solid 1.0

# :82<3Q$, 0,0, 1&>e3Q$, 2,3 $N@V$$;M3Q$r0l$DCV$/
set object 2 rect from 0,0 to 2,3 fc lt 1

# @D$$6-3&$N6u(EI$jDY$5$J$$) D9J}7A$rCV$/
set object 3 rect from 0,0 to 2,3 fs empty border rgb "blue"

# D:E@$O0\F0$7$J$$$^$^!"EI$jDY$7$H?'$r%G%U%)%k%H$KJQ99
set object 2 rect default
```

%9%/%j!<%s:BI8$GD9J}7A$N3Q$r;XDj$9kH!"$=$l$O8=:_$N%0%i%UNN0h$NC<$r1[$($k3H$b2DG=$G9,!"$=$NB>$N19g$OD9J}7A$O%0%i%UFb$K<}$^$kh&$K%/%j%C%T%s%0$5l^$9!#

BJ1_ **(ellipse)**

=q<O:

```
set object <index> ellipse {at|center} <position> size <w>,<h>
    {angle <orientation>} {units xy|xx|yy}
    {<other-object-properties>}
```

BJ1_$N0LCV$O! "Cf?4$r;XDj$7! "$=$N8emKI}$H9b$5(<g<4$HI{<4) $r;XDj$7$^$9! #%-!<%o!<%I **at** $H **center** $CF1$80UL#$G$9! #Cf?4$N0LCV$N;XDjKO! "<4$N:BI8(**first**, **second**)!"%0%i%UNN0hFb$NAjBP:BI8(**graph**)!"%9%/%j!<%s:BI8(**screen**) $N$$:l+$r;HMQ$G$-$^$9(0J2<;2>H: **coordinates (p. 26)**)!#<g<4$HI{<4$ND9$5$O! "<4$N:BI8$GM?$($J1l$P$$$1$^$;$s! #BJ1_$N8~$-(orientation) $O! "?eJ?<4$HBJ1_$N<g<4$H$N4V$N3QEY$G;XDj$7$^$9! #3QEY$rM?$(J1lP! "%G%U%)%k%H$NBJ1_$N8~$-$,Beoj$K;H$ol^$9(0J2<;2>H:**set style ellipse (p. 174)**)!#%-!<%o!<%I **units** $O! "BJ1_$N<4$N=L<\$N@)8f$K;HMQ$7$^$9! #**units xy** $O! "<g<4$Ox<4$NC10L$G! "I{<4$Oy<4$NC10L$G7W;;$7$^$9$,! "**units xx** $ON><4$H$bx<4$NC10L$G=L<\$7! "**units yy** $ON><4$H$by<4$NC10LKJj^$9! #%G%U%)%k%H$O **xy** G9$,! "**set style ellipse units** $N@_Dj$G$$$DGbJQ99G-$^$9! #

CmOU:x<4$Hy<4$N=L<\$,Ey7/J>19g($=$7$F **units xy** $N>19g)! "2sE>8e$N<g<4$HI{<4$NHf$O@5$7$/$OJj^$;$s! #

set object ellipse size <2r>,<2r> $H **set object circle <r>** HO! "0lHLKCF1$8$3HKOJiJ$$$3$HKCmOU$7F/$@$5$$! #circle $NH>7B$O>o$Kx<4$NC10L$G7W$i$l! "$hCFx<4$Hy<4$N=L<\$,0cC?$j! "IA2h$N%"%9%Z%/%HHf$,1 GJ$/Fb! ">o$K1_$,@8@.$5l^$9! #**units** $, **xy** $K@_Dj$5lF$$$l$P! "set object ellipse' GO! ":G=i$N<2r> $Ox<4$NC10L$G! "8e$m$N<2r> $Oy<4$NC10L$G7W$il^9,! "3l$Ox<4$Hy<4$N=L<\$,F1$8$G! "$+$DIA2h$N%"%9%Z%/%HHf$,1 G"$k>19g$N$_1_$r@8@.9k3H$rOUL#$7$^$9! #7+$7! "**units** $r **xx** $d **yy** $K%;%C%H$9lP! "%3%^%s%I **set object** $G;XDj$7$?D>7B$CF1$8C10L$G7W;;5lkN$G! "BJ1_$O@5$7$$%"%9%Z%/%HHf$r;}$A! "IA2h$r%j%5%$%:7Fb=$N%"%9%Z%/%HHf$OJ];}5l$^$9! #

1_ (circle)

=q<O:

```
set object <index> circle {at|center} <position> size <radius>
    {arc [<begin>:<end>]}
    {<other-object-properties>}
```

1_$N0LCV$O! "Cf?4$r;XDj$7! "$=$N8emKH>7B$r;XDj$7$^$9! #%-!<%o!<%I **at** $H **center** $CF1$80UL#$G$9! #2<!85%0%i%UGO! "0LCV$HH>7B$OG$0U$N:BI87O$G;XDj$G$-$^$9! #0J2<;2>H: **coordinates (p. 26)**!#3<!85%0%i%U$N1_$K$O%0%i%U:BI8$O;H($^$;$s! #$=NI$N>19g$G$b! "H>7B$O<4! "%0%i%U! "%9%/%j!<%s$N?eJ?J}8~$N=L<\$KBP7F7Wil! "?eJ?J}8~$H?bD>J}8~$N=L<\$K$:$l$,$"CF$b! "7k2L$,>o$K@5$7$/1_$KJkh&$KD>$5l^$9! #1_$r%0%i%U$N:BI8$GIA$-$?$$(D^$j?eJ?<4$H?bD><4$N%9%1!<%k$,0c$&>19g$K$O=$l$,BJ1_$H7FI=<(5lkh$&$K7?$$) >19g$O! "Be$ojK **set object ellipse** $r;H$CF/$@$5$$! #

%G%U%)%k%H$O! "40A4$J1_$,IA2h$5l^$9! #%*%W%7%g%s$N **arc** $K3+;O3Q$H=*N;3QrEYrC10LH7$F;XDj$9kH1_8L$rIA2h$7$^$9! #1_8L$O! ">o$KH?;~7W2sjKIA$+$l$^$9! #

0J2<$b;2>H: **set object ellipse (p. 153)**!#

B?3Q7A (polygon)

=q<O:

```
set object <index> polygon
    from <position> to <position> ... {to <position>}
```

$^$?$O

```
    from <position> rto <position> ... {rto <position>}
```

B?3Q7A$N0LCV$O! "D:E@$N0LCV$NNs$rM?$(k3HG;XDjG-$^$9! #$=$liK$O! "G$0U$N:BI87O$,;H($^$9! #AjBPE*$J:BI8(rto) $r;XDj$9$k>19g$O! "$=$N:BI87O$OA0$ND:E@$HF1$8:BI87OGJ1l$P$$$1$^$;$s! #0J2<;2>H: **coordinates (p. 26)**!#

Nc:

```
set object 1 polygon from 0,0 to 1,1 to 2,0
set object 1 fc rgb "cyan" fillstyle solid 1.0 border lt -1
```

%0%i%U0LCV$ND4@0 (offsets)

%*%U%;%C%H$O!"<+F0=L<\$5l?%0%i%UNCfN%G!<%?$N<~$j$K6u$N6-3&rCV/;EAH$_$rDs6!7^$9!#%*%U%;%C%H$O!"x1,y1 <4$H2 <!85$N **plot** %3%^%s%IN_$G0UL#$r;}A^$9!#

=q<0:

```
set offsets <left>, <right>, <top>, <bottom>
unset offsets
show offsets
```

3F%*%U%;%C%H$CDj?t!"$^$?$O?t<0$,;H$(!"$=$liN%G%U%)%k%HNCMO0 $G$9!#%G%U%)%k%HGO!":81&$N%*%U%;%C%H$O x1 <4$HF1$8C10L$G;XDj$7!">e2<$N%*%U%;%C%H$O y1 <4$HF1$8C10L$G;XDj$7$^$9$,!"%-!<%o!<%I "graph" $rMQ$$$k3H$G<4$NA4HC0OKBP9$k3d9g$H7F%*%U%;%C%H$r;XDj$9k3HbG-$^$9!#@5$N%*%U%;%C%H$NCM$O!"<4$NHC0O$r;XDj$5l?J}8~$X?-$P7^$9!#Nc$($P@5$N2<J}8~$N%*%U%;%C%H$O y $N:G>.CM$rhj>.5JCMK7$^$9!#5v5l$F$$$kHC0OGNIi$N%*%U%;%C%H$O!"<+F0=L<\!"$"$k$$C%/%j%C%T%s%0HN;W$$bhi$L7k2L$r@8$`2DG=@-$,$"$j$^$9!#K<+F0=L<\5!G=$+$i<4$NHC0O$ND4@a$r<i$j$?$>19g$O!"'set auto fix" $b;XDj$9kH$$$$G7g$&!#

Nc:

```
set auto fix
set offsets graph 0.05, 0, 2, 2
plot sin(x)
```

3N sin(x) $N%0%i%U$N y $NHC0O$O[-3:3] KJj^$9!#$=lO!"4X?t$N y $NHC0O$O[-1:1] $K<+F0=L<\$5l^9,!"?bD>J}8~$N%*%U%;%C%H$,$=$l$>$l2 G"k?aG$9!#x $NHC0O$O[-11:10] KJj^9,!"3l$O%G%U%)%k%H$, [-10:10] G=$NA4HC0O$,:8$K0.05 $N3d9g$@$1?-$P5lk?aG$9!#

%0%i%U0LCV$N;XDj (origin)

%3%^%s%I **set origin** $O%9%/%j!<%s>e$G6JLIA2h$N86E@$r;XDj(9JoA!"%0%i%UH=$NM>Gr) 9kNK;HMQ7^$9!#$=$N:BI87O$O%9%/%j!<%s:BI87O(**screen**) $GM?$($^$9!#3N:BI87O$K4X$9$k>pJs$K$D$$F$O!"0J2<;2>H**coordinates (p. 26)**!#

=q<0:

```
set origin <x-origin>,<y-origin>
```

=PNO@h;XDj (output)

%G%U%)%k%HGO!"%0%i%U$OI8=\=PNO$KI=<(5l$^$9!#%3%^%s%I **set output** O=$N=PNO$r;XDj5l$?%U%!%$%k$d%G%P%$%9$K%j%@%$%l%/%H7^$9!#

=q<0:

```
set output {"<filename>"}
show output
```

%U%!%$%kL>$C0zMQId$G0O$^J1lPJj$^$;$s!#%U%!%$%kL>$,>JN,$5l?>19g$O!"D>A0$N**set output** $G3+$+l?%U%!%$%k$,%/%m!<%:5l!"?7$?$J=PNO,I8=\=PNO(STDOUT) KAwil^$9!#($b$7!"**set output "STDOUT"** H9kH=PNO$O"STDOUT" $H$$&L>A0$N%U%!%$%kKAwilk$+$b7l$^$;$s! ["$+b7lJ$$" $H$$&NO!"Nc$($P**x11** $d**wxt** JI$N terminal (=PNO7A<0) GO**set output** $,L5;k$5lk$+$i$G$9!#)

set terminal $H**set output** $NN>J}$r;XDj9k>19g!"**set terminal** $r@h$K;XDj9kJ}$,0BA4$G$9!#$=lO!"$"$k<o$N terminal GO!"OS $,I,MW$H9k%U%i0$r%;%C%H$9k3H,$"$k$+$i$G$9!#Nc$($P!"%P%$%J%j%U%!%$%kKBP7$FJL!9$N open %3%^%s%IrI,MWH9k$h&&JOS JI$,$=lK3:Ev7^$9!#

%Q%$%W$r%5%]!<%H9k4D6-GO!"%Q%$%W=PNO$bM-MQ$G$9!#Nc$($P0J2<NDLj$G$9:

```
set output "|lpr -Plaser filename"
set term png; set output "|display png:-"
```

MS-DOS GO!"**set output "PRN"** H9kHI8=\$N%W%j%s%?=PNO5l$^$9!#VMS GO=PNOOG0U$N%9%W!<%k2DG=$J%G%P%$%9$KAwk3H,=PMh$^$9!#

G^2pJQ?t%b!<%I (parametric)

set parametric %3%^%s%I$O **plot** $*$h$S **splot** $N0UL#$rDI>o$N4X?tIA2h$+$iG^2pJQ?tI=<((parametric) 4X?t IA2h$KJQ99$7$^$9!#**unset parametric** $r;H$($P85$NIA2h%b!<%IKLaj$^$9!#

=q<0:

```
set parametric
unset parametric
show parametric
```

2<!85%0%i%UK*$$F$O!"G^2pJQ?tI=<(4X?t$ORHDNG^2pJQ?tKBP9$k 2 DN4X?tGDjail$^$9!#Nc$H 7F$O plot sin(t),cos(t) H9k3HKhC$F1_$,IA1^$9(%"%9%Z%/%HHf$,@5$7$/@_Dj5l$F$$$l$P!#0J2<;2>H:**set size (p. 168)**)!#**gnuplot** $O!"N>J}$N4X?t$,G^2pJQ?t$Khk **plot** N?aKM?$($ilF$$$J1l$P%(%i!<%a%C%;!<%8$r=P7^$9!#

3<!85%0%i%UK*$$FOLLOx = f(u,v), y = g(u,v), z = h(u,v) GDjail$^$9!#hC$F3 DN4X?trAHG;XDj9kI,MW$,$"j^$9!#Nc$H7F$O!"**cos(u)*cos(v),cos(u)*sin(v),sin(u)** H9k3HKhC$F5eLL$,IA1^$9!#**gnuplot** $O!"3 $DA4It$N4X?t$,G^2pJQ?t$Khk **splot** N?aKM?$($ilF$$$J1l$P%(%i!<%a%C%;!<%8$r=P7^$9!#

3lKhCFI=8=G-$k4X?t72$O!"C1=c$Jf(x) 7?$N4X?t72$NFbJq$9k3HKJj$^$9!#J<Ji$P!"2 $D(3 $D) $N4X?t$Ox, y (, z) NCMrFHN)$K7W;;$9$k5-=R$,G-k+iG$9!#<B:]!"t,f(t) $N%0%i%U$O!"0lHVL\$N4X?t Nh$&$J91Ey4X?t$rMQ$$$Fx NCM,7W;;5l$k>19g$Kf(x) KhCF@8@.5l$k%0%i%U$HEy2A$G$9!#F1MM$K!"3<!85$GNu,v,f(u,v) $NIA2h$O!"f(x,y) $HEy2A$G$9!#

G^2pJQ?tI=<(4X?t$O!"x $N4X?t!"y $N4X?t(!"z $N4X?t) $N=g$K;XDj$7!"$=li$O6&DL$NG^2pJQ?t$*$hS=$NJQ0h$GDj5A5lk3HKN10U7F2<$5$$!#

5i$K!"**set parametric** $N;XDj$O!"?7$7$JQ?tJQ0h$r;HMQ$9k3Hr0E$K@k8@$7$^$9!#$DL>o$Nf(x) $df(x,y) $,xrange!"yrange(!"zrange) $r;HMQ$9kNKBP7$F!"G^2pJQ?t%b!<%I$G$O=$l$K2C$($F!"trange, urange, vrange $r;HMQ$7$^$9!#3liNJQ0h$O**set trange**, **set urange**, **set vrange** KhCFD>@\;XDj9k3H%b!"**plot** $d **splot** $G;XDj$9k3$H%b$G$-$^$9!#8=;~E@$G$O!"$3li$NG^2pJQ?t$N%G%U%)%k%H$NJQ0h$O[-5:5] HJCF$$$^$9!#>-MhE*$KO3li$N%G%U%)%k%HCM$r%bCHM-0U$J%b$N$KJQ99$9$kM=Dj$G$9!#

J?9TIA2h<4@_Dj (paxis)

=q<0:

```
set paxis <axisno> {range <range-options> | tics <tic-options>}
show paxis <axisno> {range | tics}
```

%3%^%s%I**set paxis** $O!"U?9T:BI8IA2h$Np1, p2, ... <4$N0l$D$K:rMQ$9k3$H0J30$O!"**set xrange** $d**set xtics** $HF1$8$G$9!#0J2<;2>H:**parallelaxes (p. 65)**, **set xrange (p. 184)**, **set xtics (p. 186)**!#range $H tics %3%^%s%I$X$NDL>o$N%*%W%7%g%s$O!"U?9T:BI8IA2h%9%?%$%kKK$C0UL#$N$J$$$bNb$"$j$^$9$,!"0l1~$9YF$r<u$1D1$^$9!#

Plot

%3%^%s%I**show plot** $O8=:_$NIA2h%3%^%s%I!"9JoA**replot** %3%^%s%I$G:F8=$5lk!"D>A0$K9T$ol?**plot** $d**splot** %3%^%s%I$rI=<(7^$9!#

5i$K%3%^%s%I**show plot add2history** $O!"$3$N8=:_$NIA2h%3%^%s%I$r**history** $K=q$-=P7^$9!#$3lO!"**replot** $r;H$C$FD>A0$NIA2h%3%^%s%I$K6J@~$rDI2C7?>19g!"$=$7$F%3%^%s%I9TA4BN$r$9$0$KJT=8$7$?$>19g$KJXMx$G$9!#

Pm3d

pm3d $O**splot** $N0l$D$N%9%?%$%k$G!"%Q%l%C%H$K3djIU1il$?3<!85!"4<!85%G!<%?$r!"%+%i!</3%?'$N?'CO?^/6JL$H7FIA2h7^$9!#$3lO"$k%"%k4%j%:'$rMQ$$$F$$$F!"3l$O%G!<%?$,3J;R>u$G"$CFb!"%G!<%?Av:Kh$KE@$N?t$,0c$C$F$$kh&JHs3J;R>u$N%G!<%?$G"CF$b!"A0=hM}$9k3HJ$/IA2h$G$-$^$9!#

=q<0(%*%W%7%g%sOG0U$N=g$GM?$($k3H$,$G$-$^$9):

```
set pm3d
set pm3d {
          { at <position> }
          { interpolate <steps/points in scan, between scans> }
          { scansautomatic | scansforward | scansbackward | depthorder }
          { flush { begin | center | end } }
          { ftriangles | noftriangles }
          { clip1in | clip4in }
          { corners2color
            { mean|geomean|harmean|rms|median|min|max|c1|c2|c3|c4 }
          }
          { {no}lighting {primary <fraction>} {specular <fraction>}}
          { hidden3d {<linestyle>} | nohidden3d }
          { implicit | explicit }
          { map }
        }
show pm3d
unset pm3d
```

splot %3^%s%I$G **with pm3d** $r;XDj$7$?>19g!"$^$?$O%G!<%?$d4X?tIA2h%9%?%$%k (**style**) $,Bg0hE*$K pm3d $K%;%C%H$5lF$$k>19g!"$"$k$$O!"pm3d %b!<%I$, **set pm3d implicit** HJCF$$k>19g$O!"pm3d $N%+%i!<6JLL$,IA2h5l$^$9!#8e$N2 DN>19g$O!"plot %3%^%s%I$G;XDj7?%9%?%$%k$G@8@.5l$kLVL\$K p3md 6JLL$rDI2C$9$k7A$GIA2h7^$9!#Nc$($P!"

```
splot 'fred.dat' with lines, 'lola.dat' with lines
```

$O!"3F%G!<%?=89gKh$K@^$l@~$KhkLVL\$H pm3d 6JLL$NN>J}$rIA2h7^$9!#%*%W%7%g%s **explicit** $, ON ($^$?$O **implicit** $, OFF) $N>19g$O!"B0@-**with pm3d** $,;XDj$5l?IA2hN_$, pm3d 6JLL$H7FIA2h5l$^$9!#Nc$($P

```
splot 'fred.dat' with lines, 'lola.dat' with pm3d
```

$O!"'freq.dat' $O@^$l@~$G(@~$N$_$G)!"'lola.dat' $O pm3d 6JLL$GIA2h5l$^$9!#

gnuplot $N5/F0;~$O$=$N%b!<%I$O **explicit** KJCF$$^$9!#Nr;KE*!"$=7F8_49@-N?aK!"%3%^%s%I **set pm3d;** (9JoA%*%W%7%g%s$r;XDj$7J>19g) $H **set pm3d at X ...** (9JoA **at** $,:G=i$N%*%W%7%g%s$N>19g) $O%b!<%I$r **implicit** $KJQ99$7$^$9!#%3%^%s%I **set pm3d;** $O!"$=$NB>$N%*%W%7%g%sr=li$N%G%U%)%k%H$N>uBV$K@_Dj$7$^$9!#

%G%U%)%k%H$N%G!<%?$r **pm3d** K7$?$$>19g$O!"Nc$($P

```
set style data pm3d
```

H7$^$9!#3N>19g!"%*%W%7%g%s **implicit** $H **explicit** $O8zNO$r;}A^$;$s!#

$$/D+$NIA2h$K$*$$$F$O!"$=li$O%3%^%s%I%i%$%s$GM?$(il$?=g$KIA2h5lk3HKCm0U7F$/$@$5$$!#3lOFCK!"0JA0$NIA2h$r>e=q$-$7F=lG$=$N0lIt$r1#$7F7$^$&2DG=@-$,$"kh$&$J6JLLNEIjDV7N:]$K4X?4$r;}$?$?$&!#

p3md $N?'IU$1$O!"3 DN0[Jk0lCV **top**, **bottom**, **surface** $N$$$:l+!"$^$?O9YF$K9T$($^$9!#0J2<;2>H **pm3d position (p. 158)**!#0J2<$N%3%^%s%I$O!"0[JC$?9b$5$G3 DN?'IU$-$N6JLLrIA-$^$9:

```
set border 4095
set pm3d at s
splot 10*x with pm3d at b, x*x-y*y, x*x+y*y with pm3d at t
```

0J2<$b;2>H **set palette (p. 160)**, **set cbrange (p. 193)**, **set colorbox (p. 120)**!#$=$7FbAm$s%G%b%U%!%$%k **demo/pm3d.dem** $b;29M$KJkG7g&!#

Pm3d $N%"%k%4%j:%`(algorithm)

$^$:!"CO?^/6JLL$,$INh$&$KIA$+$lkN$+$K$D$$$F5-=R7^$9!#F~NO%G!<%?$O!"4X?t$rI>2A$7$FF@$ilk$+$^$?$O **splot data file** $+$iF@il$^$9!#6JLL$O!"Av::(8IN)@~) $N7+$jJV7G9=@.5l$^$9!#pm3d %"%k%4%j:%`GO!":G=i$NAv::$G8!=P5l$?NY$j9g$&2E@$H!"<!$NAv::$G8!=P5l$?B>$N2E@$N4V$NNN0h$,!"$3li4E@

$Nz $NCM($^$?$OD I2C5l$? 'color' MQ$NNs$NCM! "0J2<;2>H: **using (p. 98)**) $K=>$C$F3%?'$G($^$?$O%+%i!<$G) EIil$^$9! #%G%U%)%k%HGO4 DN3QNCMNJ?6QCM$,;H$ol^9,! "$=$l$O%*%W%7%g%s**corners2color** $G JQ99$G$-$^$9! #$=lJjN6JLIrIA/$?$aKO! "NY$j9g$&2 E@$NAv::$,8r:9$7$F$O$$1J/$F! "6a@\E@Av::Kh $NE@$N?t$,0c$$9$.$F$O$$1$^$;$s! #$bAm$s! ":G$bNI$$N$OAv::$NE@$N?t$,F1$8$3HG$9! #B>$K$O2?$bI,MW GO$"$j$^$;$s(Nc$($P%G!<%?$O3J;R>uG"kI,MWb$J$$)! #B>Kb3Npm3d %"%k%4%j%:%'$O! "F~NO$5l?(7WB,5l$?! "$"$k$$O7W;;5l$?) NN0h$N30KO2?bIA+$J$$! "$H$$&D9=j$,$"j^$9! #

6JLI$N?'$E1O! "0J2<Nh$&&$JF~NO%G!<%?$K4X$7$F9T$ol^$9:

1. 4X?t! "$^$?$O 1 D+ 3 DN%G!<%?Ns$+$iJk%G!<%?$N splot: >e$K=RY?;M3Q7A$N 4 DN3Q$N z :BI8$NJ?6QCM($^$?$O **corners2color**) $+$i! "3%?'$NHO0O [0:1] $rM?$($k **zrange** $^$?$O **cbrange** $NHO0O [min_color_z,max_color_z] XNBP1~Kh$j! "3%?'/%+%i!<$NCM$,F@$il^$9! #$3NCMO! "D>@\3%?'$N?'CO?^MQ $N3%?'$NCMH7$F;H$&3H$,$G$-$^$9! #@55,2=$5l?3%?'NCMr%+%i!<$KBP1~$5$;$k3HbG$-$^$9! #40A4$J @bL@$O! "0J2<;2>H: **set palette (p. 160)**! #

2. 2 D+4 DN%G!<%?Ns$+$iJk%G!<%?splot: 3%?'/%+%i!<NCMO! "z NCMNBeoj$K:G8e$NNs$N:BI8$r;H$C $FF@$il^9N$G! "?'$Hz :BI8$,FHN)$JbNKJj^$9! #$3lO4 <!85%G!<%?$NIA2h$K;H$&$3H,G-$^$9! #

B>$NCm0U:

1. J*M}3X<T$N4V$G$O! "gnuplot $NJ8=q$d&=!<%9$K8=$olk 'iso_curve' (8IN)@~) $H$$&8@MUhj$b! ">e$G8@5Z 7?' Av::(scan)' $H$$&8@MU$NJ}$,;Hol$F$$^$9! #l EY$NAv::$HB>$NAv::$N5-O?$Khj?'CO?^$rI>2A$9$k! " $H$$&NO$=$&$$&0UL#$G$9! #

2. 'gray' $d 'color' $NCM(scale) $O! "3j$i$+$KJQ2=9k%+%i!<%Q%l%C%HXN! "O"B3$JJQ?t$N@~7A<IA|$G$9! #$=$N<IA|$NMM;R$OIA2h%0%i%UNNYKD9J}7A$GI=<($5l^$9! #$3$NJ8=q$GO=lr "%+%i!<%\%C%/%9(colorbox)" $H8F$S! "$=$NJQ?t$r%+%i!<%\%C%/%9<4$NJQ?t$H8F$S$^$9! #0J2<;2>H: **set colorbox (p. 120)**,**set cbrange (p. 193)**! #

8w8;%b%G%k (lighting)

%G%U%)%k%HGO! "pm3d $N?'$N3djEvF$O! "8~$-$d;kJ}0L$K$O0MB8$7$^$;$s! #$=$N>uBV$O**set pm3d nolighting** $KBP1~$7$^$9! #0lJ}! "%3%^%s%I**set pm3d lighting** $O! "0lE@$NE@8w8;$+$i$N>HL@$+iN50% $N8w$KhkC1=c$J 8w8;%b%G%k$rA*Br7^$9! #<~0O$NL@k5KBP9k=$N8w8;$N6/EY$O**set pm3d lighting primary <fraction>** $GD4@0$G$-$^$9! #H?<M8w(specular) $r4^$^$;$kEY9g$$O! "$=$NHfN($N@_Dj$,G-$^$9:

```
    set pm3d lighting primary 0.50 specular 0.0   # %O%$%i%$%H$J$7
    set pm3d lighting primary 0.50 specular 0.6   # 6/$$%O%$%i%$%H
```

Pm3d $N0lCV (position)

?'$N6JLI$CDlLL$+E70f($3$N>19g$O3%?'/%+%i!<$NJ?LICO?^) $+6JLI>e$NE@$Nz :BI8(3%?'/%+%i!<6JLL) KIA/3H$,$G$-$^$9! #$=$NA*Br$O! "%*%W%7%g%s**at** $K! "**b**, **t**, **s** $N6 D^GNAH9g$;$NJ8;zNsrD1F;XDj9k3H $G9T$($^$9! #Nc$($P **at b** $CDlLL$N$_$KIA2h7^$9$7! "**at st** $O:G=i$K6JLI$KIA$$F<!$KE70fLL$K?'CO?^$rIA $-$^$9$7! "**at bstbst** $O... ??LLL\$JOC! "3sJbNO;H$$^$;$s! #

EIil$?;M3Q7A$O! "<!$+$i<!XHIA2h5l$F9T$-$^$9! #6JLL$rIA2h$9$k>19g(**at s**)! "8e$N;M3Q7A$,A0$NbN $K=E$J$j(>e=q$-$7) $^$9(gnuplot OEIil?B?3Q7ANLVN=EJj$NAj8_:nMQ$r7W;;9kh&&$J2>A[8=<B %D!<%k$G$O"$j$^$;$s)! #:G=i$KAv::5l$k%G!<%?$r:G=iKIA/$+:G8e$KIA$/$+$r@ZBX$($k%9%$%C%A*%W%7%g %s**scansforward** $H**scansbackward** $r;n$7F$_$F$/$5$! #%G%U%)%k%H$O**scansautomatic** $G! "$3lO gnuplot <+?H$KAv::$N=g$r?dB,$5$;$^$9! #0lJ}$G! "%*%W%7%g%s**depthorder** $O;M3Q7A$N=g=x$r40A4$K:F9=@.$7 $^$9! #EIjDV7$O?<$5=gKJBSJQ$($5l?8e$G9T$o$l! "$3lKhj$+$J$jJ#;($J6JLIGb;k3PE*JbNK$9 k3H,G-$^$9! #>\:Y$O! "0J2<;2>H:**pm3d depthorder (p. 158)**! #

Av::$N=gHV (scanorder)

%G%U%)%k%HGO! "pm3d NEIjDY$76JLI$r9=@.9k;M3Q7A$O! "$=li$,6JLI$N3J;RE@$K1h$C$F=P2q$&=gHV$KEI jDY5l^$9! #3N=gHV$O! "%*%W%7%g%s**scansautomatic**|**scansforward**|**scansbackward** $G@)8f$G$-$^$9! # 3liNAv::(scan) %*%W%7%g%s$O! "0lHI$K$O1#LL=hM}$H$CN>N)$7$^$;$s! #

2 2s$NO"B3$9$kAv::$GE@$N?t$,F1$8$GJ+$C?>19g! ";M3Q7A$NE@$N<h$j;Oar! "N>J}$NAv::$N:G=i$+$i(**flush begin**) K9k+! ":G8e$+$i(**flush end**) K9k+! "?'?Cf$+$i(**flush center**) K9k+$r7hDj$7J1lP$$1

$^$;$s! **flush (center|end)** $O **scansautomatic** HQN>N)$;$:! "hC$F **flush center** $^$?$O **flush end** $r ;XDj$7$F **scansautomatic** $,@_Dj$5l?>l9g! "$=$l$OL58@$G **scansforward** $KJQ99$5l^$9! #

2 2s$NO"B3$9$kAv: :$GE@$N?t$,F1$8$GJ+C?>l9g! "8D! 9$NAv: :$GE@$,B-$jJ>l9g$K! "Av: :$N:G8e$K?';03Q7A rIA/$+I&$+$r%*%W%7%g%s **ftriangles** $O;X< ($7$^$9! #3l$O3j$i$+$J?'CO?^$N6-3&$rIA$/$N$K;H$ol^$9! #

gnuplot $O! "6JLL$NEIjDY7K*$$F$O! "K\Ev$Nl#LI=hM}$O9T$$^$;$s$,! "$?$$F$$O1s$$J}$+$i6a$$J}$X=g $K;M3Q7AMWAG$rEIjDY9$3$H$G==J,$JG-$"$,jKJj$^$9! #3N%b! <%I$O! "0J2<$N%*%W%7%g%s$r;H$&3H$G A*Br$G$-$^$9:

```
set pm3d depthorder hidden3d
```

%*%W%7%g%s **depthorder** CEIjDY$7;M3Q7A$X$N;X< ($G! "%*%W%7%g%s **hidden3d** $CF1MM$K6-3&@~(b7IA$/$J $i) XN;X< ($G$9! #Bg0hE*$J%*%W%7%g%sG"$k **set hidden3d** $O! "pm3d 6JLL$K$O1F6A$7$J$$$3HKCm0U7F $/$@$5$$! #

%/%j%C%T%s%0 **(clipping)**

;M3Q7A$N x,y :BI8$K4X9k%/%j%C%T%s%0$O 2 DNJ}K!$G9T$ol^$9! #**clip1in**: 3F;M3Q7A$NA4$F$N 4 E@$,Dj 5A5l$F$$$J1lPJi:! ">/J/Hb$=$N$&$A$N 1 E@$, x, y $NHC0O$K$*$5$^$C$F$$$J1lPJj^$;$s! # **clip4in**: 3F;M3Q7A$NA4$F$N 4 E@$, x, y $NHC0O$K$*$5$^$C$F$$$J1lPJj^$;$s! #

?'$N3d$jEv$F

3 Ns$N%G! <%? **(x,y,z)** $N>l9g:

?'E1$N@_Dj$O%+%i! <%\%C%/%9$NIA2h$HF1MM$K **set palette** $G7hDj$5l^$9! #0l$D$NIA2h$G$O0l$D$N%Q%l%C%H N_$,B8:_$7F@$^$9! #$$/Db$N6JLL$r0[Jk%Q%l%C%H$GIA2h$9kK$O! "**brigin** $H **size** $r8GDj$7$F **mutiplot** $r;H$&3H$G9T$($^$9! #=PNO%I%i%$%P$,MxMQG-$k?'$r;H$?T$/7F7^$&>l9g$K$O **set palette maxcolors** $r;H$&3H$rK:$l$:$K! #

IA2h5l$k3F pm3d ;M3Q7A$K$O0l$D$N3%?'/%+%i! <CM$,BP1~7^$9($=lO?'8{G[GOJ/L5CO$N?'$G$9)! #$=$N CM$O! "**corners2color** <**option**> $K=>$C$F4 DN3Q$Nz :BI8$+$i7W;$5l^$9! #**4** Ns$N%G! <%? **(x,y,z,color)** $N>l9g:

4 NsL\$K%G! <%?$rM?$($?>l9g! "$=lrDI>oOJLK%Q%l%C%H$K3d$jEvFk3%?'3,D4CMH_J7$^$9! #8D! 9$N;M3Q 7A$N:L?'$O>e$HF1MM$K9T$$^9,! "?'NCMOz NCMH$O@Z$jN%5l$^$9! #JL$N:L?'%*%W%7%g%s$Khj! "4 NsL\ $N%G! <%?$K RGB ?'$rM?$(k3HbG-$^$9! #0J2<;2>H: **rgbcolor variable (p. 42)**! #3N>l9g! "IA2h%3%^ %s%I$O0J2<$Nh&K9kI,MW,$"$j$^$9:

```
splot ... using 1:2:3:4 with pm3d lc rgb variable
```

M?$($il?@aE@KBP7$F! "$=$N<~$j$N4 DN@aE@$NJ?6Q2=$5l?(x,y) :BI8$+$i3Q$rF@$F;M3Q7A$r:nCF! "$= $N;M3Q7A$r@aE@$N?'$GEI$k! "$H$$C$?h%&$JB>$NIA2h%"%k%4%j%:%'$,>-Mh<BAu5lk+b7l^$;$s! #3l$O! " %$%a! <%8$NIA2h(2<!85$N3J;R) KBP7FO **image** $H **rgbimage** %9%?%$%kKhCF4{$K9T$Jol$F$$$^$9! #

z NCMNHC0O$H6JLL$N?'NCMNHC0O$O! "z $Hcb $K4X$9$k **set log** F1MM! "**set zrange** $H **set cbrange** KhCF FHN)$KD4@0$7F@k3HKCm0U7F$/$@$5$$! #?'CO?^$O cb <4$N$_$GD4@a5l$^$9! #0J2<$b;2>H: **set view map (p. 181)**,**set colorbox (p. 120)**! #

Corners2color

pm3d 6JLL$N3F;M3Q7A$N?'$O! "$=$N4 DND:E@$N?'NCMK4p$E$$$F3djEvFil$^$9! #<option> $O'mean' (%G %U%)%k%H)! "geomean', 'harmean', 'rms', 'median' $G! "5JLL$N%+%i! <$NJ?3j2=$K4vD+$N<dN'$rM?$(! "min','max' O=l>$l:G>.CM! ":GBgCM$rA*Br7^$9! #$3li$O1TIR$J! "$"$k$$$O5^7c$J%T! <%/CM$r;}Dh$&$J%T%/%;%k%$ %a! <%8$d?'CO?^$r:nkH$-$KOI,MW"j^$;$s! #$=$Nh&$J>l9g$K$O! "$'c1', 'c2', 'c3', 'c4' $r;H$C$F! ";M3Q7A$N?'$N3dEv$K$?$@0lDN3Q$Nz :BI8$r;H$&$h$&$K9l$P$$$G7g$&! #$I$N3Q$,'c1' $KBP1~ 9kN+rCNk$?$aKO2?2s$+<B83$7F_kI,MW,$"$kG7g&! #$=$N8~$-$OIA2h$NJ}8~$K0MB8$7$F$$^$9! # pm3d %"%k%4%j%:%'$O! "%+%i! <6JLL$rF~NC%G! <%?E@$NHC0O$N30$KOIA+$J$$N$G! "%*%W%7%g%s'c<j>' $O! "3J ;R$N2 DNXj$K1h$C$?%T%/%;%k,! "$I$N;M3Q7A$N?'Kb4sM?7J$$! "$H$$&7k2Lrb$?$i7^$9! #Nc$($P! " pm3d %"%k%4%j%:%'$r4x4 $N%G! <%?E@$N3J;RKE,MQ9$k%9%/%j%W%H **demo/pm3d.dem** (@'Hs8+F/$@$5$$) GO! "(4-1)x(4-1)=9 ?'7+$J$$$D9J}7A$,@8@.$5l^$9! #

Border

%*%W%7%g%s **set pm3d border {line-properties}** $O!"3F;M3Q7A$N6-3&@~$r!";M3Q7A$,IA2h5lF"kh$&$KIA2h7^$9!#DI>o$3lO!"5<;wE*$J1#@~=hM}$r9T$&$?aK!"%*%W%7%g%s **depthorder** HHbK;HMQ7^$9!#pm3d %0%i%U$G$O!"Bg0hE*$J%*%W%7%g%s **set hidden3d** $O2?$N8z2L$b@8$^$J$$$3HKCm0U7F$/$@$5$$!#%G%U%)%k%H$N@~$NB0@-(?'!"I}) $r!"%-!<%o!<%I border $N8e$m$K%*%W%7%g%s$H7F8emKD1$^$9!#$=$N%G%U%)%k%HCM$O!"$=$N8e$N splot %3%^%s%I$GJQ9$G$-$^$9!#

?d>)9k;HMQNc:

```
set pm3d at s depthorder border lw 0.2 lt black
unset hidden3d
unset surf
splot x*x+y*y linecolor rgb "blue"   # $3$&$7$J$$$H9u
```

Cm Hs?d>)$N%*%W%7%g%s **set pm3d hidden3d N** b^$@;H$($^$9,!"3l$O**set pm3d border ls N** $HF1$8$G$9!#

Interpolate

%*%W%7%g%s **interpolate m,n** $O!"$h$j:Y$+$JLVL\$r:nk?aK3J;RE@4V$rJd4V$7$^$9!#%G!<%?IA2hKBP7FO!"3l$O?'$N6JL$r3j$i$+$K$7!"$=$N6JL$N@mjrJd@5$7$^$9!#4X?tIA2h$KBP7F$O!"$3$NJd4V$O$[$HsI0UL#O"j^$;$s$+$i!"4X?tIA2h$N>19g$OIaDL**samples** $d **isosamples** $r;H$C$FI8K\?t$rA}2C5;kN$,$$$$G7g$&!#

@5$Nm, n KBP7FO3F;M3Q7A!"$^$?$O;03Q7A$O!"$=l>lNJ}8~$Km 2s!"n 2sJd4V5l$^$9!#Ii$Nm, n GOJd4V$NIQEY$O!">/J/Hb|m|, |n| E@$,IA2h$5lkh&$KA*Br$5l^$9!#$3lOFCJL$J3J;R4X?t$H8+J9$3$H$,$G$-$^$9!#

Cm0U: **interpolate 0,0** $O!"<+F0E*$K:GE,$JJd4V6JLIE@?t$rA*Br7^$9!#

Cm0U: corners2color $G4v2?J?6Q(geomean) Nh$&$JHs@~7AI>2A$,@_Dj$5lF$$$?H7Fb!"8=:_$N?'$NJd4V$O>o$K@~7AJd4V$G9T$ol^$9!#

Hs?d>)$J%*%W%7%g%s

3N%3%^%s%IKO%*%W%7%g%s{transparent|solid} $b;H$olF$$$^7?!#8=:_$O!"F1$88z2Lr=l>$l**set grid {front|layerdefault}** KhCFF@k3H,G-$^$9!#

5l<0$N%3%^%s%I**set pm3d map** $O0J2<$N0lO"NbNHF1CM$G$9:**set pm3d at b; set view map scale 1.0; set style data pm3d;set style func pm3d;**

%Q%l%C%H (palette)

%Q%l%C%H$O!"**pm3d** $G!"%+%i!<Ey9b@~$dB?3Q7A!"%+%i!<%R%9%H%0%i`!"?'8{G[$NGX7J!"$=$NB><BAu$5lF$$$k!"$"$k$$$O<BAu5lkbNNEIjDV7$G;H$olk!"?'$N5-21>l=j$G$9!#$3$3$GO=lO3ji+$G"O"B3E*$J"%+%i!<$d3%?'3,D4$N%Q%l%C%H$r0UL#$7$^$9$,!"$=lrC1$K%Q%l%C%H$H8FV3HK7^$9!#

%+%i!<%Q%l%C%H$O!"B?3Q7A$N?'NEIjDV7H3ji+$J?'$N%Q%l%C%H$r%5%]!<%H$7$?=PNO7A<0$rI,MW$H$7!"$=$l$O8=:_!"**pm3d** $G0lMwI=<($5lk=PNO7A<0$G;HMQ2DG=$G$9!#?'$NCM$NHO0O$O!"**set cbrange** $H**set log cb** $GFHN)$KD4@02DG=$G$9!#%+%i!<%Q%l%C%HA4BN$O**colorbox** Cf$KI=<(5l$^$9!#

=q<0:

```
set palette
set palette {
           { gray | color }
           { gamma <gamma> }
           {   rgbformulae <r>,<g>,<b>
             | defined { ( <gray1> <color1> {, <grayN> <colorN>}... ) }
             | file '<filename>' {datafile-modifiers}
             | functions <R>,<G>,<B>
```

```
                }
                { cubehelix {start <val>} {cycles <val>} {saturation <val>} }
                { model { RGB | HSV | CMY | YIQ | XYZ } }
                { positive | negative }
                { nops_allcF | ps_allcF }
                { maxcolors <maxcolors> }
              }
    show palette
    show palette palette <n> {{float | int}}
    show palette gradient
    show palette fit2rgbformulae
    show palette rgbformulae
    show colornames
```

set palette $O($9%JcA%*%W%7%g%sJ7GO) %G%U%)%k%HNCMr@_Dj7^$9!#$=$l0J30$N>l9g!"%*%W%7%g%sOG0U$N=g$KM?$($k3H$,$G$-$^$9!#**show palette** $O!"8=:_$N%Q%l%C%H$NB0@-$rI=<(7^$9!#

show palette gradient $O!"%Q%l%C%H$N8{G[(gradient) $NDj5A$,($=$l$,E,@Z$G$"$l$P) I=<($5l^$9!#**show palette rgbformulae** $O!"Dj5A:Q$GMxMQG-$k!"3%?'CM$+$i%+%i!<$X$NUQ498x<0$,I=<(5l$^$9!#**show colornames** $O!"G'<1$G$-$k?'L>$rI=<($7$^$9!#

show palette palette <**n**> $O!"<n> 8D$NN%;6E*$J?'$r;}$D%Q%l%C%H$N!"8=:_$N%Q%l%C%H$N@_DjKhCF7W;;5l$k RGB NCMNAH$H%Q%l%C%H$NI=$r!"2hLL!"$^$?$O**set print** $G;XDj$5l?%U%!%$%k$K=q$-=P$7$^$9!#%G%U%)%k%H$N9-$$I=$O!"DI2C$N%*%W%7%g%s float $^$?$O int KhCF!"3 Ns$N[0..1] $N<B?tCM$@1K9k$+[0..255] $N@0?tCM$@1K9k$+$r$=$l$>$l;XDjG-$^$9!#3NJ}K!$G gnuplot $N%+%i!<%Q%l%C%H$r!"Octave Nh$&$JB>$N2hA|%"%W%j1!<%7%g%s$KEO$9$3H,G-$^$9!#3NB>Kb!"%3%^%s%I**test palette** $G!"8=:_$N%Q%l%C%H$NR,G,B @.J,$NBP1~>uBV(profile) $rIA2h$7$=$NCM$r%G!<%?%V%m%C%/$PALETTE $K;D$5$;$k3HbG$-$^$9!#

0J2<$N%*%W%7%g%s$O!"?'IU1NB0@-$r7hDj$7$^$9!#

3N%Q%l%C%H$r;HMQ$9$k?^$O!"**gray** $+**color** KJJ}^$9!#Nc$($P!"**pm3d** %+%i!<6JLLGO!"HCOO[min_z,max_z] $,3%?'$NHCOO[0:1] $KBP1~$7$F$$$F!"Hy>.6JLL;M3Q7A$N4 DN3Q$Nz :BI8$NJ?6QCMr3$NHCOONCfKBP1~5;$k3H$G3FHy>.ItJ,$N3%?'$NCM(gray) $,F@$i1^$9!#$3NCMO!"3%?'3,D4$N?'CO?^$G$N3%?'$NCMH7$FD>@\;H$&3H$,$G$-$^$9$7!"%+%i!<$N?'CO?^$G$O!"$=$N3%?'$NCM$+$i(R,G,B) XNUQ49!"9JoA[0:1] $+$i([0:1],[0:1],[0:1]) XN<lA|$,;H$o1^$9!#

4pK\E*$K!"2<oN'$N0[Jk<lA|J}<0$,MxMQ2DG=$G$9:1 DO3%?'$+$i%+%i!<XN2r@CE*$J8x<0!"b&0lDON%;6E*$JBP1~I=$NJd4V$KhkbN$G$9!#**palette rgbformulae** $H**palette functions** $,2r@CE*$J8x<0MQ$G!"**palette defined** $H**palette file** $,Jd4VI=MQ$G$9!#**palette rgbformulae** $Opostscript =PNO$N%5%$%:$r>.5/9k3H$,$G$-$^$9!#

%3%^%s%I**show palette fit2rgbformulae** $O!"8=:_$N**set palette** $K:G$hNI$/BP1~$9$k**set palette rgbformulae** $r8+$D$1=P$7$^$9!#EvA3!"$=$l$Orgbformulae %Q%l%C%H0J30KBP7Fb0UL#$r;}$A$^$9!#3N%3%^%s%I$O<g$K!"%Q%l%C%H$Nrgbformulae Dj5A$,gnuplot $HF1$8J*$r;H$C$F$$$k30It%W%m%0%i%'!"Nc$($P zimg JIKHCEM-MQ$G$9(http://zimg.sourceforge.net

)!#

set palette gray $O!"3%?'3,D4$N$_$N%Q%l%C%H$K$7!"**set palette rgbformulae**, **set palette defined**, **set palette file**, **set palette functions** $O%+%i!<%Q%l%C%H$K7^$9!#3%?'%Q%l%C%H$+$iD>A0$N%+%i!<%Q%l%C%H$X!"**set palette color** $G4JC1$KI|5"G-$^$9!#

set palette gamma <**gamma**> Kh$k<+F0E*$J%,%s%^Jd@5$O!"3%?'$N%Q%l%C%H(**set palette gray**) $H!"**cubehelix** %+%i!<%Q%l%C%H7A<0$K9T$ol^$9!#gamma = 1 $N>l9g$O!"@~7A$N8wEY8{G[$r@8@.7^$9!#0J2<;2>H**test palette (p. 199)**!#

=PNO7A<0$NB?$/$O!"M-8B8D$N?'?t7+%5%]!<%H7F$$$^;$s(Nc$($P gif GO256 8D)!#%G%U%)%k%H$N gnuplot $N@~<o?'$r3djEvF$?8e$N;DjNM-8z$J?'NN0h$O!"%G%U%)%k%HGO pm3d MQ$KJ]B8$5l^$9!#$hCF!"J#?t$N%Q%l%C%H$r;HMQ9kh&$J multiplot $O!":G=i$N%Q%l%C%H$,$9YF$NM-8z$J?'$NG[CV$H7F;HMQ5lFkNG!"<:GT7F7^$&$G7g$&!#$3Nh$&$J@)8B$O!"=~J,>.$5$$CMN $G**set palette maxcolors** <**N**> $r;H$&3H$G4KOB$G$-$^$9!#$3$N%*%W%7%g%s$O!"N 8D$NN%;6E*$J?'$r!"O"B3E*$J%Q%l%C%H$+$iEy4V3V$J%5%s%W%j%s0$GA*Br7^$9!#ITEy4V3V$JN 8D$NN%;6?'$r;H$$?$$>l9g$O!"0l$D$NO"B3E*$J%Q%l%C%HNBeojK**set palette defined** $r;HMQ$7F/$@$5$$!#

RGB ?'6u4V$,:n6H$r9T$&$N$K>o$KbCHbM-MQ$J?'6u4V$G$"$kHO8BiJ$!"$H$$$&M}M3$G!"?'6u4V$O **model** $r;H$&3H$G!"**RGB**, **HSV**, **CMY**, **YIQ**, **XYZ** $N$$$:l+$KJQ99$G$-$^$9!#RGB 0J30$N?'6u4VGO **set palette defined** $NI=$G?'L>$r;H$&$H!"$=lO$*$+7J?'KJj^$9!#A4$F$N@bL@$O RGB ?'6u4VMQ$K=q$$F$"$j$^$9$,!"$=l>lN?'6u4V$G!"Nc$($P **R** $O **H**, **C**, **Y**, **X** N3Hr0UL#9k3H$KCm0U$7F/$@$5$$($(**G**, **B** $bF1MM)!#

A4FN?'6u4V$G!"A4$FNCMO [0,1] $K@)8B$5lF$$$^$9!#

RGB $O@V!"NP!"@D$r!"CMY $O?e?'(Cyan)!";g(Magenta)!"2+(Yellow) $r!"HSV $O?'Aj(Hue)!":IEY(Saturation)!"L@EY(Value) r=l>$l0UL#$7$^$9!#YIQ $OA4JF>&6H%+%i!<%F%l%SJ|Aw6(2q(the U.S. Commercial Color Television Broadcasting) $N;H$C$?%+%i!<%b%G%k$G!"RGB 5-O?J}<0$r85$K7F$$$^9,!"Gr9u%F%l%SKBP9$k8eJ}8_49@-$r;}CF$$$^$9!#XYZ $OCIE('Commission Internationale de l'Eclairage'; 9q:]>HL@0Q0w2q)$,Dj5A$7$??'%b%G%k$N3DN86;I7cCM$G$9!#?'%b%G%kNh$j>\$7$$>pJsKD$$F$O0J2<$r;2>H7F$/$@$5$$: http://en.wikipedia.org/wiki/Color_space

Rgbformulae

rgbformulae MQKO 3 DNE,@Z$J3d$jEv$F4X?t$,A*PlkI,MW,$"$j$^$9!#3NA*Br$O **rgbformulae** <r>,<g>,<b> rDL7$F9T$ol^$9!#;H$&3H$,$G$-$k3djEvF4X?t$N0lMw$O **show palette rgbformulae** $G8+$k3H$,$G$-$^$9!#%G%U%)%k%H$O **7,5,15** $G!"B>$NNcH7FO **3,11,6**, **21,23,3**, **3,23,21** JI$,$"j^$9!#**3,-11,-6** Nh$&$JIiNCMO!"5U$N%+%i!<$r0UL#7^$9($9Jo$A!"1-gray r=$N4X?t$KBeF~7^$9)!#

RGB $N?'6u4V$G$O!"$$$/D+$NNI$$3djEvF8x<0$,$"j^$9:

```
  7,5,15    ... EAE}E* pm3d (9u-@D-@V-2+)
  3,11,6    ... NP-@V-;g
  23,28,3   ... 3$ (NP-@D-Gr); B>$NAH$_9g$o$;$b;n$7$F$_$F$/$@$5$$
  21,22,23 ... 29EY?' (9u-@V-2+-Gr)
  30,31,32 ... Gr9u$N%+%i!<I=<(2=(9u-@D-;g-2+-Gr)
  33,13,10 ... Fz (@D-NP-2+-@V)
  34,35,36 ... AFM 29EY?' (9u-@V-2+-Gr)
```

HSV ?'6u4VGN%U%k%+%i!<%Q%l%C%H:

```
  3,2,2     ... @V-2+-NP-?e?'-@D-;g-@V
```

rgbformulae $H$$$&L>A0$G8F$PlF$$$F$b!"Nc$NDL$j!"$=li$N4X?t$O<B:]KO <H>,<S>,<V> $^$?$O <X>,<Y>,<Z>, ... $H$$C$??'$N@.J,$r7hDj$9k+b7lJ$$$H$$&3H$KCm0U$7F/$@$5$$!#

?^$N?'$rH?E>5;kK$O **positive** $d **negative** $r;H$CF/$@$5$$!#

B>$N?'BN7C$KBP9k:G$bNI$$rgbformulae $N=89g$O!"0J2<$N%3%^%s$I$G8+$D1k3H$,$G$-$k3Hr3P$($F$*$$F$/$@$5$$!#

```
  show palette fit2rgbformulae
```

Defined

3%?'$+$iRGB XNBP1~$O **palette defined** $r;H$&3H$G<jF0$G@_DjG-$^$9:?'8{G[(gradient) $ORGB NCMrM?$(k?aKDj5A5l;HMQ$5l^$9!#8{G[$O!"[0,1] $N3%?'CM$+$i [0,1]x[0,1]x[0,1] $NRGB 6u4V$X$N!"6hJ,E*$K@~7A$J<IA|$G$9!#$=$N@~7AJd4V$K;Hol$k3%?'CM$HRGB CMNAHr;XDj9kI,MW$,$"j^$9:

=q<0:

```
     set palette  defined { ( <gray1> <color1> {, <grayN> <colorN>}... ) }
```

<grayX> $O[0,1] $K3d$jEvFilkY-3%?'CM$G!"<colorX> O=lKBP1~9kRGB ?'$G$9!#%+%i!<CM$O3<dN'$NJ}K!$G;XDj$9k3H,G-$^$9:

```
    <color> :=  { <r> <g> <b> | '<color-name>' | '#rrggbb' }
```

@V!"NP!"@D$KBP1~$9$k6uGr$G6h@Zil$?3 DNCM($=l>$l[0,1] Fb)!"0zMQIdG/$/$il??'L>!"$^$?$O0zMQIdG/$/il$?X 7A<0$N;XDjJ}<0!"$N$$:l+$G$9!#8{G[$NDj5A$G$O!"$3li$N3<o$N7?$r<+M3$KAH$_9g$o$;$k3H$,$G$-$^9,!"?'6u4VH7$FRGB GJ$$bN,A*Br5l$?>19g?'L>"red" $O>/$70cC?bNKJkG7g$&!#;HMQ$G$-$k?'L>$O **show colornames** G=$N0lMw$r8+k3H,G-$^$9!#

<r> $H=q$$F$b!"HSV ?'6u4V$GO=lO <H> @.J,$r!"CIE-XYZ 6u4V$G$O <X> $r!"$H$$C$?$h$&$KA*Br 5l$?%+%i!<%b%G%k$K0MB8$7$F0UL#$,0c$&3H$KCm0U$7F/$@$5$$!#

<gray> NCMO<B?t$N>:=g$KJBYkI,MW$,$"j^$9!#$=NNsNCM$O<+F0E*$K[0,1] $KJQ49$5l^$9!#

%+%C%3D-$N8{G[$NDj5AJ7$G**set palette defined** H7$?>19g!"RGB ?'6u4V$K$7!"$"i+8a@_Dj5l$?%U%k%9%Z%/%H%k?'8{G[$r;HMQ7^$9!#8{G[$rI=<(9kKO**show palette gradient** $r;HMQ$7F/$@$5$$!#

Nc:

3%?'$N%Q%l%C%H(Lr$KN)$?$J$$,6571E*$J)$r@8@.9kKO:

```
set palette model RGB
set palette defined ( 0 "black", 1 "white" )
```

@D2+@V$N%Q%l%C%H(A4$F$,Ey2A$N)$r@8@.$9kK$O:

```
set palette defined ( 0 "blue", 1 "yellow", 2 "red" )
set palette defined ( 0 0 0 1, 1 1 1 0, 2 1 0 0 )
set palette defined ( 0 "#0000ff", 1 "#ffff00", 2 "#ff0000" )
```

FzNh$&$J%Q%l%C%H$r@8@.$9kK$O:

```
set palette defined ( 0 "blue", 3 "green", 6 "yellow", 10 "red" )
```

HSV ?'6u4VGN%U%k%+%i!<%9%Z%/%H%k:

```
set palette model HSV
set palette defined ( 0 0 1 1, 1 1 1 1 )
set palette defined ( 0 0 1 0, 1 0 1 1, 6 0.8333 1 1, 7 0.8333 0 1)
```

MATLAB $G;H$olk%G%U%)%k%H%Q%l%C%H$N6a;w:

```
set pal defined (1 '#00008f', 8 '#0000ff', 24 '#00ffff', \
                 40 '#ffff00', 56 '#ff0000', 64 '#800000')
```

Ey4V3V$J>/$7$N?'$@1N%Q%l%C%H$r@8@.$9kK$O:

```
set palette model RGB maxcolors 4
set palette defined ( 0 "yellow", 1 "red" )
```

'8rDL?.9f'(3ji+GOJ/ / gray = 1/3, 2/3 $GD7$S$r;}$D):

```
set palette model RGB
set palette defined (0 "dark-green", 1 "green", \
                     1 "yellow",     2 "dark-yellow", \
                     2 "red",        3 "dark-red" )
```

Functions

?'$N3d$jEvFN R(gray), G(gray), B(gray) $N3 DN4X?t$rM?$(kK$O**set palette functions <Rexpr>, <Gexpr>, <Bexpr>** $r;H$CF/$@$5$$!#$=$liN3 DN4X?t$NJQ?t$O!"[0,1] NCMr<h$kJQ?t **gray** G"$j!"$=NCMb[0,1] NCfK<hkI,MW,$"j^$9!#<Rexpr> $O!"HSV ?'6u4V$,A*Br5l$F$$k>19g$O!"H NCMrI=$9<0$GJ1lP$$1$J$$3HKCm0U7F$/$@$5$$(B>$N<0!"$^?$OB>$N?'6u4VGbF1MM$G$9)!#

Nc:

%U%k%+%i!<%Q%l%C%H$r@8@.$9kK$O:

```
set palette model HSV functions gray, 1, 1
```

9u$+$i6b?'XNNI$$%Q%l%C%H:

```
set palette model XYZ functions gray**0.35, gray**0.5, gray**0.8
```

%,%s%^Jd@5$NGr9u$N%Q%l%C%H:

```
gamma = 2.2
color(gray) = gray**(1./gamma)
set palette model RGB functions color(gray), color(gray), color(gray)
```

Gray

set palette gray $O!"0.0 = 9u$+$i 1.0 = Gr$X$N3%?'3,D4(%0%l%$%9%1!<%k) %Q%l%C%H$K@Z$jBX$($^$9!#3%?'3,D4%Q%l%C%H$+$i!"D>A0$N%+%i!<%Q%l%C%HK^$?La$9KO!"**set palette color** H9kN$,4JC1$G$9!#

Cubehelix

%*%W%7%g%s "cubehelix" O"$k%Q%l%C%HB2$rDj5A7^9,!"3l$O!"3%?'3,D4CM$,0 $+$i1 $KA}2C$9kN$KH<$J$$!"@5L#$N8wEY$,C1D4$KA}2C$9kN$HF1;~$K!"?'Aj(hue) $,I8=`?'Aj4D$K=>CFUQ2=7^$9!#

```
D A Green (2011) http://arxiv.org/abs/1108.5083
```

start $O!"?'Aj4D$K1hC?3+;OE@$r%i%8%"%sC10L$G7hDj7^$9!#**cycles** $O!"%Q%l%C%H$NHO0OrEOC$F?'Aj4D$r2?2s2sk+$r7hDj$7$^$9!#**saturation** (:LEY) $,Bg$-$$$H!"hj$"$6d+$J?'$KJj$^$9!#1 hjBg$-$$:LEY $O!"8D!9$N RGB @.J,$r%/%j%C%T%s%0$9k3HKJj!"8wEY$OC1D4$GOJ$/$JCF7^$$^$9!#**set palette gamma** $b%Q%l%C%H$K1F6A$rM?$(B$^$9!#%G%U%)%k%HCM$O0J2<$NDLjG$9!#

```
set palette cubehelix start 0.5 cycles -1.5 saturation 1
set palette gamma 1.5
```

File

set palette file $O4pK\E*$K**set palette defined (<gradient>)** $HF1$8$G!"$3$N<gradient> $,%G!<%?%U%!%$%k$+$iFI$_9~$^l^$9!#4 Ns(gray, R,G,B) $+$^$?$O3 Ns(R,G,B) $N%G!<%?$, **using** %G!<%?%U%!%$%k=$>~;RKhCFA*Br5lkI,MW,$"$j$^$9!#3 Ns$N>19g!"9THV9f$, gray NCMH7F;Hol$^$9$,!"$=$N gray $NHO0O$O<F'OE*$K[0,1] $K%9%1!<%kJQ49$5l^$9!#%U%!%$%k$OD>o$N%G!<%?%U%!%$%k$H7FFI$^$lkN$G!"A4$F$N%G!<%?%U%!%$%k=$>~;R$,;H$($^$9!#Nc$($P HSV ?'6u4V$,A*Br5l$F$$$k>19gKO!"**R** $O<B:]$K$O **H** $r;X$9$H$$$&3H$KCm0U$7F/$@$5$$!#

NcKhCF!"<filename> $,'-' $N>19g$O!"%G!<%?$,%$%s%i%$%s7A<0$G0z$-B3$$FM?$($i$l!"0l$D$N**e** N_$N9TG=l,=*N;$9k3Hr0UL#7^$9!#

8{G[(gradient) $rI=<($9kK$O**show palette gradient** $r;HMQ$7F/$@$5$$!#

Nc:

RGB $N%Q%l%C%H$r[0,255] $NHO0O$GFI$_9~$`:

```
set palette file 'some-palette' using ($1/255):($2/255):($3/255)
```

Ey5wN%$NFz?'(@D-NP-2+-@V) %Q%l%C%H:

```
set palette model RGB file "-"
0 0 1
0 1 0
1 1 0
1 0 0
e
```

%P%$%J%j%Q%l%C%H%U%!%$%k$bF1MM$K%5%]!<%H5l$F$$$^$9!#0J2<;2H:**binary general (p. 87)**!#R,G,B $N double $N%G!<%?$N64 8D$N3 DAHr%U%!%$%kpalette.bin $K=PNO$7!"$=$lrFI_9~$`Nc:

```
set palette file "palette.bin" binary record=64 using 1:2:3
```

%,%s%^Jd@5 **(gamma correction)**

3%?'$NG[?'$KBP9k%,%s%^Jd@5$O**set palette gamma** <**gamma**> $GON KG$-$^$9!#<gamma> $N%G%U%)%k%H$O1.5 $G!"$3lOB?$/$N=PNO7A<0$KE,@Z$JCM$G$9!#

%,%s%^Jd@5$O!"cubehelix %+%i!<%Q%l%C%H7A<0KOE,MQ5l$^$9$,!"B>$N?'7A<0KOE,MQ5l$^$;$s!#$7$+$7!"L@<(E*$J?'4X?t$K%,%s%^Jd@5$r<BAu$9kNOFq7$/$"j^$;$s!#

Nc:

```
set palette model RGB
set palette functions gray**0.64, gray**0.67, gray**0.70
```

Jd4V5l$?8{G[$r;HCF%,%s%^Jd@5$r9T$&KO!"E,Ev$J%+%i!<$KCf4VNCMr;XDj7^$9!#

```
set palette defined ( 0 0 0 0, 1 1 1 1 )
```

NBeojKNc$($P0J2<$r;XDj$7F/$@$5$$:

```
set palette defined ( 0 0 0 0, 0.5 .73 .73 .73, 1 1 1 1 )
```

$^$?$O!"@~7AJd4V$,"%,%s%^Jd@5" $NJd4V$K==J,NI$/E,9g$9k^Gh$jNI$$Cf4V$NE@$rC5$7$F$/$@$5$$!#

Postscript

postscript %U%!%$%k$N%5%$%:$r>.5/9kL\E*$G!"3%?'$N51EYCM!"$=$7$FA4$FGO$J$$$$$/D+$N7W;;$5l? RGB $N51EYCM$,$=$N%U%!%$%kCf$K=q$+$l$^$9!#@.J,4X?t$O postscript 8@8l$GD>@\%3!<%I2=5l!"pm3d $NIA2h$ND>A0$K%X%C%@$H7F$*$+l^$9!#/g $d/cF $NDj5A$r;2>H7F$/$@$5$$!#DL>o$=$NDj5Ar=NCfK=q$/$3HO!"3 DN<0N_$,;H$olk>l9g$K0UL#$r;}A^$9!#$7$+$7!"multiplot d=$NB>$NM}M3$G postscript %U%!%$%kCfN=$NJQ494X?t$rD>@\<j$GJT=8$7$?$$$H;W$&$+bCNl$^$;$s!#$3l,%G%U%)%k%H$N%*%W%7%g%s **nops_allcF** $G$9!#%*%W%7%g%s **ps_allcF** $r;H$&$H!"A4$F$N8x<0$NDj5A$, postscript %U%!%$%kCf$K=q$+l^$9!#0l$D$N%0%i%UCf$G!"0[Jk6JLL$K0[$J$k%Q%l%C%H$r;}$?$;$?$$$H$$$&L\E*$G postscript %U%!%$%k$rJT=8$7$?$$>l9g$K!"$3$N%*%W%7%g%s$K4X?4$r;}$DG7g&!#$=$N5!G=$O!"**origin** $H **size** $r8GDj$7$F **multiplot** $r;H$&3H$G<B8=$G$-$kG7g&!#

pm3d 6JLL$r PostScript %U%!%$%k$X=q$$$F$$$k>l9g!"gnuplot $KIUB0$9$k awk %9%/%j%W%H **pm3dCompress.awk** $r;H$&3H$G!"$=$N%U%!%$%k%5%$%:$r 50% $^$G>.5/G-k+b7l^$;$s!#%G!<%?$,;M3Q7A$N3J;R>uKJCF$$$k>l9g$O!"%9%/%j%W%H **pm3dConvertToImage.awk** $r;H$&3HGhjBg-$J05=IN($,F@il$k2DG=@-$,$"$j$^$9!#;HMQK!:

```
awk -f pm3dCompress.awk thefile.ps >smallerfile.ps
awk -f pm3dConvertToImage.awk thefile.ps >smallerfile.ps
```

Pointinterval $NH"%5%$%: (pointintervalbox)

@~B0@- **pointinterval**, **pointnumber** $O!"IA2h%9%?%$%k **linespoints** GN$_;H$ol^$9!#pointinterval $d pointnumber NCMrIi!"Nc$($P-N H9kH!"E@$N5-9frIA/A0$K!"3FE@$N5-9f$N8emNH"(<B:]KO1_) $NItJ,$rGX7J?'GEIjDV$9$3HG>C7^$9!#%3%^%s%I **set pointintervalbox** O=$N>C$9NN0hNBg-$5(H>7B) $r@)8f$7$^$9!#;XDj9kCM$O%G%U%)%k%H$NH>7B(= pointsize) KBP9$kG\N($G$9!#

E@%5%$%: (pointsize)

%3%^%s%I **set pointsize** $OIA2h$G;Hol$kE@$NBg$-$5$rJQ99$7$^$9!#

=q<0:

```
set pointsize <multiplier>
show pointsize
```

%G%U%)%k%H$O 1.0 G\$G$9!#2hA|%G!<%?=PNO$G$O!"Bg$-$$%]%$%s%H%5%$%:$NJ}$,8+d9$$$G7g$&!#

0lDNIA2hKBP9$k%]%$%s%H%5%$%:$O **plot** %3%^%s%I$N>e$G$bJQ99$G$-$^$9!#>\:Y$O!"0J2<;2>H: **plot with** (p. 106)!#

%]%$%s%H%5%$%:$N@_Dj$O!"I,$:$7$bA4$F$N=PNO7A<0$G%5%]!<%H5l$F$$$ko1GO$J$$$3HKCm0U7F$/$@$5$$!#

6K:BI8%b!<%I (polar)

%3%^%s%I **set polar** $O%0%i%U$NIA2hJ}K!$r xy D>8r:BI87O$+$i6K:BI87O$KJQ99$7$^$9!#

=q<0:

```
set polar
unset polar
show polar
```

6K:BI8%b!<%IGO!"2>JQ?t(t) $O3QEY&H$r0UL#7^$9!#t $N%G%U%)%k%H$NHC0C$O[0:2*pi] G9$,!"C10L$H7FEY$,A*Br$5lF$$$l$P[0:360] HJj^$9(0J2<;2>H: **set angles (p. 112)**)!#

%3%^%s%I **unset polar** $OIA2hJ}K!$r%G%U%)%k%H$Nxy D>8r:BI87O$KLa7^$9!#

set polar %3%^%s%I$O **splot** GO%5%]!<%H5l$F$$^$;$s!#**splot** KBP9$kF1MM$N5!G=$K4X$7FO!"0J2<;2>H: **set mapping (p. 145)**!#

6K:BI8%b!<%IGOt $N?t<0$N0UL#$Or=f(t) HJ$j!"t $O2sE>3Q$HJj$^$9!#trange $O4X?t$NDj5A0h(3QEY) $r@)8f$7!"rrange, xrange, yrange O=l>$l%0%i%U$Nx,y J}8~$NHC0C$r@)8f9k3HKJj^$9!#$3li$NHC0C$Hrrange $O<+F0E*$K@_Dj5lk+!"$^$?$OL@<(E*$K@_DjG-$^$9!#>\:Y$K4X$7FO!"0J2<;2>H: **set rrange (p. 167)**, **set xrange (p. 184)**!#

Nc:

```
set polar
plot t*sin(t)
set trange [-2*pi:2*pi]
set rrange [0:3]
plot t*sin(t)
```

:G=i$N **plot** $O%G%U%)%k%H$N3QEY$NHC0C$N0 $+$i2*pi $r;H$$$^$9!#F07BJ}8~$H%0%i%U$N%5%$%:$O<+F0E*$K?-=L5l$^$9!#2HVL\$N **plot** $O3QEY$NDj5A0h$r3HD%$7!"%0%i%U$N%5%$%:$r86E@$+$i3 $NI}$K@)8B7^$9!#$3lOx,y N=l>lNJ}8~$r[-3:3] $K@)8B$9k3HKJj$^$9!#

%G%U%)%k%HGO6K:BI8%0%i%U$O3QEY0(&H=0) $,1&8~$-$G!"A}2C$OH?;~7W2sjHJkh&$K8~$-E1il$F$$$^$9!#$=$N0 $N8~$-$HA}2CJ}8~$NN>J}$rL@<(E*$KJQ992DG=$G$9!#0J2<;2>H: **set theta (p. 177)**!#

set size square H9kH **gnuplot** $O%"%9%Z%/%HHf(=D2#$NHf) $r1 K9kN$G1_$,(BJ1_GJ$/)1_$K8+$($kh&KJj^$9!#F1?41_$N<~0O$NL\@9jN9o$_$O!"**set ttics** $G;XDj$G$-$^$9!#0J2<$b;2>H6K:BI8$N%G%b (polar.dem)

$*$h$S6K:BI8%G!<%?$NIA2h (poldat.dem)!#

Print %3%^%s%I$N=PNO@h (print)

%3%^%s%I **set print** $O **print** %3%^%s%I$N=PNO$r%U%!%$%k%j%@%$%l%/%H$7$^$9!#

=q<O:

```
set print
set print "-"
set print "<filename>" [append]
set print "|<shell_command>"
set print $datablock [append]
```

%Q%i%a!<%?J7$N **set print** $O!"=PNO$r<STDERR> $KI|5"$5$;$^$9!#"-" $H$$&<filename> $O<STDOUT> $r0UL#$7$^$9!#**append** %U%i%0$O%U%!%$%rDI2C(append) %b!<%I$G3+$/3H$r0UL#$7$^$9!#%Q%$%W$r%5%]!<%H9k%W%i%C%H%[!<%\>eGO!"<filename> $,"|" $G;O$^CF$$?$i!"<shell_command> XN%Q%$%W$,3+$+l^$9!#

%3%^%s%I **print** $NBP>]$OL>A0IU$-%G!<%?%V%m%C%/$G$b9=$$$^$;$s!#%G!<%?%V%m%C%/L>O'' $G;O$^j^$9!#0J2<;2>H: **inline data (p. 39)**!#

PostScript Dj5A%U%!%$%k%Q%9 (psdir)

%3%^%s%I **set psdir** <**directory**> $O!"postscript =PNO7A<0$,prologue.ps $dJ8;z%(%s%3!<%IMQ$N%U%!%$%k$rC5$9$N$K;HMQ$9$k8!:w%Q%9$r@)8f7^$9!#$3$N;EAH$_$O!"JL$K%m!<%+%k%+%9%?%^%$%:$7$?prolog %U%!%$%k72$H@Z$jBX$($kNK;H$($^$9!#8!:w$N=gHV$OJ2<$Nh&KJCF$$^$9!#

1) ‘set psdir‘ $r;XDj$7$?>l9g$O$=$N%G%#%l%/%H%j

2) 4D6-JQ?t GNUPLOT_PS_DIR $G;XDj$7$?%G%#%l%/%H%j
3) AH$_9~$^l?%X%C%@!<!"$^$?$O%G%U%)%k%H$N%7%9%F%`%G%#%l%/%H%j
4) ‘set loadpath‘ $G;XDj$7$?%G%#%l%/%H%j

6K:BI8$NF07B<4 (raxis)

%3%^%s%I **set raxis** $H **unset raxis** $O!"F07B<4$r3J;R@~$Hx<4$+$iJ,N%$7$FIA2h$9k+I&$+$r@ZjBX($^$9!#8=:_$Nrrange $N:G>.CM$,0 GJ$$($=$7$F<+F0=L<\$GJ)>l9g!"%0%i%U$H<4$,86E@$KC#$7$J$$3Hr<($9Gr4]$,6K:BI8%0%i%U$NCf?4$KIA$+$l$^$9!#<4$N@~$O!"%0%i%U$N6-3&$HF1$8@~<o$GIA2h5l$^$9!#0J2<;2>H: **polar (p. 165)**, **rrange (p. 167)**, **rtics (p. 167)**, **rlabel (p. 167)**,**set grid (p. 133)**!#

Rlabel

3N%3%^%s%I$O!"r<4$N>e$K%i%Y%k$rG[CV7^$9!#$=$N%i%Y%k$O!"%0%i%U$,6K:BI8%b!<%I(polar) G"k+H]$+$K4Xoi$:I=<($5l^$9!#DI2C$N;XDj%-!<%o!<%IKD$$$F$O0J2<;2>H: **set xlabel (p. 183)**!#

Rmargin

%3%^%s%I **set rmargin** $O1&$NM>Gr$N%5%$%:$r%;%C%H$7$^$9!#>\:Y$O!"0J2<;2>H: **set margin (p. 145)**!#

Rrange

%3%^%s%I **set rrange** $O6K:BI8%b!<%I$N%0%i%U$NF07BJ}8~$NHO0O$r@_Dj$7$^$9!#3l$Oxrange $Hyrange $NN>J}$b@_Dj7F7^$$$^$9!#N><T$O!"[-(rmax-rmin) : +(rmax-rmin)] KJj^$9!#$7$+$7!"3l$N8e$Gxrange $dyrange $rJQ99$7Fb(Nc$($P3HBg9k$?$a$K)!"$=lOrrange $rJQ99$7$J$$$N$G!"%G!<%?E@$Orrange $K4X$7$F%/%j%C%T%s%0$5l?$^$^HJj^$9!#B>$N<4HO0c$$!"r<4$N<+F0=L<\$G$O>o$K rmin = 0 HJj^$9!#**reverse** GO<+F0=L<\%U%i%0$OL5;k$5l^$9!#Cm0U: rmin rIiNCM$r@_Dj$9kH!"M=4|$;$L7k2L$r@8$'2DG=@-$,$"j^$9!#

Rtics

%3%^%s%I **set rtics** $O!"F07B<4$Klh$C$FL\@9jrG[CV7^$9!#L\@9$jH=$N8+=P$7$O6E@$NL&B&KIA+l^$9!#%-!<%o!<%I **mirror** $O!"$=li$r6E@$N:8B&KbIA$-$^$9!#$=$NB>$N%-!<%o!<%I$K4X$9kOCK$D$$$F$O0J2<;2>H**polar (p. 165)**, **set xtics (p. 186)**, **set mxtics (p. 151)**!#

%5%s%W%k?t (samples)

4X?t!"$^$?$O%G!<%?$NJd4V$K4X$9$k%G%U%)%k%H$N%5%s%W%j%s%0?t$O!"%3%^%s%I**set samples** $GJQ99$G$-$^$9!#8D!9$N%0%i%U$NIA2hHO0O(sampling range) $NJQ99$O!"0J2<;2>H: **plot sampling (p. 103)**!#

=q<O:

```
set samples <samples_1> {,<samples_2>}
show samples
```

%G%U%)%k%HGO%5%s%W%k?t$O100 E@$H@_Dj5l$F$$$^$9!#$3NCMrA}d9Hh$j@53N$JIA2h$,=PMh$^9,CY$/$Jj^$9!#$3$N%Q%i%a!<%?$O%G!<%?%U%!%$%k$NIA2hKO2?$N1F6A$bM?$($^$;$s$,!"Ud4V/6a;w$N%*%W%7%g%s$,;H$olF$$k>l9gO=$N8B$jGO$"$j$^$;$s!#2<!85IA2h$K$D$$$F$O**plot smooth** $r!"3<!85IA2h$K4X7F$O!"0J2<;2>H: **set dgrid3d (p. 125)**!#

2<!85$N%0%i%UIA2h$,9TJolkH-$O<samples_1> NCMN$_$,4X78$7$^$9!#

1#@~=hM}J7$G6JLIA2h$,9TJolkH-$O!"samples NCMO8IN)@~Kh$KI>2A$5lk%5%s%W%k?t$N;XDjKJj^$9!#3F v-8IN)@~$O<samples_1> 8D$N%5%s%W%kE@$r;}$A!"u-8IN)@~$O<samples_2> 8D$N%5%s%W%k?t$r;}A^$9!#<samples_1> N_;XDj9k$H!"<samples_2> NCMO<samples_1> $HF1$8CM$K@_Dj$5l^$9!#0J2<$b;2>H: **set isosamples (p. 135)**!#

%0%i%UNN0h%5%$%: (size)

=q<0:

```
set size {{no}square | ratio <r> | noratio} {<xscale>,<yscale>}
show size
```

<xscale> $H<yscale> $OIA2hA4BN$N3HBg$NG\N($G!"IA2hA4BNHO%0%i%U$H%i%Y%k$HM>Gr$NItJ,$r4^$_$^$9!#

=EMW$JCm0U:

```
gnuplot $N0JA0$NHG$G$O!"‘set size‘ $NCM$r!"=PNO$9$kIA2hNN0h
(%-%c%s%P%9) $N%5%$%:$r@)8f$9$k$N$K$b;H$C$F$$$?=PNO7A<0$b$"$j$^
$7$?$,!"$9$Y$F$N=PNO7A<0$,$=$&$@$C$?$o$1$G$O$"$j$^$;$s$G$7$?!#
8=:_$O!"$[$H$s$I$N=PNO7A<0$,0J2<$N%k!<%k$K=>$$$^$9:
```

set term <terminal_type> size <XX>, <YY> $O!"=PNO%U%!%$%k$N%5%$%:!"$^$?$O"%-%c%s%P%9" $N%5%$%:$r@)8f$7$^$9!#%5%$%:Q%i%a!<%?$NM-8zJCMK$D$$F$O!"8D!9$N=PNO7A<0$N%X%k%W$r;2>H7F$/$@$5$$!#%G%U%)%k%HGO!"%0%i%UO=$N%-%c%s%P%9A4BN$KIA2h5l$^$9!#

set size <XX>, <YY> $O!"IA2h<+BN$r%-%c%s%P%9$N%5%$%:KBP7$FAjBPE*$K?-=L5;$^$9!#1 hj>.$5$$?-=LCM$r;XDj$9kH!"%0%i%U$O%-%c%s%P%9A4BN$rKda:!"1 hjBg$-$$?-=LCM$r;XDj$9kH!"%0%i%U$N0lItJ,$N$_$,%-%c%s%P%9A4BN$K9g$&h&$KIA2h$5l^$9!#1 hjBg$-$$?-=LCM$r;XDj$9kH!"$"$k=PNO7A<0GOLdBj$,5/3$k$+$b7l$J$$$3HKCm0U7F$/$@$5$$!#

ratio $O!";XDj$7$?<xscale>,<yscale> $NIA2hHC0CFb$G!"%0%i%U$N%"%9%Z%/%HHf(=D2#Hf) $r<r> K7$^$9(<r> $Ox J}8~$ND9$5$KBP9k y J}8~$ND9$5$NHf)!#

<r> NCMrIiK9kH$=$N0UL#$C0c$CEMh^$9!#<r>=-1 NH$-!"x<4!"y<4$NAPJ}$NC10L(D^$j1) $NL\@9$j$ND9$5$,F101$KJkh&@_Dj5l$^$9!#3l$O!"3<!85MQ$N%3%^%s%I **set view equal xy** $N2<!85$G$NF1EyJ*$G$9!#<r>=-2 NH$-!"y<4$NC10LL\@9jND9$5$Ox<4$NC10LL\@9jND9$5$N2G\$K@_Dj5l$^$9!#<r>$,Ii$NCM$K4X$7$F0J2<F1MM$G$9!#

gnuplot $,;XDj$5l?%"%9%Z%/%HHf$N%0%i%U$rAcsH=q1k$+$OA*Br5l$k=PNO7A<0$K0MB8$7$^$9!#%0%i%U$NNN0h$O=PNO$N;XDj5l$?ItJ,$KAcsH<}$^$j!"%"%9%Z%/%HHf$,<r>$G$"$kh&$J:GBg$ND9J}7AHJj^$9($bAmsE,EvJM>Gr$b;D$7$^$9$,)!#

set size square $O **set size ratio 1** $HF1$80UL#$G$9!#

noratio $H **nosquare** $O$$:lb%0%i%Ur=$N=PNO7A<0(terminal) GN%G%U%)%k%H$N%"%9%Z%/%HHf$KLa7^9,!"<xscale> $H<yscale> O=$N%G%U%)%k%H$NCM(1.0) KOLa7^$;$s!#

ratio $H **square** $O3<!85IA2h$G$C0UL#$r;}A^$;$s$,!"**set view map** $r;HMQ$7$?3<!85IA2h$N2<!85<M1FKO1F6A$rM?$($^$9!#0J2<$b;2>H: **set view equal (p. 181)**!#3l$O!"3<!85$Nx<4$Hy<4$r6/@)E*$KF1$8%9%1!<%kK7$^$9!#

Nc:

%0%i%U$,8=:_$N%-%c%s%P%9rKdakh$&$JBg$-$5$K@_Dj$7$^$9:

```
set size 1,1
```

%0%i%U$rDL>o$NH>J,NBg-5G5J}7AK7$^$9:

```
set size square 0.5,0.5
```

%0%i%U$N9b$5$r2#I}$N2G\$K7^$9:

```
set size ratio 2
```

IA2h%9%?%$%k@_Dj (style)

%G%U%)%k%H$NIA2h%9%?%$%k$O!"**set style data** $H **set style function** $G@_Dj$G$-$^$9!#4X?t$d%G!<%?%N%G%U%)%k%H$NIA2h%9%?%$%k$r8D!9$KJQ99$9$kJ}K!KD$$F$O!"0J2<;2>H: **plot with (p. 106)**!#%9%?%$%k$N0lMwA4BN$O!"0J2<;2>H: **plotting styles (p. 52)**, **plot with (p. 106)**!#

=q<0:

```
set style function <style>
set style data <style>
show style function
show style data
```

;XDjG-$kIA2hMWAG$N%G%U%)%k%H%9%?%$%k$b@_DjG-$^$9!#

=q<0:

```
set style arrow <n> <arrowstyle>
set style boxplot <boxplot style options>
set style circle radius <size> {clip|noclip}
set style ellipse size <size> units {xy|xx|yy} {clip|noclip}
set style fill <fillstyle>
set style histogram <histogram style options>
set style line <n> <linestyle>
set style rectangle <object options> <linestyle> <fillstyle>
set style textbox {opaque|transparent} {{no}border} {fillcolor}
```

Lp0u%9%?%$%k@_Dj **(set style arrow)**

3F=PNO7A<0OLpdE@$N7A$N%G%U%)%k%H$N=89g$r;}CF$$$F!"$=$l$O%3%^%s%I**test** $G;2>H$G$-$^$9!#**set style arrow** OLpN7A!"I}!"E@$N7A!"%5%$%:$rDj5A$7!"$=$lir8e$G;H$&H-$K$$A$$AF1$8>pJs$r7+jJV7$F;XDj$7J/Fb%s%G%C%/%9$G;2>H$G$-$kh&K7$^$9!#

=q<0:

```
set style arrow <index> default
set style arrow <index> {nohead | head | heads}
                        {size <length>,<angle>{,<backangle>} {fixed}}
                        {filled | empty | nofilled | noborder}
                        {front | back}
                        { {linestyle | ls <line_style>}
                          | {linetype | lt <line_type>}
                            {linewidth | lw <line_width}
                            {linecolor | lc <colorspec>}
                            {dashtype | dt <dashtype>} }
unset style arrow
show style arrow
```

<index> $O@0?t$G!"$=$lGLpN%9%?%$%k(arrowstyle) $rFCDj$7$^$9!#

default $r;XDj$9kH!"A4FNarrow %9%?%$%k%Q%i%a!<%?$O$=$N%G%U%)%k%HNCMKJj$^$9!#

<index> $Narrowstyle $,4{$KB8:_9k>19g!"B>$NA4$F$OJ]B8$5l?$^$^!"M?$($il?%Q%i%a!<%?N_$,JQ99$5l^$9!#<index> $,B8:_$7JllP!";XDj5l$J+$C$?CM$O%G%U%)%k%HNCMKJj$^$9!#

nohead $r;XDj$9k3HG!"Lp@hNJ$,Lp!"$9Jo$A@~J,$r=q$/$3HbG-$^$9!#3l$OIA2h$N>e$K@~J,$rIA$/JL$JJ}K!$rM?$($^$9!#%G%U%)%k%HGO1 DNLp@h$,$D$$F$$^$9!#**heads** $N;XDj$G@~J,$NN>C<$KLp@h$,IA$+l^$9!#

Lp@hNBg-5O**size** <**length**>,<**angle**> $^$?$O**size** <**length**>,<**angle**>,<**backangle**> $G@)8f$G$-$^$9!#<**length**> $OLp@h$N3F;^$ND9$5$G!"<**angle**> $OLp@h$N;^HLp<4$,$J$93QEY(C10L$OEY) $G$9!#<**length**> $NC10L$O x <4$HF1$8G9$,!"$=lO<**length**> $NA0$K**first**, **second**, **graph**, **screen**, **character** rD1k3H$GJQ99$G$-$^$9!#>\:Y$O!"0J2<;2>H **coordinates (p. 26)**!#

%G%U%)%k%HGO!"HF$bC;$$Lp$NLp@h$O>.5/7^9,!"3l$O!"**size** %3%^%s%I$N8emK**fixed** $r;H$&3H$GL58z$KG-$^$9!#

<**backangle**> $O!"Lp@h$N8emNItJ,$NLp<4$H$N@Z$j3Q(<**angle**> $HF1$8J}8~!"C10L$OEY) KJj^9,!"%9%?%$%k**, nofilled** $N>19g$O3l$rL5;k$7$^$9!#

filled $r;XDj$9kH!"Lp@h$N2s$j$N@~(6-3&@~) rIA-!"Lp@hrEIjDV7^$9!#**noborder** $r;XDj$9kH!"Lp@hOEIjDV7^9,!"6-3&@~OIA-$^$;$s!#$3$N>19g!"Lp@h$N@hC<$,%Y%/%H%k$N=*E@%T%C%?jN>l=j$K

CV$+$l!"$=$NLp@h$OA4BN$H7F>/$7>.$5$/$Jj^$9!#E@@~$GLprIA/>l9g$O!"E@@~$N6-3&@~$O1x$$$N$G!">o$K **noborder** $r;H$&Y-$G$9!#Lp@hNEIjDV7O!"9YFN=PNO7A<0$,%5%]!<%H$7$F$$kHO8Bj^$;$s!#

@~<o$O%f!<%6$NDj5A7?%i%$%s%9%?%$%k$N%j%9%H$+$iA*$V3HbG$-$^$9$7(0J2<;2>H: **set style line (p. 172)**)!"MQ0U5l$F$$$k <**line_type**> $NCM(%G%U%)%k%H$N%i%$%s%9%?%$%k$N%j%9%H$NHV9f)$=$7$F <**linewidth**>(%G%U%)%k%H$NI}$NG\?t)$r;H$CF3$3$GDj5A9k3HbG$-$^$9!#

7+$7!"%f!<%6!<D j5A:Q$N%i%$%s%9%?%$%k$,A*Br$5l?>l9g!"$=$NB0@-(@~<o!"I})$O!"C1$KB>$N **set style arrow** %3%^%s%IGE,EvJHV9f$d **lt**, **lw** JI$r;XDj$7Fb!"JQ99OG$-$J$$$3HKCm0U7F2<$5$$!#

front $r;XDj$9kH!"Lp$O%0%i%U$N%G!<%?$N>e$KIA$+$l$^$9!#**back** $,;XDj$5l?>l9g(%G%U%)%k%H)OLpO%0%i%U$N%G!<%?$N2<KIA+l^$9!#**front** $r;H$($P!"L)=8$7$?%G!<%?$GLp$,8+$(J/Jk3HrKI0$3$H$,$G$-$^$9!#

Nc:

Lp@h$,$J$/!"G\$NI}$,Lp$rIA$/$K$O:

```
set style arrow 1 nohead lw 2
set arrow arrowstyle 1
```

$=$NB>NNcK$D$$$F$O!"0J2<;2>H: **set arrow (p. 113)**!#

Boxplot %9%?%$%k;XDj (boxplot)

%3%^%s%I **set style boxplot** Kh$j!"IA2h%9%?%$%k **boxplot** $G@8@.$9$kIA2h$N%l%$%"%&%H$rJQ99G-$^$9!#

=q<0:

```
set style boxplot {range <r> | fraction <f>}
                  {{no}outliers} {pointtype <p>}
                  {candlesticks | financebars}
                  {separation <x>}
                  {labels off | auto | x | x2}
                  {sorted | unsorted}
```

boxplot $NH"$O!">o$K%G!<%?$NBh0l;MJ,0L$+$iBh;0;MJ,0LNCMNHO0OK+$+$C$F$$$^$9!#H"$+$i1dD9$5lk H"R2$N8B3&$O!"2DN0[JkJ}K!$G@)8f$G$-$^$9!#%G%U%)%k%H$G$O!"H"$R2O!"$=$NH"N=l>lNC<$+$i!";MJ,0LHO0O$N1.5 G\($9Jo$A!"$=$NH"$N87L)$J?bD>J}8~$N9b$5)$KEy$7$$HO0OK^$G1dD9$5l^$9!#H"$R2=l>lO!"%G!<%?=89gN"$kE@$KB0$9$ky NCMG=*N;9kh&$K!"%a%8%"%s$K8~$+$C$F@Z$j<NFil^$9!#;MJ,0LHO0O$NCzEY1.5 G\$NCM$NE@$,J>$l9g$b$"$j$^$9$+$i!"H"R2O=$NL>L\>e$NHO0Ohj$bC;$/Jk>l9gb"j^$9!#3$N%G%U%)%k%H$O0J2<$KBP1~7^$9!#

```
set style boxplot range 1.5
```

b&0lDNJ}K!H7$F!"H"$R2,$+$+$kE@$NAm?t$N3d9g(fraction)$r;XDj9k3H$,$G$-$^$9!#$3$N>l9g!"$=$NHO0O$O%a%8%"%sCM$+$i!"%G!<%?=89g$N;XDj$7$?J,$r0O$9~$^$G!"BP>N$K1dD9$5$l$^$9!#3NH-$b!"8D!"9$NH"R2$O%G!<%?=89gFb$NE@$NC<$^GK@)8B5l$^$9!#%G!<%?=89g$N95% $NE@$rOkKO0J2<Nh$&$K7^$9!#

```
set style boxplot fraction 0.95
```

H"R2$NHO0O$N30K"kG0U$NE@$O!"butliers $H8+$J5l$^$9!#%G%U%)%k%HGO=liORHDRH$D1_(point-type 7)$GIA$+$l$^$9$,!"%*%W%7%g%s **nooutliers** O3lrL58zK7$^$9!#

%G%U%)%k%HGO boxplot $O candlesticks $H;w$?%9%?%$%k$GIA2h7^9,!"financebars $H;w$?%9%?%$%k$GIA2h9k$?$a$N%*%W%7%g%s$b$"$j$^$9!#

boxplot $N using ;XDj$,4 NsL\$r;}$D>l9g!"$=NNsNCMO"$k0x;RJQ?t$NN%;6E*$J%l%Y%kCM$G$"$k$H8+$J7^$9!#$3$N>l9g!"$=$N0x;RJQ?t$N%l%Y%k$N?t$HF1$8$@1NJ#?t$Nboxplot $,IA$+l^$9!#$=li$N boxplot NNYj9g$&bNF1;N$N5wN%$O%G%U%)%k%HGO1.0(x<4$NC10L$G)$G9,!"3N4V3V$O%*%W%7%g%s **separation** $GJQ99$G$-$^$9!#

%*%W%7%g%s **labels** $O!"$3li$N boxplot ($=l>$l%G!<%?=89g$N$"$kItJ,$KBP1~$9$k)$NI3$K!"$INh$&$K%i%Y%krD1k$+$r7hDj7^$9!#%G%U%)%k%H$G$O0x;R$NCM$r?eJ?<4(x $+x2 $N$$:l+plot $G;H$olF$$$kJ})$NL\@9%i%Y%k$K=PNO7^$9!#$3lO%*%W%7%g%s$N **labels auto** $KBP1~$7$^$9!#%*%W%7%g%s **labels x**, **labels x2** KhCF!"6/(@)E*$K x<4!"x2<4$K$=$l$>$l=PNO$5;$k3HbG$-$^$9$7!"**labels off** $G%*%U$K9k3HbG$-$^$9!#

%G%U%)%k%HGO! "0x; RJQ?t$N0 [$J$k%l%Y%k$KBP1~9k boxplot $O@0Ns2=$O$;$:! "%G! <%?%U%!%$%k$K$=$N%l%Y%k $,8=$l$k=gHV$KIA2h7^$9! #$3$N5sF0$O%*%W%7%g%s **unsorted** $KBP1~$7$^$9$,! "%*%W%7%g%s **sorted** $r;HMQ 9k$H! "$^$:%l%Y%k$r<-=q=g$K%=! <%H$7! "$=$N=g$K boxplot $rIA2h$7$^$9! #

%*%W%7%g%s **separation**, **labels**, **sorted**, **unsorted** $O! "plot $K 4 NsL\$N;XDj$rM?$ ($?>19g$N$_8zNO$r;}$A $^$9! #

0J2<;2>H: **boxplot (p. 53)**, **candlesticks (p. 55)**, **financebars (p. 58)**! #

%G! <%?IA2h%9%?%$%k;XDj **(set style data)**

%3%^%s%I **set style data** $O%G! <%?IA2h$KBP9k%G%U%)%k%H$NIA2h%9%?%$%k$rJQ99$7$^$9! #

=q<0:

```
set style data <plotting-style>
show style data
```

A*Br9'L\$K$D$$$F$O! "0J2<;2>H: **plotting styles (p. 52)**! #**show style data** $O8=:_$N%G%U%)%k%H$N%G! <%?IA2h%9%?%$%k$rI=<($7$^$9! #

EIjDY7%9%?%$%k;XDj **(set style fill)**

%3%^%s%I **set style fill** $O! "boxes, histograms, candlesticks, filledcurves GNIA2hK*1kIA2hMWAG$N%G%U%)%k%H$N%9%?%$%k$N@_Dj$K;H$ol^$9! #$3$N%G%U%)%k%H$O! "8D! 9$NIA2h$KEIjDY7%9%?%$%k (fillstyle) $r;XDj$9k3HG>e=q$-$G$-$^$9! #0J2<;2>H: **set style rectangle (p. 174)**! #

=q<0:

```
set style fill {empty
                | {transparent} solid {<density>}
                | {transparent} pattern {<n>}}
               {border {lt} {lc <colorspec>} | noborder}
```

%G%U%)%k%HNEIjDV$7%9%?%$%k (fillstyle) $O **empty** $G$9! #

%*%W%7%g%s **solid** $O! "=PNO7A<0$,%5%]! <%H7F$$$k>19g! "$=$N?'GN%Y%ZEIjr9T$$^$9! #%Q%i%a! <%?<density> OEIjDV$7?'$N6/5rI=7F$$$F<density> $,0.0 JiH"$O6u! "<density> $,1.0 JiH"O=$NFbIt$O8=:_$N@~<o$H40A4$KF1$8?'GEIil^$9! #=PNO7A<0$KhCFO! "3N6/5rO"B3E*$KJQ2=5;$ilkbNb"$j $^$9$,! "$=$NB>$NbN$O! "ItJ,E*$JEIjDV7$N4v$D$+$N%l%Y%k$r<BAu$7$F$$$k$K2a$.$^$;$s! #%Q%i%a! <%?<density> $,M?$ (ilJ+C?>19g$O%G%U%)%k%H$N1 KJj^$9! #

%*%W%7%g%s **pattern** $O! "=PNO%I%i%$%PKhCFM?$ (il$k%Q?! <%s$GNEIjDV7r9T$$^$9! #MxMQ$G$-$kEIjD$V$7%Q?! <%s$N<oN'H?t$O=PNO%I%i%$%P$K0MB8$7$^$9! #EI$jDV7N boxes %9%?%$%k$GJ#?t$N%G! <%?=89g$rIA2h9k>19g$=$N%Q%?! <%s$O! "U#?t$N6J@~$NIA2h$K$*$1$k@~<o$N<~4|$HF1MM! "M-8z$J%Q%?! <%s$r! "%Q%?! <%s<n> $+$i;OaF<~4|E*$KMxMQ$7$^$9! #

%*%W%7%g%s **empty** $O! "H"$rEIjDV7$^$;s,! "3l$,%G%U%)%k%H$G$9! #

EIjDY7?' (**fillcolor** <**colorspec**>) $O! "EI$jDY$7%9%?%$%k (fill style) $+$iJ,N%5l$F$$$^$9! #$9Jo$A! "fillstyle $OIA2hMWAG$d%*%V%8%'%/%H$GJL! 9$N?'$r;}$C$?$^$6&M-$9k3H,G-$^$9! #fillstyle $r<u$1D1$kBgDq$N>l=j$G fillcolor $r;XDj$G$-$^$9! #fillcolor $O **fc** $N>JN,7A$b;H$ ($^$9! #;XDj7J$$>19g$O! "EI$jDY$7?'$O8=:_$N@~<o (linetype) $+$i<hj^$9! #Nc:

```
plot FOO with boxes fillstyle solid 1.0 fillcolor "cyan"
```

Set style fill border %-!<%o!<%I **border** $O! "EI$jDY$7%*%V%8%'%/%H$r8=:_$N@~<o$H?'$N<B@~$G0O$'$h$&$K7^$9! #$=$N@~$N?'$O! "linetype $d linecolor $rD12C;XDj$9lPJQ99G-$^$9! #**noborder** $O! "6-3&$N@~rIA+$J$$$h$&$K7^$9! #Nc:

```
# EI$jDY$7$O6/EYH>J,! "6-3&$OF1$8?'$GA46/EY
set style fill solid 0.5 border
# EI$jDY$7$OH>J,F)2a! "6-3&$O<B@~$N9u (@~<o -1)
set style fill transparent solid 0.5 border -1
```

```
# 8=:_$N?'$G$N%Q%?!<%sEI$jDY$7!"6-3&$O@~<o 5 $N?'$G
plot ... with boxes fillstyle pattern 2 border lt 5
# ?e?' (cyan) $G$NNN0h$NEI$jDY$7!"6-3&$O@D
plot ... with boxes fillcolor "cyan" fs solid border linecolor "blue"
```

Cm0U: fill %9%?%$%k$N border (6-3&) B0@-$O!"%G%U%)%k%H%b!<%I$N closed (JD6J@~) $N **with filledcurves** $N%0 %i%U$K7+1F6A$rM?$($^$;$s!#

F)L@2= **(set style fill transparent)** $$$/D+$N=PNO7A<0$O!"EIjDV7NN0h$N **transparent** (F)L@2=) B0@-$r%5%]!<%H$7$F$$$^$9!#transparent solid $NNN0hEI$jDV7G$O!"**density** (L)EY) %Q%i%a!<%?$O%"%k%U%!CM$H7F;HMQ5l$^$9!#D^$j!"L)EY0 $O40A4$JF)L@$r!"L)EY1 $O40A4$JITF)L@$r0UL#$7$^$9!#transparent pattern NEIjDV7G$O!"%Q%?!<%s$NGX7J$,40A4$JF)L@$+40A4$JITF)L@$N$$:l+$G$9!#

F)L@JEIjDV$7NN0h$r4^$'%0%i%U$r8+$?$j:nC?j9kNKO!"UL$J@)8B$,$"$j$&$k3H$KCm0U$7F/$@$5$$!#Nc$($P!"png =PNO7A<0GO!"'truecolor" %*%W%7%g%s$,;XDj$5lF$$$k>19gKN$_F)L@2=$NEIjDY7$,MxMQ$G$-$^$9!#PDF %U%!%$%kKCF)L@2=NN0h$,@5$7$/5-=R$5lF$$$F$b!"PDF $NI=<(%=%U%H$KhCFO$=$l$r@5$7$/I=<($G$-$J$$$3Hb$"$j$($^$9!#<B:]$K PostScript %W%j%s%?GOLdBjOJ$$$N$K!"Ghostscript/gv GO%Q%?!<%sEIjDV7NN0h$r@5$7$/I=<($G$-$^$;$s!#

4X?tIA2h%9%?%$%k;XDj (set style function)

%3%^%s%I **set style function** $O4X?tIA2h$KBP9k%G%U%)%k%H$NIA2h%9%?%$%k (lines, points, filledcurves JI) $rJQ99$7$^$9!#0J2<;2>H **plotting styles (p. 52)**!#

=q<O:

```
set style function <plotting-style>
show style function
```

Set style increment

Cm0U: 3N%3%^%s%I$OHs?d>)$G$9!#Be$ojK?7$7$$%3%^%s%I **set linetype** $r;HMQ$7F/$@$5$$!#3l$O!"BeMQ$N$?a$N0l;~E*JE,EvJ@~<o$r8!:w$9kNGOJ/!"@~<o<+BN$r:FDj5A$7$^$9!#0J2<;2>H: **set linetype (p. 142)**!#

=q<O:

```
set style increment {default|userstyles}
show style increment
```

%G%U%)%k%HGO!"F1$8%0%i%U>e$N<!$NIA2h$O!"8=:_$N=PNO7A<0$G%G%U%)%k%H$GDj5A$5lF$$$k@~<o$N<!$NbN$G9T$ol^$9!#$7$+$7!"**set style increment user** $rA*Br$9kH!"%G%U%)%k%H$N@~<o$GOJ$/!"%f!<%6Dj5A%i%$%s%9%?%$%kHV9f$NbN$r;HMQ$5;k3H,G-$^$9!#

Nc:

```
set style line 1 lw 2 lc rgb "gold"
set style line 2 lw 2 lc rgb "purple"
set style line 4 lw 1 lc rgb "sea-green"
set style increment user

plot f1(x), f2(x), f3(x), f4(x)
```

3l$O!"4X?t f1, f2, f4 $O?7$?$K%f!<%6Dj5A$5l?%i%$%s%9%?%$%k$GIA2h$5l^$9!#%f!<%6Dj5A%i%$%s%9%?%$%k$,8+D+iJ$$>19g$O!"Be$ojK$=$l$KBP1~$9$k%G%U%)%k%H$N@~<o$,MxMQ$5l^$9!#Nc$($P!">e$NNcGO!"f3(x) $O%G%U%)%k%H$N@~<o3 $GIA2h$5l^$9!#

@~%9%?%$%k;XDj (set style line)

=PNOAuCVKO*N*$N%G%U%)%k%H$N@~<o$HE@<o$N=89g$,$"$j!"$=li$O%3%^%s%I **test** $G8+$k3H$,$G$-$^$9!# **set style line** $O@~<o$H@~I}!"E@<o$HE@$NBg$-$5$r!"8D!"9$N8F$S=P$7$G!"$=li$N>pJs$rA4It;XDj9kBeoj$K!"C1$J$kHV9f$G;2>HG-kh$&$K"i+8aDj5A9kbN$G$9!#

=q<O:

```
set style line <index> default
set style line <index> {{linetype  | lt} <line_type> | <colorspec>}
                       {{linecolor | lc} <colorspec>}
                       {{linewidth | lw} <line_width>}
                       {{pointtype | pt} <point_type>}
                       {{pointsize | ps} <point_size>}
                       {{pointinterval | pi} <interval>}
                       {{pointnumber | pn} <max_symbols>}
                       {{dashtype | dt} <dashtype>}
                       {palette}
unset style line
show style line
```

default $O!"A4$F$N%i%$%s%9%?%$%k%Q%i%a!<%?$r$=$l$HF1$8index $r;}$D@~<o(linetype) $K@_Dj$7$^$9!#

<index> $Nlinestyle $,4{$KB8:_9k>19g!"B>$NA4$F$OJ]B8$5l?$^$^!"M?$($il?%Q%i%a!<%?N_$,JQ99$5l^$9!#<index> $,B8:_$7J1lP!";XDj5lJ+C?CM$O%G%U%)%k%H$NCMKJj^$9!#

3Nh&KD$/$ilk%i%$%s%9%?%$%k$O!"%G%U%)%k%H$N7?(@~<o, E@<o) rJLJbNKCV-49$($k3HO7$J$$$N$G!"%i%$%s%9%?%$%k!"%G%U%)%k%H$N7?!"IAib;H$($^$9!#%i%$%s%9%?%$%k$O1l;~E*JbNG!"%3%^%s%I **reset** $r<B9T$9lP$$DGb$=$liO>C$(5n$j$^$9!#@~<o<+BN$r:ED j5A$7$?$>19g$O!"0J2<;2>H: **set linetype (p. 142)**!#

@~<o$HE@<o$O!"$=$Nindex CM$r%G%U%)%k%H$H7^$9!#$=$Nindex CM$KBP9k<B:]$N5-9f$N7A$O!"=PNO7A<0$KhC$F0[$J$jF@$^$9!#

@~I}$HE@$NBg$-$5$O!"8=:_$N=PNO7A<0$N%G%U%)%k%H$NI}!"Bg$-$5KBP9$k>h?t$G$9($7$+$7!"$3$3GN<point_size> $O!"%3%^%s%I **set pointsize** $GM?$(il$k>h?t$K$O1F6A$r<u1J$$$3HKCm0U7F$/$@$5$$)!#

pointinterval $O!"%9%?%$%k **linespoints** $G%0%i%UCf$KIA$+$l$kE@$N4V3V$r@)8f$7$^$9!#%G%U%)%k%H$O0 $G$9(9YFNE@$,IA2h$5lk)!#Nc$($P!"**set style line N pi 3** $O!"E@<o$, N!"E@NBg-5H@~I}$O8=:_$N=PNO7A<0$N%G%U%)%k%H$G!"**with linespoints** GNIA2hGOE@$O3HVL\Kh$KIA2h5lkh$&$J%i%$%s%9%?%$%k$rDj5A$7$^$9!#$=$N4V3VrIiNCMK9kH!"$=$l$O4V3V$O@5NCMN>19g$HF1$8G9$,!"E@$N5-9f$N2<$KJk@~$r=q$+$J$$$h$&$K7^$9(=PNO7A<0$KhCFO)!#

pointnumber B0@-$O!"**pointinterval** $H;w$F$$$^9,!"N 8D$*$-KIA/h&K9kBeojK!"A4BN$NE@$N8D?t$rN 8D$K8BDj9kH3m,0c$$$^$9!#

A4FN=PNOAuCV$, **linewidth** $d**pointsize** $r%5%]!<%H$7$F$$$ko1GO$"$j$^$;$s!#$b$7%5%]!<%H$5lF$$$J$$>19gO=li$N%*%W%7%g%s$OL5;k5l$^$9!#

=PNO7A<0$K0MB8$7$J$$?'$r **linecolor** <**colorspec**> $+**linetype** <**colorspec**> (>JN,7A$O**lc**, **lt**) $N$$:l+$r;H$C$F3d$jEvFk3H$,$G$-$^$9!#$3$N>19g!"?'$ORGB $N3 DAHGM?$(k+!"gnuplot $N;}$D%Q%l%C%H$N?'L>!"8=:_$N%Q%l%C%HKBP9$k>.?t;XDj!"$^$?$Ocbrange XN8=:_$N%Q%l%C%H$NBP1~KBP9$kDj?tCM!"$N$$:l+$GM?$($^$9!#0J2<;2>H: **colors (p. 40)**, **colorspec (p. 41)**,**set palette (p. 160)**, **colornames (p. 121)**, **cbrange (p. 193)**!#

set style line <**n**> **linetype** <**lt**> $O!"=PNO7A<0$K0MB8$7$?E@@~/GK@~$N%Q%?!<%s$H?'$NN>J}$r%;%C%H7^$9!#**set style line** <**n**> **linecolor** <**colorspec**> $d**set style line** <**n**> **linetype** <**colorspec**> $O!"8=:_$NE@@~/GK@~$N%Q%?!<%s$rJQ99$;:$K?7$7$$@~?'$r@_Dj$7$^$9!#

3<!85%b!<%I(**splot** %3%^%s%I) GO!""linetype palette z" $N>JN,7A$H7FFCJL$K%-!<%o!<%I **palette** $r;H$&3H$b5v$5lF$$$^$9!#$=$N?'$NCM$O!"splot $Nz:BI8(9b$5) $KBP1~$7!"6J@~!"$"$k$$O6JLL$K1h$C$F3j$i$+$KJQ2=7^$9!#

Nc 0J2<GO!"HV9f1, 2, 3 KBP9$k%G%U%)%k%H$N@~<or=l>$l@V!"NP!"@D$H$7!"%G%U%)%k%H$NE@$N7A$r$=$l$>$l@5J}7A!"=;z!";03Q7AG"kH7^$9!#$3NH$-0J2<$N%3%^%s%I

```
set style line 1 lt 2 lw 2 pt 3 ps 0.5
```

$O!"?7$7$$i%$%s%9%?%$%kH7$F!"NP$G%G%U%)%k%H$N2G\$NI}$N@~!"$*hS;03Q7A$GH>J,$NI}$NE@$rDj5A7^$9!#$^$?!"0J2<$N%3%^%s%I

```
set style function lines
plot f(x) lt 3, g(x) ls 1
```

$O!"f(x) $O%G%U%)%k%H$N@D@~$G!"g(x) $O%f!<%6$NDj5A7?NP$N@~$GIA2h7^$9!#F1MM$K!"%3%^%s%I

```
set style function linespoints
plot p(x) lt 1 pt 3, q(x) ls 1
```

```
splot sin(sqrt(x*x+y*y))/sqrt(x*x+y*y) w l pal
```

palette

```
set style line 10 linetype 1 linecolor rgb "cyan"
```

RGB

1_%9%?%$%k; XDj **(set style circle)**

=q<0:

```
set style circle {radius {graph|screen} <R>}
                 {{no}wedge}
                 {clip|noclip}
```

"set style circle radius graph 0.02"

nowedge

wedge

clip

noclip

D9J}7A%9%?%$%k; XDj **(set style rectangle)**

set object

set style rectangle

=q<0:

```
set style rectangle {front|back} {lw|linewidth <lw>}
                    {fillcolor <colorspec>} {fs <fillstyle>}
```

colorspec (p. 41), **fillstyle (p. 171)**

fillcolor **fc**

Nc:

```
set style rectangle back fc rgb "white" fs solid 1.0 border lt -1
set style rectangle fc linsestyle 3 fs pattern 2 noborder
```

BJ1_%9%?%$%k; XDj **(set style ellipse)**

=q<0:

```
set style ellipse {units xx|xy|yy}
                  {size {graph|screen} <a>, {{graph|screen} <b>}}
                  {angle <angle>}
                  {clip|noclip}
```

xy

xx **yy**

$3$1l$O! "object H7$FDj5A$5$1$?BJ1_! "%3%^%s%I **plot** KhCFIA2h$5$1$kBJ1_$NN>J}$K1F6A$rM?$ ($kA4BNE* $J@_Dj$G9,! "**units** NCMO! "IA2hKh! "%*%V%8%'%/%HKh$K@_Dj$r:FDj5AG-$^$9! #

BJ1_$N%G%U%)%k%H$N%5%$%:$b! "%-! <%o! <%I **size** $G@_Dj$G$-$^$9! #%G%U%)%k%H$N%5%$%:$O! "2 NsN_$N%G! <%?! " $^$?$O4X?t$N plot L?NaGE,MQ5$1$^$9! #2 DNCM$O! "BJ1_$N (2 DN<g<4! "2 DNI{<4$K8~$+$$9g$&) <g<4D> 7B$HI{<4D>7BH7$F;HMQ$5$1$^$9! #

%G%U%)%k%H$O! ""set style ellipse size graph 0.05,0.03" $G$9! #

:G8eKJj^9,! "%G%U%)%k%H$N8~$-$r%-! <%o! <%I **angle** $G@_Dj$bG-$^$9! #8~$-$O! "BJ1_$N<g<4$H%0%i%U$N x <4$NJ}8~HJ$93Q$G! "C10LCEYGM?$ (kI,MW,$"$j$^$9! #

clip $OBJ1_$rIA2h6-3&$G%/%j%C%T%s%0$7$^$9$,! "**noclip** O3$1$rL58zK7$^$9! #%G%U%)%k%H$O **clip** $G$9! #

BJ1_$N object $NDj5A$K4X7F$O0J2<$b;2>H: **set object ellipse (p. 153)**! #2 <!85$NIA2h%9%?%$k$K4X$7$F $O0J2<;2>H: **ellipses (p. 56)**! #

J8;zNs%\%C%/%9%9%?%$k;XDj **(set style textbox)**

=q<0: set style textbox {opaque|transparent}
{{no}border {<bordercolor>}}{linewidth <lw>}
{fillcolor <color>}
{margins <xmargin>,<ymargin>}

3N%3%^%s%I$O! "B0@-**boxed** Kh$k label $NI=<($r@)8f7^$9! #H"IU$-J8;zNs$r%5%]! <%H$7$J$$=PNO7A<0$O 3N%9%?%krL5;k7^$9! #Cm0U: 8=:_$N<BAu$O;n83E*$G! ";EMM$OJQ99$5$1k+b7$1$^;$s! #$$/D+$N=P NO7A<0 (svg, latex) GN<BAu$OIT40A4$G$9! #$^$?! "$[HsIN=PNO7A<0$O! "2sE>$7$?J8;zNs$NH"IU1,@5$7$/ G-$^;$s! #

6JLLIA2h (surface)

%3%^%s%I **set surface** $O3<!85IA2h (**splot**) KN$_4X78$7$^$9! #

=q<0:

```
set surface {implicit|explicit}
unset surface
show surface
```

unset surface Kh$j **splot** $O! "4X?t$d%G! <%?%U%!%kNE@KBP9kIsJE@$d@~$bIA$+$J$/$Jj^$9! #$3$1 $O<g$K! "Ey9b@~$r:n$k6JLLrIA/Beoj$KEy9b@~$N$_$rIA$/>19g$KM-MQ$G$9! #$=$N>19gGb **set contour** $N@_ Dj$Khj$^$9$,! "6JLL>e$KEy9b@~$,IA$+1^$9! #B>$NbN$CDL>o$N$^$^$G! "$"$k0l$D$N4X?t$d%G! <%?%U%!%$k $N6JLL$N$_$r%*%UK9kK$O! "**splot** %3%^%s%I>e$G%-! <%o! <%I **nosurface** $r;XDj$7F/$@$5$$! #Ey9b@~$r3J ;R$NEZBf$KI=<($7$?$$>19g$O **unset surface; set contour base** $H$$$&AH$,JXMx$G7g$&! #0J2<$b;2>H: **set contour (p. 121)**! #

3<!85%G! <%?NAH,LVL\(3J;R@~) $HG'<1$5$1$k$H! "gnuplot $O%G%U%)%k%H$G$O3J;R6JLL$rMW5a7F$$$kbN$H 7F! "0EL[$K **with lines** $NIA2h%9%?%$k$rMQ$$$^$9! #0J2<;2>H: **grid_data (p. 197)**! #%3%^%s%I **set surface explicit** O3$N5!G=$rM^@)$7! "F~NO%U%!%$k$N%G! <%?$NJ,N%5$1$?%V%m%C%/G5-=R5$1$k8IN)@~N_$rIA2h$7 $^$9! #3N>19gGb! "splot $GL@<(E*$K **with surface** H9$1$P3J;R6JLL$,IA2h$5$1$^$9! #

%F! <%V%k%G! <%?=PNO (table)

table %b! <%I$,M-8z$J>19g! "**plot** $H **splot** %3%^%s%I$O! "8=:_$N=PNO7A<0$KBP9k<B:]$NIA2h$r@8@.9kBe$o jK

```
X Y {Z} <flag>
```

NCMNJ#?tNs$+$iJkI=7A<0$N%F%-%9%H=PNO$r9T$J$$$^$9! #%U%i%0J8;z<frag> $O! "$=$NE@$,M-8z$JHO0CFb$K $"$k>19g$O "i"! "HO0C30$N>19g$O "o"! "L$Dj5ACM(undefined) $N>19g$O "u" $G$9! #%G! <%?$N=q<0$O! "<4$N9o$_ $N=q<0 (0J2<;2>H: **set format (p. 130)**) KhCF7h$^$j! "Ns$O01$D$N6uGr$G6h@Zi1$^$9! #$3$1$O! "Ey9b@~ $r@8@.$7! "$=$1$r:EMxMQ$N$?a$KJ]B8$7$?$$H$-$KJXMx$G$9! #3NJ}K!$O! "Jd4V$5$1$?%G! <%?$rJ]B8$9kN$K $b;H$&3H$,$G$-$^$9(0J2<;2>H**set samples (p. 167)**, **set dgrid3d (p. 125)**)! #

=q<0:

```
set table {"outfile" | $datablock} {append}
plot <whatever>
unset table
```

3N8e$NI=7A<0$N=PNO$O!"%U%!%$%k"outfile" $r;XDj$7$F$$$lP=lK=q$-=P$7$^$9$,!"$=$&$GJ1lPI8=`=PNO$+!"8=:_$N **set output** $,;XDj$9kbNK=PNO7^$9!#**outfile** $,4{$KB8:_9k>19g$O!"**append** %-!<%o!<%I$r;XDj9l$PDI2C=PNO!";XDj$7J1lP3N=PNO$,>e=q$-7^$9!#B>$K!"I=7A<0=PNO$rL>A0IU$-%G!<%?%V%m%C%/$K%j%@%$%l%/%H9k3HbG$-$^$9!#%G!<%?%V%m%C%/L>$O'$' $G;O$^j^$9!#0J2<$b;2>H: **inline data (p. 39)**!#8=:_$N=PNO7A<0$NI8=`E*$JIA2h$KLa9K$O!"**unset table** $rL@<(E*$K9TJ&I,MW$,$"j^$9!#

0J2<$b;2>H: **plot with table (p. 176)**!#

Plot with table

I=%G!<%?$KJQ49$5lkF~NO%G!<%?KBP9$kIA2h%9%?%$%k$K0MB8$9$k=hM}(J?3j2=!"8m:9@~$NldD9!"2<4HC0C0C$N%A%"%C%/Ey) rHr1k?$a!"$"$k$$OI=%G!<%?$KJQ49$G$-$kNs$N?t$rA}d9KO!"DL>o$NIA2h%9%?%$%kNBeojK"table" %-!<%o!<%I$r;H$CF/$@$5$$!#3N>19g!"HC0CFb/HC0C30/L$Dj5A$r0UL#9k**i**, **o**, **u** $,CV$+lk:G8e$NDI2CNs$O!"=PNOKOD-$^$;$s!#$=$N=PNO@h$O!":G=i$K**set table <where>** $G;XDj$9kI,MW,$"$j$^$9!#Nc:

```
set table $DATABLOCK1
plot <file> using 1:2:3:4:($5+$6):(func($7)):8:9:10 with table
```

3N>19g!"<B:]$NIA2h%9%?%$%k$,$J$>uBV$JNG!"3FNsKOFCDj$N<4$OBP1~7J$$$3HKJj!"hC$F xrange, yrange Ey$N@_Dj$OL5;k$5l^$9!#

J8;zNsKBP7$F **using** $GI>2A$7$?>19g$O!"J8;zNs$bI=%G!<%?2=$5l^$9!#?tCM%G!<%?$O>o$K%g $N=q<0$G=q$-=P$5l^9,!"B>$N=q<0$r;H$$?$>19g$O!"$=$Nh&$K=q<02=$5l?J8;zNs$r@8@.$9kh$&$K sprintf $+gprintf $r;HMQ$7F/$@$5$$!#

```
plot <file> using ("File 1"):1:2:3 with table
plot <file> using (sprintf("%4.2f",$1)) : (sprintf("%4.2f",$3)) with table
```

=PNO7A<0 (terminal)

gnuplot $O?tB?$/$N%0%i%U%#%C%/7A<0$r%5%]!<%H7F$$$^$9!#%3^%s%I**set terminal** $r;H$C$F**gnuplot** $N=PNO$NBP>]HJ$k7A<0$N<oN`$rA*$sG/$@$5$$!#=PNO@h$r%U%!%$%k!"$^$?$O=PNOAuCV$K%j%@%$%l%/%H$9kK$O**set output** $r;H$CF/$@$5$$!#

=q<0:

```
set terminal {<terminal-type> | push | pop}
show terminal
```

<terminal-type> $,>JN,$5lk$H**gnuplot** $OMxMQ2DG=$J=PNO7A<0$N0lMw$rI=<(s7^$9!#<terminal-type> $N;XDj$K$OC;=L7A$,;H$($^$9!#

set terminal $H**set output** $NN>J}$r;H$&>19g!"**set terminal** $r:G=i$K9kJ}$,0BA4$G$9!#$=lO!"OS KhCF$O!"$=l,I,MWH9$k%U%i%0$r#;C%H9k=PNO7A<0$,$"k+iG$9!#

$$/D+$N=PNO7A<0$O$?$/5s$NDI2C%*%W%7%g%s$r;}A^$9!#3F<**term**> $KBP$7!"D>A0$N**set term <term> <options>** $G;HMQ$5l?%*%W%7%g%s$O5-21$5$l!"$=$N8e$N**set term <term>** $,$=lr#j#;%C%H9k3HO$"$j$^$;$s!#$3lONc$($P0u:~;~$KM-MQ$G$9!#4v$D$+$N0[Jk=PNO7A<0$r@ZBX$($k>19g!"A0$N%*%W%7%g%s$r7+$jUV$7>'$(kI,MWO$"$j$^$;$s!#

%3%^%s%I**set term push** $O!"8=:_$N=PNO7A<0H=$N@_Dj$r**set term pop** KhCFI|5"9k$^$G5-21$7$F$$$^$9!#$3lO**save term**, **load term** H[$\F1Ey$G9,!"%U%!%$%k%7%9%F%`$X$N%"%/%;%9$O9T$o$:!"$h$C$FNc$($P$3$l$O!"0u:~8e$K%W%i%C%H![%`$K0MB8$7$J$$7A$G=PNO7A<0$rI|5"9kL\E*$K;H$($^$9!#gnuplot $N5/F08e!"%G%U%)%k%H!"$^$?$O**startup** %U%!%$%k$K=q$+$l$?=PNO7A<0$,<+F'OE*$K5-21(push) 5l$^$9!#hC$F!"L@<(E*$K=PNO7A<0$r5-21$5;k3HJ$/!"G$0U$N%W%i%C%H[!<%`>e$G%U%)%k%H$N=PNO7A<0$r**set term pop** KhCFI|5"5;$k!"$H$$&F0:n$r4|BT$7$?%9%/%j%W%H$r2DHB@-$r<:$o:$K=q$/3H$,=PMh$^$9!#

>\:Y$O!"0J2<;2>H: **complete list of terminals (p. 202)**!#

=PNO7A<0XN%*%W%7%g%s (termoption)

%3%^%s%I **set termoption** $O!"8=:_;HMQ$7$F$$k=PNO7A<0$N?6Iq$$r!"?7$?$J **set terminal** %3%^%s%I$NH/9T$J7KJQ99$9$k3H$r2DG=$K7^$9!#$3$N%3%^%s%IO1$DKBP7$F01$D$N%*%W%7%g%s$N$_$,JQ99G-$^$9!#$=$7F3$NJ}K!$GJQ99G-$k%*%W%7%g%s$O$=$&B?$/$O"j^$;$s!#8=:_;HMQ2DG=$J%*%W%7%g%s$O0J2<NbNN$_$G$9!#

```
set termoption {no}enhanced
set termoption font "<fontname>{,<fontsize>}"
set termoption fontscale <scale>
set termoption {linewidth <lw>}{lw <lw>}
```

6K:BI8J}0L@)8f (theta)

6K:BI8%0%i%U$O!"%G%U%)%k%H$G$O3Q$N0 $NJ}8~(&H=0) $,%0%i%U$N1&B&$r;X$9h&8~$-$E1i$l!"3Q$NA}2C$OH?;~7W2s$j$K9T$o$l!"&H=90 $,?>e$r8~$/$h$&&K$JCF$$^$9!#**set theta** Kh$j!"6K:BI8$N3Q$N:BI8$K4X9k0 $N8~$-$HA}2CJ}8~$rJQ99G-$^$9!#

```
set theta {right|top|left|bottom}
set theta {clockwise|cw|counterclockwise|ccw}
```

unset theta $O!"%G%U%)%k%H$N>uBV"set theta right ccw" $KI|5"$7$^$9!#

A4<4L\@9$j@)8f (tics)

%3%^%s%I **set tics** $O!"A4$F$N<4$NL\@9jN9o$_$H%i%Y%k$r0lEY$K@)8f7^$9!#

L\@9jO **unset tics** $G>C$(!"**set tics** $GL\@9$j$,$D$-$^$9(%G%U%)%k%H)!#8D!9$N<4$NL\@9$j$O!"$3lHOJLN%3%^%s%I **set xtics**, **set ztics** JI$r;H$C$F@)8f$G$-$^$9!#

=q<0:

```
set tics {axis | border} {{no}mirror}
         {in | out} {front | back}
         {{no}rotate {by <ang>}} {offset <offset> | nooffset}
         {left | right | center | autojustify}
         {format "formatstring"} {font "name{,<size>}"} {{no}enhanced}
         { textcolor <colorspec> }
set tics scale {default | <major> {,<minor>}}
unset tics
show tics
```

%*%W%7%g%s$O!"8D!9$N<4(x, y, z, x2, y2, cb) KbE,MQG-$^$9!#Nc:

```
set xtics rotate by -90
unset cbtics
```

<4$N9o$_$N@~B0@-$O!"9Y$F%0%i%U$N6-3&(0J2<;2>H **set border (p. 115)**) $HF1$8bN$r;H$CFIA+l^$9!#

tics $N**back** $^$?$O**front** $N@_Dj$O!"2D IA2h(splot $OIT2D) KN$_9$YFN<4$K1EYE,MQ$5l^$9!#$3lO!"L\@9jHIA2hMWAG$,=E$JC?>19g$KL\@9jrIA2hMWAG$NA0LI$K=P9+!"1|KCV/$+$r@)8f7^$9!#

axis $H**border** $O**gnuplot** $KL\@9$j(L\@9jN9o$_<+?H$H$=$N8+=P$7) $r!"$=l>$l<4$KD1kN$+!"6-3&$KD1kN$+$r;X<(7^$9!#<4$,6-3&KHFb6a$$>19g!"**axis** $r;HMQ$9kH6-3&$,I=<($5lF$$$l$P(0J2<;2>H**set border (p. 115)**) L\@9jN8+=P$7J8;z$r6-3&$N30$K=P7F$^$&&G7g&!#3N>19g<+F0E*$J%1%%"%&H%"%k%4%j:%'$KhkM>Gr@_Dj$OBgDo$h$/$J$$$bNHJCF7$^$$$^$9!#

mirror $O**gnuplot** $KH?BPB&$N6-3&$NF1$80LCV$K!"8+=P$7NJ$L\@9$j$r=PNO$9kh$&;X<($7$^$9!#**nomirror** $O!"$"J?,A|A7F$$$kDLjN3Hr9T$J$$^$9!#

in $H**out** $OL\@9$j$N9o$_$rFbB&$KIA$/$+30B&KIA/$+$r@ZjJQ(!$^$9!#

set tics scale $O!"L\@9$j$N9o$_NBg-5r@)8f7^$9!#:G=i$N<major> NCMK$O!"<+F0E*$K@8@.5l!"$^$?f!<%6$b;XDj$G$-$kBgL\@9$j(%l%Y%k0) $r;XDj$7!"2 $DL\$N<minor> NCMK$O!"<+F0E*$K@8@.5l!"$^

$?%f!<%6$b;XDjG-$k>.L\@9$j(%l%Y%k1) $r;XDj$7$^$9!#<major> $N%G%U%)%k%H$O1.0 $G!"<minor> $N%G%U%)%k%H$O<major>/2 $G$9!#5iKCMrDI2C9l$P!"%l%Y%k2, 3, ... $NL\@9$jNBg-5KJj$^$9!#**set tics scale default** $G%G%U%)%k%H$NL\@9jNBg$-$5$KI|5"$7$^$9!#

rotate $O!"J8;zNs$r90EY2sE>5;$F=PNO$5$;$h$&$H7^$9!#$3lO!"J8;zNs$N2sE>$r%5%]!<%H7F$$$k=PNO%I%i%$%P(terminal) GO<B9T5l$^$9!#**norotate** O3lr%-%c%s%;%k7^$9!#**rotate by** <ang> $O3QEY<ang> $N2sE>$r9T$J$$$^9,!"3l$O$$/D+$N=PNO7A<0(terminal) $G%5%]!<%H$5lF$$$^$9!#

x $Hy <4$NBgL\@9jN%G%U%)%k%H$O **border mirror norotate** $G!"x2, y2 <4$O **border nomirror norotate** $,%G%U%)%k%H$G$9!#z <4$N%G%U%)%k%H$O **nomirror** $G$9!#

<offset> $O x,y $+$^$?$O x,y,z $N7A<0$G9,!"$=$l$K:BI87O$rA*Br7F!"$=$NA0$K **first**, **second**, **graph**, **screen**, **character** $N$$$:l+rD1k3HbG$-$^$9!#<offset> $O!"L\@9$j$N8+=P$7J8;zNs$N%G%U%)%k%H$N0LCV$+$i$N:$i$70LCV$G!"$=$N%G%U%)%k%H$NC10L7O$O **character** $G$9!#>\:Y$O!"0J2<;2>H **coordinates (p. 26)**!#**nooffset** $O offset $r OFF K7$^$9!#

%G%U%)%k%HGO8+=P$7%i%Y%k$O!"H~$7$7$7k2L$r@8$\$h$&$K!"<4$H2sE>3Q$K0MB8$7$?0LCV$K<+F0E*$KB7$($il^9,!"5$$K$$iJl$P!"L@<(E*$K **left**, **right**, **center** $N%-!<%o!<%I$Khj0LCVB7$($rJQ9&G$-$^$9!#**autojustify** $G%G%U%)%k%H$N5sF0$KI|5"$7$^$9!#

%*%W%7%g%s$J7$N **set tics** $O!"Bh1 <4$KBP9k6@1G(mirror) $HF'bB&8~$-L\@9jN9o$_$r%G%U%)%k%H$N5sF0$KI|5"7^9,!"$=$NB>$NA4$F$N%*%W%7%g%s$O!"D>A0NCMrJ];}7^$9!#

BgL\@9$j(%i%Y%k$ND/) $NB>$N@)8f$K4X$7FO!"0J2<;2>H **set xtics (p. 186)**!#>.L\@9jN@)8f$K4X$7FO!"0J2<;2>H **set mxtics (p. 151)**!#3l$i%N%3%^%s$I$O!"3F<4$NFHN)$J@)8f$rDs6!7^$9!#

Ticslevel

8=:_$O?d>)$5lF$$$^$;$s!#0J2<;2>H **set xyplane (p. 189)**!#

Ticscale

%3%^%s%I **set ticscale** $O8=:_$O?d>)5l$F$$$^$;$s!#Beoj$K**set tics scale** $r;H$CF/$@$5$$!#

%?%$% '%9%?%s%W (timestamp)

%3%^%s%I **set timestamp** $O8=:_$N;~9o$HF|IU$r%0%i%U$NM>Gr$KI=<(7^$9!#

=q<0:

```
set timestamp {"<format>"} {top|bottom} {{no}rotate}
              {offset <xoff>{,<yoff>}} {font "<fontspec>"}
              {textcolor <colorspec>}
unset timestamp
show timestamp
```

=q<0J8;zNs(format) $O!"=q$+lkF|IU$H;~9o$N=q<0$K;HMQ$5l^$9!#%G%U%)%k%H$Oasctime() $,;HMQ$9$k"%a %b %d %H:%M:%S %Y" $G$9(MKF|!"7nL>!"F|";~!"J,!"IC!"4 7e$N@>Nq)!#**top** $H **bottom** $r;H$C$F!"F|IU$NG[CV$r:8>e!":82<$N$$:lNM>GrK9k+$rA*Br$G$-$^$9(%G%U%)%k%H$O:82<)!#**rotate** $O!"F|IU$r?hD>J}8~$K=q$-=P7^$9!#Dj?t<xoff>!"<yoff> O:$l(offset) $r0UL#$7!"3lKhCFhjE,@Z$J0LCV7h$a$,9T$($^$9!#<font> $OF|IU$,=q$+$l$k%U%)%s%H$r;XDj7^$9!#

timestamp NBeojK>JN,L>**time** $r;H$CFb9=$$^$;$s!#

Nc:

```
set timestamp "%d/%m/%y %H:%M" offset 80,-2 font "Helvetica"
```

F|IU$N=q<0J8;zNs$K4X9k>\$7$$pJsKD$$$F$O!"0J2<;2>H **set timefmt (p. 178)**!#

F|;~%G!<%?F~NO=q<0 (timefmt)

3N%3%^%s%I$O!"%G!<%?F|;~$N7A<0KJCF$$$k>l9g$K!"$=$N;~7ONs%G!<%?$KE,MQ5l$^$9!#3l$O%3%^%s%I **set *data time** $bM?$(il$F$$$J$$H0UL#$,$"j^$;$s!#

=q<0:

```
set timefmt "<format string>"
show timefmt
```

J8;zNs0z?t (<format string>) $0 **gnuplot** $KF|;~%G!<%?$r%G!<%?U%!%$%k$+iINh$&$KFI$ '$+$r;X<(7^$9!#M-8z$J=q<0$O0J2<$NDLjG$9:

;~7ONs%G!<%?=q<0;XDj;R	
=q<0	@bL@
%d	2?F|, 1–31
%m	2?7n, 1–12
%y	2?G/, 0–99
%Y	2?G/, 4 7e
%j	1 G/$N2?F|L\, 1–365
%H	2?;~, 0–24
%M	2?J,, 0–60
%s	Unix epoch (1970-01-01, 00:00 UTC) $+$i$NIC?t
%S	2?IC(=PNOGO0–60 $N@O?t!"F~NO$G$O<B?t)
%b	7nL>(1Q8l) $N3 J8;z>JN,7A
%B	7nL>(1Q8l)

G$0U$NJ8;z$rJ8;zNsCf$G;HMQG-$^$9$,!"5,B'$K=>CF$$$kI,MW$,$"j^$9!#\t (%?%V) $OG'<1$5l^$9!#%P%C%/%9%i%C%7%e+8 ?J?tNs(\nnn) O=l,<($9J8;z$KJQ4$9$5lF$$$^$;$s$+?=q<0J8;zNs$O%U%!%$%kCf$K<B:]K"$kJ*$H0lCW7F$$$J1lPJj^$;$s)!#0J2<$b;2>H;~7ONs%G!<%? (time data) %G%b!#

%3%^%s%I **set title** $O!"IA2h$N>e$N?7Cf$K=q$+$l$kIA2h%?%$%H%k$r@8@.$7$^$9!#**set title** $O **set label** $NFC<1$JbN!"H_$J;$^$9!#

=q<0:

```
set title {"<title-text>"} {offset <offset>} {font "<font>{,<size>}"}
          {{textcolor | tc} {<colorspec> | default}} {{no}enhanced}
show title
```

<offset> $r x,y $+$^$?$O x,y,z $N7A<0$G; XDj7?>l9g$O! "%?%$%H%k$QM?$ (il$?CM$@$10\F0$5l^$9! #$=lK :BI87O$rA*Br$7$F! "$=$NA0$K **first**, **second**, **graph**, **screen**, **character** $N$$$:l+rD1k3HbG$-$^$9! #>\:Y$O! "0J2<;2>H: **coordinates (p. 26)**!#%G%U%)%k%HGO **character** :BI87O$,; H$ol^$9! #Nc$ ($P! ""**set title offset 0,-1**" $O%?%$%H%k$Ny J}8~$N0lCVN_JQ99$7! "Bg$6CQ$K8@$C$F 1 J8; zJ,$N9b5@$1%?%$%H%k$r 2<$K2<2^$9! #1 J8; z$NBg$-$5$O! "%U%)%s%H$H=PNO7A<0$NN>J}$K0MB8$7$^$9! #

<font> $O%?%$%H%k$,=q$+lk%U%)%s%H$r; XDj$9kN$K; H$o1^$9! #<size> $NC10L$O! "IN=PNO7A<0 (terminal) $r; H$C$F$$$k$+$KhCFJQoj^$9! #

textcolor <**colorspec**> $O! "J8; z$N?'$rJQ99$7$^$9! #<colorspec> $O! "@~<o! "rgb ?'! "$^$?$O%Q%l%C%HXN 3dEv$N$$:l+$,; XDj$G$-$^$9! #0J2<;2>H:**colorspec (p. 41)**, **palette (p. 160)**!#

noenhanced $O! "3HD%J8; zNs=hM} (enhanced text) %b! <%I$,M-8z$KJC$F$$$k>l9gGb! "%?%$%H%k$r3HD%J8; zNs=hM}5;$J$$$h$&$K7^$9! #

set title $r%Q%i%a! <%?$J7G; H$&$H%?%$%H%k$r>C5n7^$9! #

%P%C%/%9%i%C%7%eJ8; zNs$N:nMQ! "5Z$SJ8; zNs$r0O$'C10l0zMQId$HFs=E0zMQId$N0c$$$K$D$$$F$O! "0J2<;2>H: **syntax (p. 49)**!#

Tmargin

%3%^%s%I **set tmargin** $O>e$NM>Gr$N%5%$%:$r%;%C%H$7$^$9! #>\:Y$O! "0J2<;2>H: **set margin (p. 145)**!#

Trange

%3%^%s%I **set trange** $O! "G^2pJQ?t%b! <%I! "$"$k$$$O6K:BI8%b! <%IGNx,y NCMr7W; ;9kNK; Hol$kG^2pJQ?t$NH00O$r@_Dj$7$^$9! #>\:Y$O! "0J2<;2>H:**set xrange (p. 184)**!#

Ttics

%3%^%s%I **set ttics** $O! "6K:BI8%0%i%U$N<~0O$KL\@9$j9o$_$rD1$^$9! #$=$l$O! "**set border polar** H7$?>l9g$O6-3&KJj^9,! "$=$&GJ1l$P6K:BI83J; R$N! "r <4$K1h$C$F:G$b1&C<$N9o$_$N>l=j$K=q$+$l$k:G$b30B&$N1_<~$KJj$^$9! #0J2<;2>H: **set grid (p. 133)**, **set rtics (p. 167)**!#3Q$N0lCV$O! ">oKEYNC10L$G%i%Y%kIU$1$5$l$^$9! #8=:_$N3Q$NH00O$N@_Dj (trange) $K4X78$J$/! "F1?41_A4BN$K9o$_%i%Y%k$rD1k3H,G-$^$9! #9o$_%i%Y%k$,I,MW$JH00O$N@_Dj$O! "2<$K< ($9Nc$Nh&K7F/$@$5$$! #9o$_$K4X9kDI2CB0@-$r@_Dj$9k3HbG-$^$9! #0J2<;2>H: **xtics (p. 186)**!#

```
set ttics -180, 30, 180
set ttics add ("Theta = 0" 0)
set ttics font ":Italic" rotate
```

Urange

set urange $H **set vrange** $O! "**splot** $NG^2pJQ?t%b! <%I$G x,y,z NCMr7W; ;9kNK; Hol$kG^2pJQ?t$NH00O$r@_Dj$7$^$9! #>\:Y$O! "0J2<;2>H:**set xrange (p. 184)**!#

Variables

show variables %3%^%s%I$O%f! <%Dj5AJQ?t$HFbItJQ?t$N8=:_$NCM$N0lMw$rI=<(; 7^$9! #gnuplot $O! "GPVAL_, MOUSE_, FIT_, TERM_ $G; O$^$kL>A0$r; }$DJQ?t$rFbIt$GDj5A$7$F$$$^$9! #

=q<0:

```
show variables      # GPVAL_ $G; O$^$k$b$N0J30$NJQ?t$rI=<(
show variables all  # GPVAL_ $G; O$^$k$b$N$b4^$aA4$F$NJQ?t$rI=<(
show variables NAME # NAME $G; O$^$kJQ?t$N$_$rI=<(
```

Version

%3%^%s%I **show version** $O8=:_5/F0$7$F$$k gnuplot $N%P!<%8%g%s!":G=*=$@5F|!"Cx:n8"<T$H!"FAQ $dinfo-gnuplot %a!<%j%s%0%j%9%H!"%P%0%l%]!<%H@h$N%a!<%k%"%I%l%9$rI=< (7^$9!#BPOCE*$K%W%m%0%i%`$,8F$PlF$$kH-$O%9%/%j!<%s>e$K$=$N>pJs$rI=< ($7$^$9!#

=q<0:
```
show version {long}
```

long %*%W%7%g%s$rM?$(kH!"5i$K%*%Z%l!<%F%#%s%0%7%9%F%`!"**gnuplot** %$%s%9%H!<%k;~$N%3%s%Q%$%k%*%W%7%g%s!"%X%k%W%U%!%$%k$NCV$->l=j!"$=7F(:F$S) M-MQ$J%a!<%k%"%I%l%9$rI=< ($7$^$9!#

;k@~J}8~ (view)

%3%^%s%I **set view** $O **splot** $N;k@~$N3QEY$r@_Dj$7$^$9!#3l$O!"%0%i%UIA2h$N3<!85:BI8rINh$&$K2<!85$N2hLL(screen) $KEj1F$9k+$r@)8f$7$^$9!#3l$O!"IA2h$5l?%G!<%?$N2sE>$H=L<\$N@)8f$rM?$(F/l^9,@5<M1F7+%5]!<%H7F$$^;$s!#3<!85<M1F!"$*h$S2<!85IA2hE*CO?^>e$X$N2<!85D>8r<M1F$,%5]!<%H5l$F$$^$9!#

=q<0:
```
set view <rot_x>{,{<rot_z>}{,{<scale>}{,<scale_z>}}}
set view map {scale <scale>}
set view {no}equal {xy|xyz}
set view azimuth <angle>
show view
```

$3$3$G<rot_x> $H<rot_z> $O!"2hLL$KEj1F5l$k2>A[E*$J3<!85:BI87O$N2sE>3Q(C10L$OEY) $N@)8f$G!":G=i$O($9Jo$A2sE>$,9TJolkA0$O) 2hLIFb$N?eJ?<4$Ox, 2hLIFb$N?hD><4$Oy, 2hLL<+?H$K?hD>$J<4$,z HJOF$$$^$9!#:G=i$Ox<4$N<~$j$K<rot_x> $@$12sE>5l$^$9!#<!$K!"?7$7$$z<4$N<~$j$K<rot_z> $@$12sE>5l$^$9!#

%3%^%s%I **set view map** $O!"%0%i%U$rCO?^Nh$&$KI=<(9kNK;H$$$^$9!#$3lOy9b@~(**contour**) $N%0%i%U$d!"pm3d %b!<%IKIKh$k2<!8529EYJ,I[$JIG **with image** hjb'7mM-MQ$G$9!#8e<TGO!"F~NC%G!<%?$E@$N%U%#%k%?%2MQ$N **zrange** $N@_Dj!"$*hS?'$NHO0O$N=L<\$K4X9k **cbrange** $N@_Dj$rE,@Z$K9T$&3H$KCm0U$7F/$@$5$$!#

<rot_x> $O[0:180] $NHO0O$K@)8B5l$F$$$F!"%G%U%)%k%HGO60 EY$G$9!#<rot_z> $O[0:360] $NHO0O$K@)8B5l$F$$$F!"%G%U%)%k%HGO30 EY$G$9!#<scale> $O **splot** A4BN$N?-=lN($r@)8f$7!"<scale_z> $Oz<4$N?-=LN_$r9T$J$$$^$9!#?-=lN($N%G%U%)%k%HOIAi$b1.0 $G$9!#

Nc:
```
set view 60, 30, 1, 1
set view ,,0.5
```

:G=iNNcO4 DNA4Fr%G%U%)%k%HNCMK7F$$$^$9!#2 DaNNcO=L>.N(N_$r0.5 $KJQ9$7$F$$$^$9!#

Azimuth

```
set view azimuth <angle-in-degrees>
```

azimuth $N@_Dj$O!"3<!85%0%i%U(splot) $Nz<4$N8~$-$K1F6A7^$9!#%G%U%)%k%H$Oazimuth = 0 $G!"%0%i%U$Nz<4$O%9%/%j!<%s$N?eJ?}8~KBP7F?hD>$JJ?LL$K4^$^$k!"9JoA!"z<4$N2<!85<M1F$,%9%/%j!<%s$N1tD>J}8~$KJj$^$9!#0 GJ$$azimuth $O;k3&$r86E@$K4X$7F2sE>$7!"z<4$N<M1F$O1tD>J}8~$GOJ$/$Jj^$9!#azimuth = 90 GOz<4$O1tD>J}8~GOJ/!"?eJ?J}8~KJj^$9!#

Equal_axes

%3%^%s%I **set view equal xy** $Ox<4$Hy<4$NC10L$ND9$5$,6/@)E*KEy7$/$Jkh$&$K=L<\$r9go;!"%0%i%U$,%Z!<%8$KCzEY9g$&$h$&$K$=$N=L<\$rA*Br7^$9!#%3%^%s%I **set view equal xyz** $O!"$5iKz<4$bx $Hy<4$K9g$&$h$&$K7^9,!"8=:_$Nz<4$NHO0O$,!"IA2h6-3&$NHO0O$K9g$&J]>ZO"j^$;$s!#%G%U%)%k%HGO!"3 DN<4$OFHN)$KM-8z$JNN0h$rKdakh&$K?-=L$5l^$9!#

0J2<$b;2>H: **set xyplane (p. 189)**!#

Vrange

%3%^%s%I **set urange** $H **set vrange** $O! "**splot** $NG^2pJQ?t(%Q%i%a!<%?) %b!<%I$Gx, y, z NCMr7W;;9k$N $K;H$olkG^2pJQ?t$NHCOO$r@_Dj7^$9!#>\:Y$O!"0J2<;2>H **set xrange (p. 184)**!#

X2data

%3%^%s%I **set x2data** $Ox2 (>e) <4$N%G!<%?$r;~7CNs(F|;~) 7A<0$K@_Dj7^$9!#>\:Y$O!"0J2<;2>H **set xdata (p. 182)**!#

X2dtics

%3%^%s%I **set x2dtics** $Ox2 (>e) <4$NL\@9jrMKF|$KJQ99$7$^$9!#>\:Y$O!"0J2<;2>H **set xdtics (p. 183)**!#

X2label

%3%^%s%I **set x2label** $Ox2 (>e) <4$N8+=P7r@_Dj7^$9!#>\:Y$O!"0J2<;2>H **set xlabel (p. 183)**!#

X2mtics

%3%^%s%I **set x2mtics** $O! "x2 (>e) <4$r1G/$N3F7n$K@_Dj7^$9!#>\:Y$O!"0J2<;2>H **set xmtics (p. 184)**!#

X2range

%3%^%s%I **set x2range** $Ox2 (>e) <4$NI=<(5l$k?eJ?HOO0$r@_Dj7^$9!#%3%^%s%I%*%W%7%g%s$N9YFN@bL@KD$$$F$O!"0J2<;2>H **set xrange (p. 184)**!#0J2<b;2>H **set link (p. 143)**!#

X2tics

%3%^%s%I **set x2tics** $Ox2 (>e) <4$N!"8+=P$7IU$1$5$l$kBgL\@9$j$N@)8f$r9T$J$$$^$9!#>\:Y$O!"0J2<;2>H **set xtics (p. 186)**!#

X2zeroaxis

%3%^%s%I **set x2zeroaxis** $O!"86E@$rDL$kx2 (>e) <4(y2 = 0) rIA-$^$9!#>\:Y$O!"0J2<;2>H **set zeroaxis (p. 192)**!#

<4Kh$N%G!<%?<cN';XDj (xdata)

3N%3%^%s%I$Ox <4$N%G!<%?7A<0$N2r<a$r@)8f7^$9!#B>$N<4$=$l$>$lKbF1MM$N%3%^%s%I$,5!G=7^$9!#=q<0:

```
set xdata time
show xdata
```

ydata, **zdata**, **x2data**, **y2data**, **cbdata** KbF1$8=q<0$,EvFO$^$j$^$9!#

time %*%W%7%g%s$O%G!<%?$,ICC10L$NF|;~%G!<%?$G"k3HrEA$($^$9!#8=:_$Ngnuplot $O;~9o$r%_%jIC$N@:EYJ]B8$7$^$9!#

%*%W%7%g%sJ7$N>19g$O!"%G!<%?$N2r<aJ}K!$rDL>o$N7A<0$KLa7^$9!#

F|;~%G!<%? **(time)**

set xdata time $O!"x :BI8$,%_%jIC@:EY$NF|;~%G!<%?$G$"$k3H$r0UL#$7$^$9!#**set ydata time** $H$$$&F1MM$N%3%^%s%I$b$"$j$^$9!#

F|;~%G!<%?$NF~NO$H=PNO$N2r<a$K$O!"UL!9$N=q<05!9=$,$"j^$9!#U%!%$%k$+$i$NF~NO%G!<%?$O!"A4BN$KDIMQ$9$k **timefmt** $r;H$&$+!"$^$?$O plot %3%^%s%IFb$G timecolumn() 4X?t$r;HCFFI$_9~$_$^$9!#3NF~NO5!9=$O!"<4$NHCOO (range) $r@_Dj$9kH$-$K;~4VNCMr;HMQ9k:]KbE,MQ5l$^$9!#0J2<;2>H: **set timefmt (p. 178)**, **timecolumn (p. 32)**!#

Nc:

```
set xdata time
set timefmt "%d-%b-%Y"
set xrange ["01-Jan-2013" : "31-Dec-2014"]
plot DATA using 1:2
```

$^$?$O

```
plot DATA using (timecolumn(1,"%d-%b-%Y")):2
```

=PNO!"9JoA<4$K1h$C$?L\@9$j$N%i%Y%k$d!"%^%&%9A':nGN:BI8=PNOKD$$$F$O!"%G%U%)%k%H$G$O!"IC$G$NFbIt;~9o$+$iF|;~$rI=8=9kJ8;zNsXNJQ49KO!"4X?t'strftime'(unix G=lrD4YkKO"man strftime"$H%?%$%W7F$/$@$5$$) $r;H$$^$9!#**gnuplot** O3lrE,Ev$K0UL#N"$k=q<0$GI=<(7h&$H7^$9,!'**set format x** $+**set xtics format** $N$$:l+$r;H$C$F%+%9%?%^%$:9k3HbG$-$^$9!#FCJL$J;~4V=q<0;XDj;R$K4X$7FO!"0J2<;2>H: **time_specifiers (p. 131)**!#B>$N>pJs$K$D$$$F$O!"0J2<$b;2>H: **time/date (p. 50)**!#

MKF|<4L\@9$j **(xdtics)**

%3%^%s%I **set xdtics** $Ox<4$NL\@9jN9o$_$rMKF|$KJQ49$7$^$9(0=Sun, 6=Sat)!#6 $r1[$($k>19g$O7 Kh$kM>$j$,;H$ol^$9!#**unset xdtics** O=$N8+=P7r%G%U%)%k%H$N7A<0KLa7$^$9!#B>$N<4KbF1$8$3Hr9TJ&F1MM$N%3%^%s%I$,MQ0U$5lF$$$^$9!#

=q<0:

```
set xdtics
unset xdtics
show xdtics
```

ydtics, **zdtics**, **x2dtics**, **y2dtics**, **cbdtics** KbF1$8=q<0$,EvFO$^$j$^$9!#

0J2<$b;2>H: **set format (p. 130)**!#

<4%i%Y%k **(xlabel)**

%3%^%s%I **set xlabel** $Ox<4$N8+=P7r@_Dj7^$9!#B>$N<4Kb8+=P7r@_Dj9kF1MM$N%3%^%s%I$,$"$j$^$9!#

=q<0:

```
set xlabel {"<label>"} {offset <offset>} {font "<font>{,<size>}"}
           {textcolor <colorspec>} {{no}enhanced}
           {rotate by <degrees> | rotate parallel | norotate}
show xlabel
```

F1$8=q<0$, **x2label**, **ylabel**, **y2label**, **zlabel**, **cblabel** KbE,MQ5l$^$9!#

<offset> $rx,y $+$^$?$Ox,y,z $N7A<0$G;XDj7?>19g$O!"8+=P$7$OM?$(il$?CM$@$10\F0$5l^$9!#$=lK:BI87O$rA*Br$7$F!"$=$NA0$K **first**, **second**, **graph**, **screen**, **character** $N$$:l+rD1k3HbG$-$^$9!#>\:Y$O!"0J2<;2>H: **coordinates (p. 26)**!#%G%U%)%k%HGO **character** :BI87O$,;H$ol^$9!#Nc$($P!"**"set xlabel offset -1,0"** $O8+=P$7$Nx J}8~$N0LCVN_JQ99$7!"Bg$6CQ$K8@$C$F1J8;zJ,$NI}$@$18+=P7r:8K:i7^$9!#1J8;z$NBg$-$5$O!"%U%)%s%H$H=PNO7A<0$NNN>J}$K0MB8$7$^$9!#

<font> $O8+=P$7$,=q$+lk%U%)%s%H$r;XDj$9kN$K;H$ol^$9!#%U%)%s%H$N<size> (Bg$-$5) $NC10L$O!"IsJ=PNO7A<0$r;H$&$+$K0MB8$7$^$9!#

noenhanced $O! "3HD%J8; zNs=hM} (enhanced text) %b! <%I$,M-8z$KJC$F$$$k>19gGb! "%i%Y%kJ8; zNs$r3HD%J8; zNs=hM}$5$;$J$$$h$&$K7^$9! #

8+=P7r>C5n9kKO! "%*%W%7%g%srD1:$K<B9T$7$^$9! #Nc: **"set y2label"**

<4$N8+=P$7$N%G%U%)%k%H$N0LCV$O0J2<$NDLjG$9:

xlabel: x <4$N8+=P$7$O%0%i%U$N2<$N?Cf

ylabel: y <4$N8+=P$7$O%0%i%U$N:8$N?Cf$G! "?eJ?J}8~$K=q$+1k$+?bD>J}8~$KJk$+$O=PNO7A<00MB8

zlabel: z <4$N8+=P$7$O<4$NI=<(HO0Ohj>e$G! "8+=P$7$N?Cf$, z <4$N?>e

cblabel: ?'8+K\(color box) $N<4$N8+=P7OH"$K1h$C$FCf1{B7$($5$1! "H"$N8~$-$,?eJ?$J$i2<$K! "?bD>Ji1&$K

y2label: y2 <4$N8+=P$7$Oy2 <4$N1&! #$=$N0LCV$O! "=PNO7A<00MB8$Gy <4$HF1MM$N5,B'$G7hDj! #

x2label: x2 <4$N8+=P$7$O%0%i%U$N>e$G! "%?%$%H%khj$O2<! #$3$1$O! " 2~9TJ8; z$r; H$($P! "$=1KhkJ#?t$N9T$+iJ$kIA2h%?%$%H%k$Gx2 <4$N8+=P7r@8@.9k3H$b2DG=! #Nc:

```
set title "This is the title\n\nThis is the x2label"
```

$3$1$CFs=E0zMQId$r; H$&$Y$-$G$"$k3H$KCm0U$7F/$@$5$$! #3N>19g! "bA$m6s2 DN9T$GF1$8%U%)%s%H$,;H$o1^$9! #

2 <!85IA2h$N>19g$Nx, x2, y, y2 <4$N%i%Y%k$NJ}8~(2sE>3Q) $O! "**rotate by** < 3QEY> $r; XDj$9k3HGJQ99G-$^$9! #3 <!85IA2h$Nx, y <4$N%i%Y%k$NJ}8~$O%G%U%)%k%HGO?eJ?J}8~KJCF$$^9,! "**rotate parallel** $r; XDj$9k3HG<4$KJ?9T$K9k3H$,$G$-$^$9! #

b7<4$N0LCV$N%G%U%)%k%H$N0LCV$,5$$KF~iJ$$$JiP! "Beoj$K**set label** $r; H$CF/$@$5$$! #3N%3%^%s%I$OJ8; zNs$rI3$KG[CV$9k+rbCH<+M3$K@)8f$G$-$^$9! #

%P%C%/%9%i%C%7%eJ8; zNs$N:nMQ! "5Z$SJ8; zNs$r0O$'C10l0zMQId$HFs=E0zMQId$N0c$$$K4X9khj>\$7$$>pJsKD$$$F$O! "0J2<; 2>H: **syntax (p. 49)**! #

7n<4L\@9$j (xmtics)

%3%^%s%I **set xmtics** $O x <4$NL\@9jN8+=P7r7n$KJQ49$7$^$9! #1=Jan (1 7n)! "12=Dec (12 7n) HJj^$9! #12 $r1[$($??t; z$O! "12 $G3d$C$?$"$^$j$N7n$KJQ49$5$l$^$9! #**unset xmtics** $GL\@9$j$O%G%U%)%k%H$N8+=P7KLaj^$9! #B>$N<4KBP7FbF1$8Lr3d$r9kF1MM$N%3%^%s%I$,MQ0U5l$F$$$^$9! #

=q<0:

```
set xmtics
unset xmtics
show xmtics
```

x2mtics, **ymtics**, **y2mtics**, **zmtics**, **cbmtics** KbF1$8=q<0$,E,MQ5l$^$9! #

0J2<$b; 2>H: %3%^%s%I **set format (p. 130)**! #

<4HO0O; XDj (xrange)

%3%^%s%I **set xrange** $OI=<($5$1$k?eJ?J}8~$NHO0O$r; XDj7^$9! #B>$N<4KbF1MM$N%3%^%s%I$,B8:_7^$9$7! "6K:BI8GNF07Br, G^2pJQ?tt, u, v KbB8:_7^$9! #

=q<0:

```
set xrange [{{<min>}:{<max>}}] {{no}reverse} {{no}writeback} {{no}extend}
           | restore
show xrange
```

$3$3$G<min> $H<max> $OXDj?t! "?t<0! "$^$?$O'*' $G! "'*' $O<+F0=L<\5!G=$r0UL#7^$9! #F|; ~%G!<%?$N>19g! "HO0O$O **set timefmt** $N=q<0$K=>C?J8; zNs$r0zMQId$G0O$'I,MW$,$"$j$^$9! #<min> $d<max> $r>JN,$7$?>19g$O! "8=:_NCMrJQ99$7$^$;$s! #<+F0=L<\5!G=$K4X$9$k>\:Y$O2<$K=R$Y$^$9! #0J2<$b; 2>H: **noextend (p. 114)**! #

yrange, **zrange**, **x2range**, **y2range**, **cbrange**, **rrange**, **trange**, **urange**, **vrange** $OF1$8=q<0$r; HMQ$7$^$9! #

x $Hx2 <4! "$"$k$$$Oy $Hy2 <4$NHCOO$r%j%s%/$9$k%*%W%7%g%s$K$D$$$F$COJ2<;2>H: **set link (p. 143)**!#

%*%W%7%g%s **reverse** $O! "<+F0=L<\$N<4$NJ}8~$r5UK7$^$9! #Nc$ ($P! "%G! <%?CM$NHCOO$, 10 $+$i100 G"kH $-! "$3lO! "set xrange [100:10] H7$?$N$HF1$8h&$K<+F0=L<\$7$^$9! #**reverse** $O! "<+F0=L<\$GOJ$$<4$K BP$7FO5!G=7^$;$s! #Cm0U: 3NJQ99$O! "%P! <%8%g%s4.7 $GF3F~$5l^7?! #

<+F0=L<\5!G=: <min> (F1MMN3H, <max> KbE,MQ5l$^$9) $,%"%9%?%j%9%/"*" $N>19g$O<+F0=L<\5!G= $,%*%s$KJj$^$9! #$=$N>19gN=NCMK! "2<8B<lb>! "$^$?$O>e8B<ub>! "$^$?$O$=$NN>J}$N@)8B$rM?$ (il $^$9! #=q<0$COJ2<$NDLjG$9! #

```
{ <lb> < } * { < <ub> }
```

Nc$ ($P

```
0 < * < 200
```

$O<lb> = 0, <ub> = 200 HJj^$9! #$=Nh$&$J@_DjGO! "<min> $O<+F0=L<\$5l^9,! "$=$N:G=*E*$J CM$O0 $+$i200 $N4V$KJj$^$9(5-9f$O'<' G9$,N>C<NCMb4^$_$^$9)! #2<8B$+>e8B$r;XDj7J$>19g$O! "$= $N'<' $b>JN,$G$-$^$9! #<ub> $, <lb> hj>.5>19g$O! "@)8B$O%*%UKJ$j! "40A4$J<+F0=L<\$KJj$^$9! # 3N5!G=$O! "<+F0=L<\$@1lIbHCOO$K@)8B$,$"$kB,Dj%G! <%?$NIA2h$d! "30lCMN%/%j%C%T%s%O! "$^$?$O%G! < %?$,$=$l$[$I$NHCOO$rI,MWH7$F$$J$/$F$b:G>.$NIA2hHCOO$rJ]>Z$9kN$KM-MQ$G7g$&! #

%*%W%7%g%s **writeback** $O! "**set xrange** $G@j$ail$F$$k%P%C%U%!NCfK<+F0=L<\5!G=Kh$j:n$il?HCOO$r J]B8$7$^$9! #3l$O! "$$/D+$N4X?t$rF1;~$KI=<($7! "7+7=$NHCOO$O$=$N$&$A$N$$/D+NbN+$i7hDj 5;$?$>19g$KJXMx$G$9! #**writeback** $N:nMQ$O! "**plot** $N<B9TCf$K5!G=9kNG! "$=$N%3%^%s%I$NA0$K;XDj$9 kI,MW,$"j^$9! #:G8e$KJ]B8$7$??eJ?J}8~$NHCOO$O**set xrange restore** $GI|85$G$-$^$9! #Nc$r>e2^$9! #

```
set xrange [-10:10]
set yrange [] writeback
plot sin(x)
set yrange restore
replot x/2
```

3N>19g! "y $NHCOO (yrange) $O sin(x) $NCM0h$H7F:nil$?[-1:1] $NJ}$KJj! "x/2 $NCM0h[-5:5] $OL5;k$5 l^$9! #>e5-$N$=$l$>$l$N%3%^%s%I$N8e$K**show yrange** $r<B9T$9lP! ">e$G2?$,9TJolF$$$k$+$rM}2r$9 $k=u$lKJkG7g$&! #

2<!85IA2hK*$$F! "**xrange** $H **yrange** $O<4$NHCOO$r7hDj$7! "**trange** $O! "G^2pJQ?t%b! <%I$NG^2pJQ?t$NHCO O! "$"$k$$O6K:BI8%b! <%I$N3QEY$NHCOO$r7hDj$7$^$9! #F1MM$K3<!85G^2pJQ?t%b! <%I$G$O! "**xrange**, **yrange**, **zrange** $,<4$NHCOO$r4IM}$7! "**urange** $H **yrange** $,G^2pJQ?t$NHCOO$r4IM}$7$^$9! #

6K:BI8%b! <%IGO! "**rrange** $OIA2h$5lkF07B$NHCOO$r7hDj7^$9! #<rmin> $OF07B$X$NDI2C$NDj?tH7$F:n MQ$7! "0lJ}<rmax> $OF07B$r@Z$j<N$F$k(clip) h&$K:nMQ$7! "<rmax> $r1[$($?F07B$KBP9kE@$OIA2h$5$l $^$;$s! #**xrange** $H **yrange** $O1F6A$5l^$9! #$3li$NHCOO$O! "%0%i%U$, r(t)-rmin $N%0%i%U$G! "L\@9jN8+ =P7KO=l>$l rmin $r2C$($?$h$&$JbNG"k+Nh$&$K%;%C%H5l$^$9! #

A4FNHCOO$OItJ,E*$K! "$^$?$OA4BNE*$K<+F0=L<\$5l^9,! "%G! <%?$NIA2h$GJ1lP! "%Q%i%a! <%?JQ?t$N<+ F0=L<\5!G=$OOULL#$,$J$$G7g$&! #

HCOO$O **plot** $N%3%^%s%I%i%$%s>eGb;XDjG-$^$9! #%3%^%s%I%i%$%s>e$GM?$($il?HCOO$OC1$K$=$N **plot** %3 %^%s%IG@$1;H$o$l! "**set** %3%^%s%I$G@_Dj5l$?HCOO$O$=$N8e$NIA2h$G! "%3%^%s%I%i%$%s$GHCOO$r;XDj$7$F$$ $J$$$b$NA4$F$G;H$ol^$9! #$3lO**splot** $bF1$8$G$9! #

Nc:

x $NHCOO$r%G%U%)%k%HNCMK7^$9:

```
set xrange [-10:10]
```

y $NHCOO$,2<J}$XA}2C$9kh$&$K7^$9:

```
set yrange [10:-10]
```

z $N:G>.CM$K$O1F6A$rM?$($:$K(<+F0=L<\$5l?$^$^)! ":GBgCMN_10 $K@_Dj$7$^$9:

```
set zrange [:10]
```

x $N:G>.CM$O<+F0=L<\$H$7! ":GBgCM$OJQ99$7$^$;$s:

```
set xrange [*:]
```

x $N:G>.CM$r<+F0=L<\$H7^9,!"$=$N:G>.CM$00 0J>e$K7^$9!#

```
set xrange [0<*:]
```

x $NHC0O$r<+F0=L<\$H7^9,!">.5/Fb 10 $+$i 50 $NHC0O$rJ];}7^$9(<B:]$O$=$lhjBg$-$/Jk$G 7g$&):

```
set xrange [*<10:50<*]
```

<+F0=L<\$G:GBgHC0O$r-1000 $+$i 1000!"9JoA[-1000:1000] Fb$G<+F0=L<\$7$^$9:

```
set xrange [-1000<*:*<1000]
```

x $N:G>.CM$r-200 $+$i 100 $N4V$NI3$+$K7^$9:

```
set xrange [-200<*<100:]
```

<4<gL\@9$j;XDj (xtics)

x <4$N(8+=P$7ND$/) BgL\@9$j$O%3%^%s%I **set xtics** $G@)8f$G$-$^$9!#L\@9$j$O **unset xtics** $G>C$(!"**set xtics** $G(%G%U%)%k%H$N>uBV$N) L\@9$j$,$D$-$^$9!#y,z,x2,y2 <4$NBgL\@9jN@)8f$r9T$J$&F1MM$N%3%^%s%I$,$"j^$9!#

=q<0:

```
set xtics {axis | border} {{no}mirror}
          {in | out} {scale {default | <major> {,<minor>}}}
          {{no}rotate {by <ang>}} {offset <offset> | nooffset}
          {left | right | center | autojustify}
          {add}
          {  autofreq
           | <incr>
           | <start>, <incr> {,<end>}
           | ({"<label>"} <pos> {<level>} {,{"<label>"}...) }
          {format "formatstring"} {font "name{,<size>}"} {{no}enhanced}
          { numeric | timedate | geographic }
          { rangelimited }
          { textcolor <colorspec> }
unset xtics
show xtics
```

F1$8=q<0$, **ytics**, **ztics**, **x2tics**, **y2tics**, **cbtics** KbE,MQ5l$^$9!#

axis $H **border** $O **gnuplot** $KL\@9$j(L\@9jN9o$_<+?H$H$=$N8+=P$7) $r!"$=l>$l<4$KD1kN$+!"6-3&$KD1kN$+$r;X<(7^$9!#<4$,6-3&KHFb6a$$>19g!"**axis** $r;HMQ$9kHL\@9jN8+=P$7J8;z$r6-3&$N30$K=P7F7^$&$G7g$&!#$3$N>19g<+F0E*$J%1%$%"%&%H%"%k%4%j%:%'$KhkM>Gr@_Dj$OBgDq$h$/$J$$$bNHJCF7$^$$$^$9!#

mirror $O **gnuplot** $KH?BPB&$N6-3&$NF1$80LCV$K!"8+=P$7NJ$$$L\@9jr=PNO9kh&;X<(7^$9!#**nomirror** $O!"$"J?$,A[A|$7$F$$$kDLjN3H$r9T$J$$$^$9!#

in $H **out** $OL\@9$j$N9o$_$rFbB&$KIA$/$+30B&KIA/$+$r@ZjJQ($^$9!#

L\@9jN9o$_$N%5%$%:$O **scale** $GD4@0$G$-$^$9!#<minor> $N;XDj$,>JN,5l$?>19g$O!"$=$l$O0.5*<major> KJj^$9!#%G%U%)%k%H$N%5%$%:$O!"BgL\@9j,1.0 $G>.L\@9$j$,0.5 $G!"$3lO **scale default** $G8F$S$@$;$^$9!#

rotate $O!"J8;zNs$r90 EY2sE>5;$F=PNO$5$;$h$&$H7^$9!#$3lO!"J8;zNs$N2sE>$r%5%]!<%H7F$$$k=PNO%I%i%$%P(terminal) GO<B9T5l$^$9!#**norotate** O3lr%-%c%s%;%k7^$9!#**rotate by** <ang> $O3QEY<ang> $N2sE>$r9T$J$$$^9,!"3l$O$$/D+$N=PNO7A<0(terminal) $G%5%]!<%H$5lF$$$^$9!#

x $Hy <4$NBgL\@9jN%G%U%)%k%H$O **border mirror norotate** $G!"x2, y2 <4$O **border nomirror norotate** $,%G%U%)%k%H$G$9!#z <4$K$O!"**{axis | border}** %*%W%7%g%s$OL58z$G!"%G%U%)%k%H$O **nomirror** $G$9!#z <4$NL\@9$j$r%_%i!<2=$7$?$$$J$i!"B?J, **set border** G=$N?$a$N6u4V$r$"$1kI,MW,$"$kG7g&!#

<offset> $O x,y $+$^$?$O x,y,z $N7A<0$G;XDj7^9,!"$=$l$K:BI87O$rA*Br7F!"$=$NA0$K **first**, **second**, **graph**, **screen**, **character** $N$$:l+rD1k3HbG$-$^$9!#<offset> $O9o$_J8;z$N%G%U%)%k%H$N0LCV$+

iN$:$l$rI=$7! "%G%U%)%k%H$N:BI87O$O **character** $G$9!#\:Y$O! "0J2<;2>H: **coordinates (p. 26)**!#**nooffset** O:i7$rL58z$K7^$9!#

Nc:

xtics rh$jIA2h$K6aE1$k:

```
set xtics offset 0,graph 0.05
```

%G%U%)%k%HGO8+=P$7%i%Y%k$O! "H~$7$7k2I$r@8$`h&$K! "<4$H2sE>3Q$K0MB8$7$?0ICV$K<+F0E*$KB7$(il$^$9$,! "5$$K$$$iJ1lP! "L@<(E*$K **left**, **right**, **center** $N%-!<%o!<%I$Khj0ICVB7$($rJQ9G-$^$9!#**autojustify** $G%G%U%)%k%H$N5sF0$KI|5"$7$^$9!#

%*%W%7%g%sJ7$G **set xtics** $r<B9T$9kH! "L\@9j,I=<(5l$k>uBV$G$"$l$P! "$=lO%G%U%)%k%H$N6-3&! "$^$?$O<4$rI|85$7! "$=$&GJ1l$P2?$b7^$;$s! #$=$NA0$K;XDj$7$?L\@9$j$N4V3V! "0ICV($H8+=P$7) $OJ];}$5l^$9!#

L\@9jN0ICV$O! "%G%U%)%k%H! "$^$?$O%*%W%7%g%s **autofreq** $,;XDj$5lF$$$l$P<+F0E*$K7W;;5l$^$9!#$=$&GJ1l$P! "<!$N2 DN7A<0$G;XDj$5l^$9:

0E<(E*$J<start>, <incr>, <end> 7A<0$O! "L\@9$jNNsr<start> $+$i<end> $N4V$r<incr> $N4V3V$GI=<(7^$9!#<end> $r;XDj$7J1lP! "$=$l$OL58BBg$H$_$J5l$^$9!#<incr> OIiNCM$b2DG=$G$9!#<start> $H<end> $NN>J}$,;XDj5l$F$$$J$>19g! "<start> $O-!g! "<end> $O+!g$H$_$J5l! "L\@9jO<incr> $N@0?tG\$N0ICV$KI=<($5l^$9!#<4$,BP?t<4$N>19g! "L\@9$j$N4V3V(A}J,) $O! "G\?t$H7F;HMQ5l$^$9!#

Ii$N<start> $d<incr> $r! "?tCM$N8emK;XDj9k$H(Nc$($P **rotate by** <**angle**> H+**offset** <**offset**> $N8e$m)! "gnuplot $N9=J82r@O4c$O! "$=$NCM$+$i$=$NIi$N<start> $d<incr> NCMN0z$-;;$r9T$*$&H9$k4V0c$$$rHH7^$9!#$3lr2sHr9kKO! "$=$Nh&$J>19g$O! "**0-**<**start**> $d**0-**<**incr**> Nh$&$K;XDj7F$/$@$5$$!#

Nc:

```
set xtics border offset 0,0.5 -5,1,5
```

:G8e$N',' NH3m$G<:GT7^$9!#

```
set xtics border offset 0,0.5 0-5,1,5
```

$+

```
set xtics offset 0,0.5 border -5,1,5
```

Ji$P! "$Acs$H;X<(DL$j$K! "L\@9$j$r6-3&$K! "L\@9$j8+=P$7J8;zNs$r 0,0.5 J8;zJ,$@1:i7$F! "start, increment, end r=l>$l-5,1,5 $K@_Dj$7$^$9!#

set grid $N%*%W%7%g%s 'front', 'back', 'layerdefault' $b! "x<4$NL\@9jNIA2h$N=g=x$K1F6A7^$9!#

Nc:

L\@9jr 0, 0.5, 1, 1.5, ..., 9.5, 10 $N0ICV$K@8@.

```
set xtics 0,.5,10
```

L\@9jr ..., -10, -5, 0, 5, 10, ... $K@8@.

```
set xtics 5
```

L\@9jr 1, 100, 1e4, 1e6, 1e8 $K@8@.

```
set logscale x; set xtics 1,100,1e8
```

L@<(E*$J("<label>" <pos> <level>, ...) $N7A<0$O! "G$0U$NL\@9jN0ICV! "$"$k$$$O?t;zGJ$8+=P$7$N@8@.$b2DG=K7$^$9!#3N7A<0GO! "L\@9jO0ICV$N?t;z$N=g$KM?($(kI,MWO"j^$;$s! #3FL\@9jO0ICV(pos) $H8+=P$7(label) $r;}$A$^$9$,! "8+=P$7$OI,?\$GO"j^$;$s! #8+=P7OFs=E0zMQId$G0O$^l?J8;zNsG"k3HKCm0U7F$/$@$5$$!#$=$l$O! ""hello" Nh$&$J8GDjJ8;zNsGb9=$$$^$;$s7! ""%3f clients" Nh$&$K$=$N0ICV$r?t;z$KJQ49$9$k=q<0J8;zNs$r4^s$G$b9=$$$^$;$s7! "6uJ8;zNs "" Gb9=$$$^$;$s! #hj>\$7$$>pJsKD$$F$O! "0J2<;2>H: **set format (p. 130)**!#b7! "J8;zNs$,M?($(ilJ1l$P! "%G%U%)%k%H$N?t;z$N8+=P$7$,;HMQ$5l^$9!#

L@<(E*$J7A<0$G$O3 $DL\$N%Q%i%a!<%?H7$F%l%Y%k$r;XDjG-$^$9!#%G%U%)%k%H$N%l%Y%k$O0 $G! "$3lOBgL\@9jr0UL#$7! "%l%Y%k1 $N>19g$O>.L\@9jr@8@.7^$9!#%i%Y%k$O! ">.L\@9jK$O7h$7FIU-$^$;$s! #BgL\@9

jH>.L\@9jO gnuplot $,<+F0E*$K@8@.7^9,!"%f!<%6$,L@<(E*$K;XDjbG$-$^$9!#%l%Y%k$,2 0J>e$NL\@9$j$O!"%f!<%6$,L@<(E*$K;XDj$7J1lPJi$:!"<+F0@8@.$NL\@9jhjb9b$$M%@hEY$r;}$A$^$9!#3F%l%Y%k$NL\@9$j$N9o$_NBg-5O!"**set tics scale** $G@)8f$7$^$9!#

Nc:

```
set xtics ("low" 0, "medium" 50, "high" 100)
set xtics (1,2,4,8,16,32,64,128,256,512,1024)
set ytics ("bottom" 0, "" 10, "top" 20)
set ytics ("bottom" 0, "" 10 1, "top" 20)
```

2 HVL\$NNcGO!"A4FNL\@9j,8+=P$7IU$1$5$l$^$9!#3 HVL\$NNcGO!"C<NbN@1,8+=P$7IU$1$5$l$^$9!#4 HVL\$NNc$N!"8+=P$7NJ$$L\@9jO>.L\@9jKJj$^$9!#

DL>oL@<(E*$J(<jF0$N)L\@9$j0ICV$,M?$($il?>l9g!"<+F0E*$K@8@.$5lkL\@9jO;Hol$^$;$s!#5U$K!"**set xtics auto** Nh$&$JbN$,;XDj$5l?>l9g$O!"0JA0$K<jF0$G@_Dj$7$?L\@9$j$O>C$5lF7^7^$9!#$3$N<jF0$NL\@9jH<+F0E*$JL\@9$j$r6&B8$5$;$kKO%-!<%o!<%I **add** $r;HMQ$7F/$@$5$$!#3l$CDI2C$9$kL\@9$j$N%9%?%$%k$NA0$K=q$+$J1l$P$$$1$^$;$s!#

Nc:

```
set xtics 0,.5,10
set xtics add ("Pi" 3.14159)
```

3l$O<+F0E*$KL\@9jN9o$_$rx<4$K0.5 4V3V$GD1$^$9$,!"&P$NH3mKL@<(E*$J8+=P$7$bDI2C$7$^$9!#

7+$7;XDj$7Fb!"I=<(5lkN$O"$/$^$GIA2hHO0ONbN@1G$9!#

L\@9jN8+=P7N=q<0($^$?$O>JN,)$O **set format** $G@)8f$5l^$9!#$?$@$7$=$l$O **set xtics** (<label>) $N7A<0$NL@<(E*$J8+=P$7J8;zNs$,4^$^lF$$$J$>l9g$@1G$9!#

(8+=P$7IU$1$5$lJ)>.L\@9jO!"**set mxtics** %3%^%s%I$G<+F0E*$KDI2C9k$+!"$^$?$O0ICV$r<jF0$G **set xtics** ("" <**pos**> **1, ...**) $N7A<0$GM?$($k3HbG$-$^$9!#

9o$_$N8+$?L\(@~<o!"I}Ey)$O!"$=$l$r<4$N>eKIA/>l9gG"CF$b!"6-3&@~$KhC$F7hDj$5l^$9(0J2<;2>H: **set border (p. 115)**)!#

Xtics timedata

;~4V$HF|IU$OFbItGOIC?tH7$FJ];}$5lF$$$^$9!#

F~NO: Hs?tCM$NF|;~CM$O!"F~NO;~$K **timefmt** $G;XDj$7$?=q<0$rMQ$$$FIC?t$KJQ49$7$^$9!#<4KBP9$k0ICV$d<4$NHO0O$b **timefmt** $G2r<a$5lkF|;~$G!"0zMQId$G0OsGM?$($^$9!#<start>, <incr>, <end> 7A<0$r;H$&>l9g!"<incr> $OICC10L$GM?$($J1l$P$$$1$^$;$s!#F~NO%G!<%?$N2r<aKO **timefmt** $r;H$CF/$@$5$$!#<4$NHO0O$HL\@9jN0ICV$O!"**set xdata time** $GJQ9$5l^$9!#

=PNO: <4$NL\@9$j%i%Y%k$O!"**set format** $+ **set xtics format** $N$$:l+$G;XDj$5l?!"UL$N=q<0$r;HCF@8@.7^$9!#%G%U%)%k%H$G$O!"$=lCDL>o$N?tCM=q<0;XDj$G$"$k$HG'<1$7$^$9,(**set xtics numeric**)!"B>$K!"COM}:BI8(**set xtics geographic**) $d!"F|;~%G!<%?(**set xtics time**) $N%*%W%7%g%s$,$"$j$^$9!#

Cm0U: 0JA0NHGN gnuplot HN8_49@-N?$a!"%3%^%s%I **set xdata time** $b0EL[$K **set xtics time** $r<B9T$7$^$9$7!"**set xdata** $d **unset xdata** $O0EL[$K **set xtics numeric** $X%j%;%C%H$7$^$9!#7+$7!"$3lO$=$N8e$K **set xtics** $r8F$S=P$9$3HGJQ9G-$^$9!#

Nc:

```
set xdata time            # F~NO%G!<%?$N2r<a$N@)8f
set timefmt "%d/%m"       # F~NO%G!<%?$NFI$_9~$_$N=q<0
set xtics timedate        # =PNO=q<0$N2r<a$N@)8f
set xtics format "%b %d" # L\@9$j%i%Y%k$G;H$&=q<0
set xrange ["01/12":"06/12"]
set xtics "01/12", 172800, "05/12"

set xdata time
set timefmt "%d/%m"
set xtics format "%b %d" time
set xrange ["01/12":"06/12"]
set xtics ("01/12", "" "03/12", "05/12")
```

3liQN>J}Hb "Dec 1", "Dec 3", "Dec 5", $NL\@9$j$r@8@.$7$^$9$,!"2 HVL\$NNc "Dec 3" $NL\@9$j$O8+=P$7IU$1$5l^$;$s!#

Geographic

set xtics geographic $O!"x <4$NCM$,EY$NC10L$NCOM}:BI8$G$"$k3H$r0UL#$7$^$9!#$=$N<4$N9o$_$N8+=P$7$NI=8=$N;XDjKO!"**set xtics format** $+**set format x** $r;H$$$^$9!#COM}:BI8%G!<%?$K4X9k=q<0;XDj;R$O0J2<$NDL$j:

```
%D                    = EY$N@0?tI=<(
%<width.precision>d   = EY$NIbF0>.?tI=<(
%M                    = J,$N@0?tI=<(
%<width.precision>m   = J,$NIbF0>.?tI=<(
%S                    = IC$N@0?tI=<(
%<width.precision>s   = IC$NIbF0>.?tI=<(
%E                    = +/- $G$J$/ E/W $N%i%Y%k
%N                    = +/- $G$J$/ N/S $N%i%Y%k
```

Nc$($P!"%3%^%s%I**set format x "%Ddeg %5.2mmin %E"** $O!"x :BI8$N-1.51 $H$$$&CM$r" **1deg 30.60min W"** Nh$&$KI=<(7^$9!#

xtics $,%G%U%)%k%H$N>uBVN^$^(**set xtics numeric**) $N>19g$O!":BI8$O10 ?J?t$NEY$GI=<($7!"**format** $b>e$NFCJL$J5-9f$GOJ$/!"DL>o$N?tCM=q<0$,;H$olF$$$kH_J5l^$9!#

Xtics rangelimited

3N%*%W%7%g%s$O!"<+F0E*$K@8@.5l$k<4$NL\@9jN8+=P7H!"IA2h5l$?%G!<%?$G<B:]$KM?$(il$kHO0O$KBP1~9kIA2h6-3&$NN>J}$r@)8B7^$9!#$3lOIA2hKBP9$k8=:_$NHO0O@)8BHOL54X78G"k3HKCm0U7F$/$@$5$$!#Nc$($P%G!<%?"file.dat" $N%G!<%?$,9Y$F 2 < y < 4 $NHO0O$K$"$kH9kH!"0J2<$N%3%^%s%I$O!":8B&$NIA2h6-3&(y <4) $Oy $NHO0OA4BN([0:10]) N3$NItJ,([2:4]) N_$,IA2h$5$l!"$3$NHO0O([2:4]) $N<4$NL\@9jN$_$,:nil$kIA2h$r@8@.7^$9!#$D$^$j!"IA2h$Oy $NHO0OA4BN([0:10]) $K3HBg$5l^9,!":8$N6-3&$O0 $+$i2 $N4V!"4 $+$i10 $N4V$O6uGrNN0hHJj^$9!#$3$N%9%?%$%k$O!"HO0O0H%0%i%U(range-frame) Hb8FPl$^$9!#

```
set border 3
set yrange [0:10]
set ytics nomirror rangelimited
plot "file.dat"
```

Xy J?LL0LCV (xyplane)

set xyplane %3%^%s%I$O3D IA2h$GIA$+$l$kxy J?LL$N0LCV$rD4@0$9kN$K;H$ol^$9!#8eJ}8_49@-$N$?a$K!""set ticslevel" $bF1$80UL#$N%3%^%s%I$H7F;H$&$3H,G-$^$9!#

=q<0:

```
set xyplane at <zvalue>
set xyplane relative <frac>
set ticslevel <frac>        # set xyplane relative $HF1Ey
show xyplane
```

set xyplane relative <**frac**> $O!"xy J?LL$rZ<4$NHO0O$N$I3$KCV$/$+$r7hDj$7$^$9!#<frac> KO!"xy J?LL$Hz $N0lHV2<$N0LCVHN:9$N!"z <4$NHO0OA4BNKBP9$k3d9g$rM?$($^$9!#%G%U%)%k%H$NCM$O0.5 $G$9!#IiNCMb5v5l$F$$$^9,!"$=$&9k$H3 DN<4$NL\@9jN8+=P7,=EJk2DG=@-$,$"j^$9!#

b&0lDN7A<0G"$k**set xyplane at <zvalue>** $O!"8=:_$Nz $NHO0O$r5$$K9k3HJ/!";XDj7?z NCMN0LCV$K xy J?LL$r8GDj7^$9!#$hCF!"x,y,z <4$r6&DL$N86E@rDLkh&K9kK$O!"**set xyplane at 0** H9lP$$$$$3HKJj$^$9!#

0J2<$b;2>H: **set view (p. 181)**, **set zeroaxis (p. 192)**!#

Xzeroaxis

%3%^%s%I **set xzeroaxis** $Oy = 0 $ND>@~$rIA$-$^$9!#>\:Y$K4X7F$O!"0J2<;2>H **set zeroaxis (p. 192)**!#

Y2data

%3%^%s%I **set y2data** $Oy2 (1&) <4$N%G!<%?$r;~7CNs(F|;~) 7A<0$K@_Dj7^$9!#>\:Y$O!"0J2<;2>H **set xdata (p. 182)**!#

Y2dtics

%3%^%s%I **set y2dtics** $Oy2 (1&) <4$NL\@9jrMKF|$KJQ99$7$^$9!#>\:Y$O!"0J2<;2>H **set xdtics (p. 183)**!#

Y2label

%3%^%s%I **set y2label** $Oy2 (1&) <4$N8+=P7r@_Dj7^$9!#>\:Y$O!"0J2<;2>H **set xlabel (p. 183)**!#

Y2mtics

%3%^%s%I **set y2mtics** $Oy2 (1&) <4$NL\@9jr 1 G/$N3F7n$KJQ99$7$^$9!#>\:Y$O!"0J2<;2>H **set xmtics (p. 184)**!#

Y2range

%3%^%s%I **set y2range** $Oy2 (1&) <4$NI=<(($5$1$k?bD>HCOO$r@_Dj7^$9!#%3%^%s%I%*%W%7%g%s$N9YFN@bL@KD$$$F$O!"0J2<;2>H **set xrange (p. 184)**!#0J2<$b;2>H **set link (p. 143)**!#

Y2tics

%3%^%s%I **set y2tics** $Oy2 (1&) <4$N!"8+=P$7IU$1$5$l$kBgL\@9$j$N@)8f$r9T$J$$$^$9!#>\:Y$O!"0J2<;2>H **set xtics (p. 186)**!#

Y2zeroaxis

%3%^%s%I **set y2zeroaxis** $O!"86E@$rDL$ky2 (1&) <4(x2 = 0) rIA-$^$9!#>\:Y$O!"0J2<;2>H **set zeroaxis (p. 192)**!#

Ydata

%3%^%s%I **set ydata** $Oy <4$N%G!<%?$r;~7CNs(F|;~) 7A<0$K@_Dj7^$9!#0J2<;2>H **set xdata (p. 182)**!#

Ydtics

%3%^%s%I **set ydtics** $Oy <4$NL\@9jrMKF|$KJQ99$7$^$9!#>\:Y$O!"0J2<;2>H **set xdtics (p. 183)**!#

Ylabel

3N%3%^%s%I$Oy <4$N8+=P7r@_Dj7^$9!#0J2<;2>H **set xlabel (p. 183)**!#

Ymtics

%3%^%s%I **set ymtics** $O!"y <4$NL\@9jr7n$KJQ99$7$^$9!#>\:Y$O!"0J2<;2>H **set xmtics (p. 184)**!#

Yrange

%3%^%s%I **set yrange** $O!"y J}8~$N?hD>HOOO$r@_Dj$7$^$9!#>\:Y$O!"0J2<;2>H **set xrange (p. 184)**!#

Ytics

%3%^%s%I **set ytics** $O y <4$N(8+=P$7IU$1$5$l$k) BgL\@9$j$r@)8f$7$^$9!#>\:Y$O!"0J2<;2>H **set xtics (p. 186)**!#

Yzeroaxis

%3%^%s%I **set yzeroaxis** $O x = 0 $ND>@~(y <4) $r=q$-$^$9!#>\:Y$O!"0J2<;2>H **set zeroaxis (p. 192)**!#

Zdata

%3%^%s%I **set zdata** $O z <4$N%G!<%?$r;~7ONs(F|;~) 7A<0$K@_Dj7^$9!#0J2<;2>H **set xdata (p. 182)**!#

Zdtics

%3%^%s%I **set zdtics** $O z <4$NL\@9jrMKF|$KJQ99$7$^$9!#>\:Y$O!"0J2<;2>H **set xdtics (p. 183)**!#

Zzeroaxis

%3%^%s%I **set zzeroaxis** $O(x=0,y=0) rDLkD>@~rIA-$^$9!#3l$O!"2D IA2h!"$*hS **set view map** $G $Nsplot GO8zNO$r;}A^$;$s!#>\:Y$O!"0J2<;2>H **set zeroaxis (p. 192)**, **set xyplane (p. 189)**!#

Cbdata

3N%3%^%s%I$O%+%i!<%\%C%/%9<4$N%G!<%?$r;~7ONs(F|;~) 7A<0$K<0$K@_Dj$7$^$9!#0J2<;2>H **set xdata (p. 182)**!#

Cbdtics

%3%^%s%I **cbdtics** $O%+%i!<%\%C%/%9<4$NL\@9jN9o$_$rMKF|$KJQ49$7$^$9!#>\:Y$O!"0J2<;2>H **set xdtics (p. 183)**!#

%<%mogCM (zero)

zero NCMO!"0.0 $K6a$$$G%U%)%k%H$NogCM$rI=7^$9!#

=q<0:

```
set zero <expression>
show zero
```

gnuplot $O!"(J#AG?tCM$r;}$DE@$NIA2hK*$$$F$O) $=$NCM$N5u?tItJ,$N@dBPCM$, **zero** ogCM$hjBg-$$>l9g(D^$j<B?t$G$J$$CM$r;}$DE@) $O!"$=$NE@$rIA2h7^$;$s!#3NogCM$O **gnuplot** $NB>$NMM!9$JItJ,$K$*$$F$=$N(Bg$^$+$J) ?tCM8m:9$NogCMH7F$b;H$olF$$$^$9!#%G%U%)%k%H$N **zero** NCMO1e-8 $G$9!#1e-3 (= E57?E*$J%S%C%H%^%C%W%G%#%9%W%l%$$N2rA|EY$N5U?t) hjBg$-$$ **zero** NCMO@_Dj$9Y$-GO$J$$$G7g$&$,!"**zero** $r0.0 $H@_Dj$9kN$OOULL#$N$J$$$3HGO"j^$;$s!#

%<%m<4 (zeroaxis)

x <4$O **set xzeroaxis** KhCFIA$+$l! "**unset xzeroaxis** KhCF: o= |5l$^$9! #F1MM$N y, x2, y2, z <4MQ$N %3%^%s%I$,F1MM$NF/$-$r7^$9! #**set zeroaxis ...** (A0CV; l$J$7) $O! "x, y, z <4$9YF$K5!G=$7$^$9! #

=q<0:

```
set {x|x2|y|y2|z}zeroaxis { {linestyle | ls <line_style>}
                          | {linetype | lt <line_type>}
                            {linewidth | lw <line_width>}
                            {linecolor | lc <colorspec>}
                            {dashtype | dt <dashtype>} }
unset {x|x2|y|y2|z}zeroaxis
show {x|y|z}zeroaxis
```

%G%U%)%k%HGO! "3liN%*%W%7%g%s$O%*%U$KJC$F$$$^$9! #A*Br$5l?0 $N<4$O <line_type> $N@~$N7?! "<line_width> $N@~$NI}! "<colorspec> $N?'! "<dashtype> $NE@@~/GK@~%Q%?! <%s$G($$:1b8=:_;HMQ7F$$$k=PNO7A<0$,%5%]!<%H$7$F$$$l$P)! "$"$k$$$O$"$i$+$8$aDj5A$5l?<line_style> $N%9%?%$%kGIA+l^$9! #0J2<;2>H: **set style line (p. 172)**!#

@~$N7?$r;XDj7J1l$P! "<4$CDL>o$N<4$N@~$N7?(7?0) GIA+l^$9! #

Nc:

y=0 $N<4$r8+$($kh&$K4JC1$K=q$/>19g:

```
set xzeroaxis
```

B@$$@~K7$F! "0c$C$??'! "$^$?$OE@@~%Q%?! <%sK7$?$$>19g:

```
set xzeroaxis linetype 3 linewidth 2.5
```

Zlabel

3N%3%^%s%I$Oz <4$N8+=P7r@_Dj7^$9! #0J2<;2>H: **set xlabel (p. 183)**!#

Zmtics

%3%^%s%I **set zmtics** $Oz <4$NL\@9jr7n$KJQ99$7$^$9! #>\:Y$O! "0J2<;2>H: **set xmtics (p. 184)**!#

Zrange

%3%^%s%I **set zrange** $Oz <4J}8~$KI=<(5l$kHCO0$r@_Dj7^$9! #$3$N%3%^%s%I$O **splot** KN$_M-8z$G! "**plot** GOL5;k5l$^$9! #>\:Y$O! "0J2<;2>H: **set xrange (p. 184)**!#

Ztics

%3%^%s%I **set ztics** $Oz <4$N(8+=P$7IU$1$5$l$k) BgL\@9$j$r@)8f$7$^$9! #>\:Y$O! "0J2<;2>H: **set xtics (p. 186)**!#

Cblabel

3N%3%^%s%I$O%+%i! <%\%C%/%9<4$N8+=P7r@_Dj7^$9! #0J2<;2>H:**set xlabel (p. 183)**!#

Cbmtics

%3%^%s%I**set cbmtics** $O%+%i! <%\%C%/%9<4$NL\@9jN8+=P7r7n$KJQ49$7$^$9! #>\:Y$O! "0J2<;2>H: **set xmtics (p. 184)**!#

Cbrange

%3%^%s%I **set cbrange** $O!"%9%?%$%k **with pm3d**, **with image** $d**with palette** JIKhCF8=:_$N%Q%l%C %H (**palette**) $r;H$C$F?'IU$1$5$lkCMNHC0O$r@_Dj$7$^$9!#$=$NHC0O30NCMKBP7F$O!":G$b6a$$8B3&NCMN ?'$,;HMQ$5l^$9!#

%+%i!<%\%C%/%9<4 (cb-<4) $, **splot** $G<+F0=L<\$5lF$$$k>l9g$O!"$=$N%+%i!<%\%C%/%9$NHC0O$O **zrange** $,;H ol$^$9!#**splot ... pm3d**|**palette** $GIA2h$5lkE@$O!"0[$J$k **zrange** $H **cbrange** $r;H$&3H$G%U%#%k%?%j%s%0$G$-$^$9!#

set cbrange $N=q<0$K4X9k>\:Y$O!"0J2<;2>H: **set xrange (p. 184)**!#0J2<$b;2>H:**set palette (p. 160)**, **set colorbox (p. 120)**!#

Cbtics

%3%^%s%I **set cbtics** $O%+%i!<%\%C%/%9<4$N(8+=P$7IU$1$5$l$k) BgL\@9$j$r@)8f$7$^$9!#>\:Y$O!"0J2<;2>H: **set xtics (p. 186)**!#

%7%'%k%3%^%s%I (shell)

shell %3%^%s%I$OBPOCE*$J%7%'%k$r5/F0$7$^$9!#**gnuplot** KLakKO!"VMS GO **logout** $r!"Unix Ji$P **exit** b7$/$O END-OF-FILE J8;z$r!"MS-DOS $+OS/2 Ji$P **exit** $rF~NO$7$F2<$5$$!#

%3%^%s%I **shell** $O!"$=$l0J30$N gnuplot %3%^%s%I%i%$%s>e$NbNr9YFL5;k7^$9!#$=$&$GJ/!"%7%'%kKD>AK%3%^%s%LJ8;zNsrEO7$?$>l9g$O!"4X?t **system** $+!"%7%g!<%H%+%C%H! $r;HMQ$7F/$@$5$$!#0J2<;2>H:**system (p. 199)**!#

Nc:

```
shell
system "print previous_plot.ps"
! print previous_plot.ps
current_time = system("date")
```

Splot

splot $O3<!85IA2h$N$?$a$N%3%^%s%I$G$9($bAms4B8CNG7g&,!"<B:]KO$=$N2<!85XN<M1F)!#$=$l$O!"**plot** %3%^%s%I$N3<!85HG$G$9!#**splot** $O!"$=l>$lC10l$Nx, y, z <4$rDs6!$9k@1G!"**plot** $GMQ0U5$l$F$$$kBh2<4x2, y2 Nh$&&$JbN$O"$j$^$;$s!#

2<!85$H3<!85IA2h$NN>J}$G;H$($kB?$/$N%*%W%7%g%s$K$D$$$F$O!"0J2<;2>H:**plot (p. 86)**!#

=q<0:

```
splot {<ranges>}
      {<iteration>}
      <function> | {{<file name> | <datablock name>}
                    {datafile-modifiers}}
      {<title-spec>} {with <style>}
      {, {definitions{,}} <function> ...}
```

%3%^%s%I**splot** $O!"4X?t$+$i@8@.$5l?%G!<%?!"$^$?$O%G!<%?%U%!%$%k$+$iFI$_9~$s$@%G!<%?!"$^$?$O;vA0$KJ]B8$5l?ユ>A0IU$-%G!<%?%V%m%C%/$N%G!<%?$r=hM}$7$^$9!#%G!<%?%U%!%$%kL>$O!"DL>c0zMQId$G0O$s$@J8;zNs$H7FM?$($^$9!#4X?t$O1K\$N?t<0$G$9,!"G^2pJQ?t%b!<%I(parametric) GO3DN?t<0NAHH7FM?$($^$9!#

%G%U%)%k%HGO!"**splot** $OIA2h$5lk%G!<%?$N2<$K4A4$Jxy LL$rIA$-$^$9!#z $N0lHV2<$NL\@9jHxy J?LL$N0lCV4X78$O**set xyplane** $GJQ9X$G$-$^$9!#**splot** $N<M1F$N8~$-$O**set view** $G@)8f$G$-$^$9!#>\:Y$O!"0J2<;2>H:**set view (p. 181)**, **set xyplane (p. 189)**!#

splot %3%^%s%I$NHC0O$N;XDj$N=q<0$O**plot** $N>l9g$HF1$8$G$9!#G^2pJQ?t%b!<%I(parametric) GJ1l$P!"HO0O;XDj$C0J2<$N=g$G!"

```
splot [<xrange>][<yrange>][<zrange>] ...
```

G^2pJQ?t%b!<%I (parametric) GO!"HCOO;XDj$COJ2<$N=g$GM?$ (J1lP$$$1$^$;$s:

```
splot [<urange>][<vrange>][<xrange>][<yrange>][<zrange>] ...
```

title %*%W%7%g%s$b **plot** $HF1$8$G$9!#**with** $b **plot** H[$\F1$8G9$,!"2<!85$NIA2h%9%?%$%kA4It$,;H$($ko1GO$"j^$;$s!#

datafile %*%W%7%g%sKO5i$K0c$$$,$"$j$^$9!#

G^2pJQ?t%b!<%I (parametric) $d4X?t$rMxMQ7F6JLLrIA/JL$NJ}K!$K!"5?;w%U%!%$%k'++' $rMxMQ$7$Fxy J?LL$N3J;R$N>e$KI8K\E@$r@8@.$9kd$jJ}$,$"$j$^$9!#

0J2<$b;2>H: **show plot (p. 156)**, **set view map (p. 181)**, **sampling (p. 103)**!#

%G!<%?%U%!%$%k (datafile)

plot $HF1$8h&$K!"**splot** $G%U%!%$%k$+$i%0%i%U$r@8@.$G$-$^$9!#

=qk<0:

```
splot '<file_name>' {binary <binary list>}
                    {{nonuniform} matrix}
                    {index <index list>}
                    {every <every list>}
                    {using <using list>}
```

"" $d"-" $H$$$C$?FCJL$J%U%!%$%kL>$b **plot** $HF1MM$K5v5l$^$9!#0J2<;2>H: **special-filenames (p. 97)**!#

<jC;$K$$&$H!"**binary** $d **matrix** O=$N%G!<%?$,FCJL$J7AG"$k3H$r!"**index** $OB?=E%G!<%?=89g%U%!%$%k$+$iIN%G!<%?=89g$rA*$s$GIA2h$9k+$r!"**every** $O3F%G!<%?=89g$+iI$N%G!<%?9T (ItJ,=89g) $rA*$s$GIA2h$9k+$r!"**using** $O3F%G!<%?9T$+iINh$&$KNs$rA*$V$+$r;XDj7^$9!#

index $H **every** %*%W%7%g%s$O **plot** $N>19g$HF1$8$h$&$K?6Iq$$^$9!#**using** $b!"**using** $N%j%9%H$,2 DGJ/3 DI,MWG$"$k$H$$$&3H$r=|$$$F$OF1MM$G$9!#

plot $N%*%W%7%g%s$G$"$k **smooth** $O **splot** GOMxMQG-$^$;$s!#7+$7!"**cntrparam** $d **dgrid3d** $,!"@)8B$5lF$O$$$^9,J?3j2=N?aKMQ0U5l$F$$$^$9!#

%G!<%?%U%!%$%k$N7A<0$O!"3FE@$, (x,y,z) $N3 DAHG$"$k0J30$O!"K\<AE*$K **plot** $HF1$8$G$9!#b70lDNCM$@$1$,M?$(illP!"$=$l$O z H7$F;Hol!"%V%m%C%/HV9f$, y H7$F!"$=7F x O=$N%V%m%C%/FbGNHV9f$,;Hol$^$9!#b72 $D!"$"$k$$O4 DNCM$,M?$(illP!"**gnuplot** O=$N:G8e$NCM$rpm3d plot GN?'$N7W;;$K;H$$^$9!#3 DNCM$O (x,y,z) NAHH8+J5l^$9!#B>$KCM$,$"lP!"$=$l$C0lHL$K8m:9$H8+$J5l$^$9!#$=$l$O **fit** $G;H$&3H$,2DG=$G$9!#

splot $N%G!<%?%U%!%$%kGO!"1 9T$N6u9T$O%G!<%?$N%V%m%C%/J,N%;R$G$9!#**splot** $O8D!9$N%V%m%C%/$r!"4X?t$Ny-8IN)@~$HF1$8bNH7$F07$$^$9!#1 9T$N6u9T$GJ,N%$5lF$$$kE@F1;N$O@~J,$G7kPlk3HO$"$j$^$;$s!#A4$F$N%V%m%C%/$,A4$/F1$8E@$N?t$r;}$D>19g!"**gnuplot** $O%V%m%C%/$r2#CG$7!"3F%V%m%C%/$NBP1~9kE@F1;N$r7k$V8IN)@~rIA-$^$9!#3l$O"grid data" $H8F$P$l!"6JLL$NIA2h!"Ey9b@~$NIA2h (**set contour**)!"1#@~=hM} (**set hidden3d**) GO!"3N7A$N%G!<%?$"kH$,I,MW$HJj$^$9!#0J2<$b;2>H: **splot grid_data (p. 197)**!#

3 Ns$N **splot** %G!<%?$K$*$$$F$O!"G^2pJQ?t%b!<%I (**parametric**) $r;XDj$9k3HObO$dIIMW$G$9!#

Matrix

gnuplot $O!"matrix (G[Ns) 7A<0$N%G!<%?!"2 DN0[Jk7A<0$G2r<a$9k3H,G-$^$9!#

$=$N1 DO!"x, y $N:BI8$,0lMMG"kH2>Dj7F!"$=$NCM$r3$N0lMM$J3J;R$Nmatrix N=l>lNMWAGM[i,j] $K3d$jEvFkJ}K!$G$9!#3djEvFil$k x :BI8$O [0:NCOLS-1] $NHOO$N@0?t$G$9!#3djEvFil$k y :BI8$O [0:NROWS-1] $NHOO$N@0?t$G$9!#3l$O!"%F%-%9%H%G!<%?$KBP7F$O%G%U%)%k%H$G9,!"%P%$%J%j%G!<%?$KBP7FO=$&$GO"j^$;$s!#Nc$dDI2C%-!<%o!<%I$K$D$$$F$O2>H: **matrix uniform (p. 195)**!#

2 $DL\$N7A<0$O!"Hs0lMM$J3J;R$G!"x, y :BI8$OL@<(7F$$k$H2>Dj$9kbNG!"F~NO%G!<%?$N:G=i$N9T$ry :BI8!":G=i$NNs$rx :BI8$H$_$J7^$9!#%P%$%J%j%G!<%?KBP7FO!"1 9TL\$N:G=i$NMWAG$O!"Ns?tGJ1l$P$$

1^$;$s!#3l$O!"**binary matrix** F~NOGO%G%U%)%k%HG9$,!"%F%-%9%HF~NO%G!<%?$KBP7F$CDI2C%-!<%o!<%I **nonuniform** $,I,MW$KJj$^$9!#Nc$K4X$7FO0J2<;2>H: **matrix nonuniform (p. 195)**!#

Uniform

0lMM$Jmatrix %G!<%?$rIA2h9k%3%^%s%I$NNc:

```
splot 'file' matrix using 1:2:3          # %F%-%9%H%G!<%?
splot 'file' binary general using 1:2:3  # %P%$%J%j%G!<%?
```

0lMM$J3J;R$Nmatrix %G!<%?GO!"3F%V%m%C%/$Nz NCMO0l9T$G0lEYKFI^l^$9!#9JoA!"

```
z11 z12 z13 z14 ...
z21 z22 z23 z24 ...
z31 z32 z33 z34 ...
```

Ey!#

%F%-%9%H%G!<%?KBP7FO!"1 9TL\$,%G!<%?GJ$/Ns%i%Y%k$r;}$D>l9g!"DI2C%-!<%o!<%I **columnheaders** $r;H$CF/$@$5$$!#F1MM$K!"3F9T$N:G=i$NMWAG$,%G!<%?GJ$/%i%Y%k$G$"$k>l9g$O!"DI2C%-!<%o!<%I **rowheaders** $r;HMQ$7F/$@$5$$!#0J2<$O!"$=$NN>J}$r;HMQ9kNc$G$9:

```
$DATA << EOD
xxx A   B   C   D
aa  z11 z12 z13 z14
bb  z21 z22 z23 z24
cc  z31 z32 z33 z34
EOD
plot $DATA matrix columnheaders rowheaders with image
```

%F%-%9%H%G!<%?GO!"6u9T$d%3%a%s%H9T$OG[Ns%G!<%?$r=*N;$5$;!"?7$?$J6JLL$NLV(mesh) $r3+;O$7$^$9!#$$$DbN3HG9$,!"**splot** %3%^%s%I$N**index** %*%W%7%g%s$r;H$C$F%U%!%$%kFbNLVr<+M3$KA*Br$G$-$^$9!#

Nonuniform

F~NO%G!<%?$N:G=i$N9T$O y :BI8$r;}A^$9!#F~NO%G!<%?$N:G=iNNsO x :BI8$r;}$A$^$9!#%P%$%J%jF~NO%G!<%?$G$O!"1 9TL\$N:G=i$NMWAG$ONs?tGJ1l$P$$$1$^$;$s(%F%-%9%H%G!<%?$G$O=$NHV9f$OL5;k$5l^$9)!#

Hs0lMM$Jmatrix %G!<%?$rIA2h9k%3%^%s%I$NNc:

```
splot 'file' nonuniform matrix using 1:2:3  # %F%-%9%H%G!<%?
splot 'file' binary matrix using 1:2:3      # %P%$%J%j%G!<%?
```

hC$F!"Hs0lMM$Jmatrix %G!<%?$N9=B$$O0J2<Nh$&$KJj$^$9:

```
 <N+1>  <x0>   <x1>   <x2>  ...  <xN>
  <y0> <z0,0> <z0,1> <z0,2> ... <z0,N>
  <y1> <z1,0> <z1,1> <z1,2> ... <z1,N>
   :      :      :      :   ...    :
```

3liO0J2<Nh$&$J3 DN?t;zNAHKJQ49$5$l$^$9:

```
<x0> <y0> <z0,0>
<x0> <y1> <z0,1>
<x0> <y2> <z0,2>
 :    :     :
<x0> <yN> <z0,N>

<x1> <y0> <z1,0>
<x1> <y1> <z1,1>
 :    :     :
```

$=$7$F!"$3li$N3 DN?t;zNAHO**gnuplot** $N8IN)@~$KJQ49$5$l!"$=$N8e**gnuplot** $,DL>o$NJ}K!$GIA2h$N;Djr9T$$$^$9!#

Examples 9TNs$d&Y%/%H%k$NA':n$N%5%V%k!<%A%s(C Kh$k) $, **binary.c** $KMQ0U$5lF$$$^$9!#%P%$%J%j%G!<%?$r=q$/%k!<%A%s$O

```
int fwrite_matrix(file,m,nrl,nrl,ncl,nch,row_title,column_title)
```

$G$9!#3liN%5%V%k!<%A%s$r;H$&Nc$, **bf_test.c** H7$FMQ0U$5lF$$$F!"3l$O%G%b%U%!%$%k **demo/binary.dem** MQ$KJ#?t$N%P%$%J%j%U%!%$%k$r@8@.$7$^$9!#

plot GN;HMQK!:

```
plot 'a.dat' matrix
plot 'a.dat' matrix using 1:3
plot 'a.gpbin' {matrix} binary using 1:3
```

3liOG[Ns$N9T$rIA2h$7!"using 2:3 H9lPG[NsNNsrIA2h!"using 1:2 $O!"E@$N:BI8$rIA2h$7$^$9(B?J,L50UL#$G$9)!#%*%W%7%g%s **every** rE,MQ9k3HGL@<(B*$K9T$dNs$r;XDj$G$-$^$9!#

Nc-%F%-%9%H%G!<%?%U%!%$%k$NG[Ns$N<4$N3HBg:

```
splot 'a.dat' matrix using (1+$1):(1+$2*10):3
```

Nc-%F%-%9%H%G!<%?%U%!%$%k$NG[Ns$NBh3 9T$NIA2h:

```
plot 'a.dat' matrix using 1:3 every 1:999:1:2
```

(9T$O0 $+$i?t$($ilkNG!"3 GOJ/$F2 $r;XDj$7$^$9)!#

Gnuplot $O!"**array**, **record**, **format**, **filetype** JI$Ngeneral %P%$%J%j7A<0$rFCDj$9kh$&$J%-!<%o!<%IrD1:K%*%W%7%g%s **binary** $r;H$&3H$G!"matrix %P%$%J%j%U%!%$%k$rFI$_9~$'3H$,$G$-$^$9!#$=$NB>$NJQ49MQ$Ngeneral %P%$%J%j%-!<%o!<%I$O!"matrix %P%$%J%j%U%!%$%k$KbE,MQG$-$kG7g&!#(>\:Y$O!"0J2<;2>H **binary general (p. 87)**!#)

%G!<%?%U%!%$%k$NNc

0J2<$O3 <!85%G!<%?%U%!%$%k$NIA2h$NC1=c$J01$lDNNc$G$9!#

```
splot 'datafile.dat'
```

$3$3$G!""datafile.dat" $O0J2<$r4^$'$H7^$9:

```
# The valley of the Gnu.
   0 0 10
   0 1 10
   0 2 10

   1 0 10
   1 1 5
   1 2 10

   2 0 10
   2 1 1
   2 2 10

   3 0 10
   3 1 0
   3 2 10
```

3N"datafile.dat" $O4*3 $N3J;R($=l>$l3 E@$+iJ$k%V%m%C%/$N4 DN9T) $rDj5A$9k3HKCm0U7F2<$5$$!#9T(%V%m%C%/) $O1 9T$N6u9T$G6h@Z$il^$9!#

x NCMO$=$l$>$l$N%V%m%C%/$NCf$GDj?t$KJC$F$$$k3H$KCm0U$7$F2<$5$$!#b7y $rDj?t$NCM$H$7!"1#@~=hM}$,M-8z$J>uBV$GIA2h$9kH!"$=$N6JL1OV7$G=q$+lk3HKJj^$9!#

3J;R>u%G!<%?(grid data) KBP7$F!"8D!9$N%V%m%C%/Fb$Gx NCMrDj?tH7F*$/I,MWO"j^$;s7!"F1$8>l=j$Ny NCMrF1$8CM$KB7(F*$/I,MWb"j^$;$s!#**gnuplot** $O8D!9$N%V%m%C%/Fb$NE@$N?t$,Ey$7$$H$$$&3HrI,MWH7F$$k$@$1$G$9!#7+$7!"Ey9b@~$rF3$/$N$KMQ$$ilk6JL1$NLVL\$O!"BP1~9kE@$rNsE*$KA*s$G7k$V$?$a!"ITB7$$N3J;R%G!<%?$K6JL1$NIA2hXN1F6A$OM=A[$G$-$^$;$s!#$=$l$O%1!<%9%P%$%1!<%9$N8@M}$G%F%9%H9Y$-$G7g$&!#

3J;R>u%G!<%? (grid data)

3<!85IA2hN?aN%k!<%A%s$O!"8D!9$NLVL\$N3J;RK*$$F$O0l$D$NI8K\E@$H0lDN%G!<%?E@$,$"$k!"$H$$&7A$N3J;R>u%G!<%?MQ$K@_7W5l$F$$^$9!#3F%G!<%?E@$O!"4X?tNCMrI>2A9k3H(0J2<;2>H **set isosamples (p. 135)**)!"$^$?$O%G!<%?U%!%$%krFI_9~$\$3$H(0J2<;2>H **splot datafile (p. 194)**)KhCF@8@.5l$^$9!#"8IN)@~" $H$$&8@MU$O4X?t$KBP7F$b!"%G!<%?$KBP7Fb=$NLVL\$N@~$rI=$9bNH7$FMQ$$$il^$9!#LVL\$O!"I,$:$7$b x, y $K4X$9$kD9J}7A$GJ/Fbh/!"u,v $GG^2pJQ?tI=<($5lF$b9=$o$J$$$3HKCm0U7F2<$5$$!#0J2<;2>H **set isosamples (p. 135)**!#

7+$7!"**gnuplot** O=Nh$&&J7A<O$rI,$:$7bI,MWHO7$^$;$s!#Nc$($P4X?t$N>19g$O!"**samples** $O**isosamples** $H0c$C$F$$$F$b9=$$$^$;$s!#9JoA!"x-8IN)@~N&A!"1 K\$Ny-8IN)@~$H8r$o$J$$$bN,$$$/D+$"$k3H$,$"j^$9!#%G!<%?U%!%$%k$N>19g$O!"8D!9$N%V%m%C%/$NPi$D$$$?E@$N8D?t$,A4$FF1$8G"lP!"8IN)@~$O" $O%V%m%C%/$NE@$r7k$S!"2#CG8IN)@~" $O3F%V%m%C%/$NBP1~9kE@F1;N$r7k$S!"6JLL" $r:n$m$&&$H7^$9!#$IAi$N>19g$G$b!"Ey9b@~!"$*hS1#@~=hM}$b!<%I$OE@$,0U?^$7$?%U%)!<%^%C%H$G$"$C$?2IA2h$rM?$($k3HKJj^$9!#$PiD$-$N$"$k%G!<%?$O**set dgrid3d** KhCF{0[Jk}3J;R>u%G!<%?$KJQ49$9k3H,G-$^$9!#

Ey9b@~$K4X$9$k%3!<%I$O!"y-8IN)@~$NE@$H!"$=$l$KBP1~$9kNYNy-8IN)@~>e$NE@$N4V$N@~J,$K1hCF$Nz $ND%NO$r7WB,7^$9!#$hCF!"x-8IN)@~$K!"y-8IN)@~$H$N8rE@$HOJiJ$$$h$&&$JI8K\E@$,$"kh$&&J6JLL$KBP7F$O!"**splot** $NEy9b@~$O$=$Nh&&JI8K\E@$rL5;k$9k3HKJj$^$9!#0J2<$r;n$7F_$F2<$5$$:

```
set xrange [-pi/2:pi/2]; set yrange [-pi/2:pi/2]
set style function lp
set contour
set isosamples 10,10; set samples 10,10;
splot cos(x)*cos(y)
set samples 4,10; replot
set samples 10,4; replot
```

Splot $N6JLL (splot surfaces)

splot $OE@$N=8$^$jH7$F!"$"$k$$$O!"$=$liNE@$r7k$V3HKhCF6JLL$rI=<($9k3H,G-$^$9!#**plot** $HF1MM$K!"E@$O%G!<%?U%!%$%k$+$iFI$\$3HbG-$^$9$7!";XDj$5l?6h4V$G4X?t$NCM$rI>2A$7$FF@$k3HbG$-$^$9!#0J2<;2>H **set isosamples (p. 135)**!#6JLL$O!"3FE@$r@~J,$G7k$V3H$G6a;wE*$K:nil$^$9!#0J2<;2>H **set surface (p. 175)**!#$=$7F=$N>19g6JLL$O!"**set hidden3d** $GITF)L@$KbG$-$^$9!#3<!856JLL$rD/ak8~$-$O!"**set view** $GJQ99$G$-$^$9!#

5i$K!"3J;R>u$N%G!<%?E@KBP7FO!"**splot** $OF1$89b$5r;}$DE@$rJd4V$9k3H,G-(0J2<;2>H **set contour (p. 121)**)!"$=$7F=li$r7k$s$GEy9b@~$rIA$/$3H,G-$^$9!#5i$K!"$=$N7k$SJ}KO?7D>$J@~J,$d3ji+$J@~$r;H$&$3H,G-$^$9(0J2<;2>H **set cntrparam (p. 119)**)!#4X?t$O!">o$K**set isosamples** $H**set samples** $G7hDj$5lk3J;R>u$G!<%?$H7$FI>2A$5l^$9!#0lJ}!"%U%!%$%k$N%G!<%?$O!"**data-file** $K=q$+lF$$$kh&&J3J;R>u$G!<%?U%)!<%^%C%H$K9k+!"$"$k$$O3J;R%G!<%?$r@8@.$9$k(0J2<;2>H **set dgrid3d (p. 125)**)$H$$&&3Hr7J1lP$=$&OJj^$;$s!#

Ey9b@~$O6JLL$N>e$KI=<($9k3HbG-$^$9$7!"DlLL$K<M1F9k3HbG$-$^$9!#DlLL$X$N<M1F$O!"%U%!%$K=q$-=P$9$3HbG-!"$=$7F=lr **plot** $G:F$SFI$_9~$s$G **plot** Nh$j6/$$@07AG=NO$r@8$+$9$3HbG-$^$9!#

Stats (4JC1$JE}7W>pJs)

=q<O:

```
stats {<ranges>} 'filename' {matrix | using N{:M}} {name 'prefix'}
      {{no}output}
```

3N%3%^%s%I$O!"%U%!%$%k$N1 Ns!"$^$?$O2 Ns$N%G!<%?$rD s6!7^$9!#using ;XDj;R$O!"plot %3%^%s%I$HF1$87A$G2r<a$5l^9,!"**index**, **every**, **using** ;XDj$K4X$9$k>\:Y$K$D$$F$O0J2<;2>H **plot (p. 86)**!#G!<%?E@$O!"$=$N2r@0$NA0$Kxrange, yrange $K=>$C$F%U%#%k%?$K$+$1il$^$9!#0J2<;2>H **set xrange (p. 184)**!#$=$N>pJs$O%G%U%)%k%H$G$O%9%/%j!<%s$K=PNO5l$^$9$,!"%3%^%s%I **set print** $r@h$K;H$&&$3HG=P

NO$r%U%!%$%k$K%j%@%$%l%/%H7?$j!"%*%W%7%g%s **nooutput** $r;H$&3H$G=PNO$7$J$$$h$&$K9k3HbG$-$^$9!#

2hLL=PNO$K2C$(!"gnuplot $O8D!9$NE}7W>pJs$r3 DNJQ?t%0%k!<%W$KJ]B8$7$^$9!#l HVL\$NJQ?t%0%k!<%W$O!"$IsJ%G!<%?$,JB$s$G$$$k$+$r<(7^$9:

STATS_records	N	HO0CFb$N%G!<%?9T$NAm?t
STATS_outofrange		HO0C30H7$F=|$+l?9T?t
STATS_invalid		L58z/IT40A4/7gB;%G!<%?9T$NAm?t
STATS_blank		6u9T$NAm?t
STATS_blocks		%U%!%$%kFb$N%G!<%?$Nindex %V%m%C%/?t
STATS_columns		%G!<%?@hF,9T$NNs?t

2 HVL\$NJQ?t%0%k!<%W$O!"1 DNNs$N!"HO0CFb$N%G!<%?$N@-<A$r<(7^$9!#$3NNsOy NCMH7F07ol$^$9!#y <4$,<+F0=L<\$N>19g$O!"BP>]$H9kHO0C$K8B3&$O$"$j$^$;s,!"$=$&GJ1l$PHO0O[ymin:ymax] Fb$NCMN_$rBP>]$H7^$9!#

2 DNNs$rF1;~$K1 2s$N **stats** %3%^%s%I$G2r@0$9$k>19g$O!"3FJQ?tL>$K"_x", "_y" $H$$$&@\Hx<-$rDI2C$7$^$9!#Nc$($P STATS_min_x $O!"1 $DL\$NNs$N%G!<%?$N:G>.CM$G!"STATS_min_y $O2 $DL\$NNs$N%G!<%?$N:G>.CM$r0UL#$7$^$9!#3N>19g!"E@$O xrange $H yrange $NN>J}$G8!:9k3HGU$k$$$K$+$1$^$9!#

STATS_min		$\min(y)$	HO0CFb$N%G!<%?E@$N:G>.CM
STATS_max		$\max(y)$	HO0CFb$N%G!<%?E@$N:GBgCM
STATS_index_min		$i \mid y_i = \min(y)$	data[i] == STATS_min HJ$kE:;zi
STATS_index_max		$i \mid y_i = \max(y)$	data[i] == STATS_max HJ$kE:;zi
STATS_mean	$\bar{y} =$	$\frac{1}{N}\sum y$	HO0CFb$N%G!<%?E@$NJ?6QCM
STATS_stddev	$\sigma_y =$	$\sqrt{\frac{1}{N}\sum (y-\bar{y})^2}$	HO0CFb$N%G!<%?E@$NI8K\I8=`JP:9
STATS_ssd	$s_y =$	$\sqrt{\frac{1}{N-1}\sum (y-\bar{y})^2}$	HO0CFb$N%G!<%?E@$NITJPI8=`JP:9
STATS_lo_quartile			Bh0l(2<$N);MJ,0L6-3&CM
STATS_median			%a%8%"%sCM(BhFs;MJ,0L6-3&CM)
STATS_up_quartile			Bh;0(>e$N);MJ,0L6-3&CM
STATS_sum		$\sum y$	OB
STATS_sumsq		$\sum y^2$	J?J}OB
STATS_skewness		$\frac{1}{N\sigma^3}\sum (y-\bar{y})^3$	HO0CFb$N%G!<%?E@$NODEY
STATS_kurtosis		$\frac{1}{N\sigma^4}\sum (y-\bar{y})^4$	HO0CFb$N%G!<%?E@$N@mEY
STATS_adev		$\frac{1}{N}\sum \lvert y-\bar{y}\rvert$	HO0CFb$N%G!<%?E@$NJ?6Q@dBPJP:9
STATS_mean_err		$\sigma_y/\sqrt{N}$	J?6QCM$NI8=`8m:9
STATS_stddev_err		$\sigma_y/\sqrt{2N}$	I8=`JP:9$NI8=`8m:9
STATS_skewness_err		$\sqrt{6/N}$	ODEY$NI8=`8m:9
STATS_kurtosis_err		$\sqrt{24/N}$	@mEY$NI8=`8m:9

3 HVL\$NJQ?t%0%k!<%W$O!"2 DNNs$N%G!<%?$N2r@0@lMQ$G$9!#

STATS_correlation	x $Hy $NITJPAj4X78?t
STATS_slope	2s5"D>@~y = Ax + B $N78?tA
STATS_slope_err	A $NIT3N$+$5
STATS_intercept	2s5"D>@~y = Ax + B $N78?tB
STATS_intercept_err	B $NIT3N$+$5
STATS_sumxy	@QOB(x*y $NOB)
STATS_pos_min_y	y $N:G>.CM$rM?$($kx :BI8
STATS_pos_max_y	y $N:GBgCM$rM?$($kx :BI8

matrix $,;XDj$5lk$H!"A4$F$N9TNsMWAG$,$=$N2r@0$NBP>]$KJj$^$9!#$=$N9TNs$N%5%$:$O!"UQ?tSTATS_size_x $HSTATS_size_y $KJ]B8$5l^$9!#

2 $DOJ>e$N%U%!%$%k$d%G!<%?Ns$+$i$NE}7W>pJs$rJBNs$K07$&3H$,$G$-$l$PJXMx$G9N$G!"UQ?t$N%G%U%)%k%H$N@\F,<-$G$"$k"STATS" $r!"%*%W%7%g%s**name** $G%f!<%6$,;XDj9kJ8;zNsKCV-4$($k3H$,$G$-$kh&KJCF$$$^$9!#Nc$($P!"0[$J$k2 DN%U%!%$%k$=l>lN2 NsL\$N%G!<%?$NJ?6QCM$O0J2<Nh$&$K7$FHf3S$G$-$^$9:

```
stats "file1.dat" using 2 name "A"
stats "file2.dat" using 2 name "B"
if (A_mean < B_mean) {...}
```

%-! <%o! <%I **columnheader** $d4X?t **columnheader(N)** Kh$j! "%G! <%?%U%!%$%k$N1 9TL\$+$i<hF@$7$?FbMF Kh$j@\F,<-$r@8@.9k3HbG$-$^$9:

```
do for [COL=5:8] { stats 'datafile' using COL name columnheader }
```

STATS_index_xxx $G<($5lkE:;zNCMO! "plot %3%^%s%I$NBh0 5?;wNs($0) NCMKBP1~$7! ":G=i$NE@$OE:;z$O 0! ":G8e$NE@$NE:;z$O N-1 HJj^$9! #

%a%8%"%s$H;MJ,0L6-3&CM$rC5$9:]$O%G! <%?NCMr%=! <%H$7! "E@$NAm?t N $,4q?t$N>19g$O! "$=$N(N+1)/2 HVL\ NCMr%a%8%"%sCM$H$7! "N $,6v?t$N>19g$O! "N/2 HVL\$H(N+2)/2 HVL\$NCM$NJ?6QCM$r%a%8%"%sCMH7$^$9! # ;MJ,0L6-3&CM$bF1MM$K=hM}7^$9! #

$=$N8e$NIA2h$KCm<arD1k$?$a$K%3%^%s%I **stats** $rMxMQ$7$?Nc$K$D$$$F$O! "0J2<$r;2>H7F$/$@$5$$! # stats.dem!#

8=:_$N%P! <%8%g%s$Ngnuplot $N**stats** %3%^%s%I$G$O! "F|;~%U%#! <%k%I(**set xdata time** $d**set ydata time**) $,$J$$>19g$OBP?t<4$N%G! <%?$b=hM}$G$-$^$9! #$3$N@)8B$O! ">-Mh$N%P! <%8%g%s$G4KOB5lkG7g$&! #

System

=q<0:

```
system "command string"
! command string
output = system("command string")
show variable GPVAL_SYSTEM
```

system "command" $O! "%*%Z%l! <%F%#%s%0%7%9%F%`$N%G%U%)%k%H%7%'%k$r8F$S=P$7! "$=$N%5%V%W%m%;%9$H$7 $F"command" $r<B9T$7$^$9! #4X?t$H$7$F**system("command")** $r8F$S=P$7$?>19g$O! "$=$N%5%V%W%m%;%9$N I8=`=PNO$+$i$NJ8;z%9%H%j! <%`$rJ8;zNsH7FJV7$^$9! #:G8e$K2~9T$,$D$$$F$$k>19g$O! "$=lO7k2LJ8;zNs $+$i$O=|5n$5l^$9! #0J2<$b;2>H: **backquotes (p. 48)**! #

$=$N%5%V%W%m%;%9$N=*N;%3! <%I$O! "JQ?t GPVAL_SYSTEM_ERRNO $HGPVAL_SYSTEM_ERRMSG $KJ]B8 5l$^$9! #7+$7! "b7%3%^%s%LJ8;zNs$,2 $D0J>e$N%W%m%0%i%`$r8F$S=P$7$F$$k>19g$O! "$=$N$&$A$N0l$D$N%W %m%0%i%`$,%(%i! <$r=P7F$b! ""@.8y" rJV92DG=@-$,$"k3HKCm0U7F$/$@$5$$! #Nc$($P! "file = system("ls -1 *.plt | tail -1") $O! "*.plt %U%!%$%k$,0l$DbJ$>19g$G$b"@.8y" $,JV$j$^$9! #$=$l$O! "**ls** $,<:GT$7Fb**tail** $O@.8y$9k+iG$9! #

%7%9%F%`%3%^%s%I$O! "0J2<$K<(9h$&$K30It4X?t$rgnuplot $K<h$jF~lkNKMxMQG-$^$9$,! "$3lO$=$N4X ?t$r8F$S=P$9EY$KJL$N%5%V%W%m%;%9$r6/@)E*$K@8@.$9k3HKJj$^$9! #hCF! "$?$/5s8F$S=P$92DG=@-$N $"$k4X?t$O! "F0E*%i%$%V%i%j$+$i%5%V%k! <%A%sH7$FD>@\8F$S=P$97A$G<h$jF~$l$kJ}$,$$$$G7g$&! #0J2<;2 >H: **import (p. 84)**, **plugin.dem (p. ??)**! #

```
f(x) = real(system(sprintf("somecommand %f", x)))
```

Test

3N%3%^%s%I$O! "=PNO7A<0$d%Q%l%C%HGINh$&$J=PNO$,9T$J$($k$+$r2hA|$G%9%H$7I=<(7^$9! #

=q<0:

```
test {terminal | palette}
```

test $^$?$O**test terminal** $O! "8=:_;HMQCf$N=PNO7A<0(**terminal**) $G;H$($k@~$N<oN`! "E@$N<oN`! "$^$?$OMx MQ2DG=$J$=$NB>$NIA2h$r@8@.7^$9! #

test palette $O! "R(z),G(z),B(z) (0<=z<=1) $N>uBV$rIA2h7^$9! #$3li$O8=:_$N%+%i! <%Q%l%C%H(**palette**) $NRGB @.J,$r<(7^$9! #$^$?! "RGB $r3%?'3,D4$K<IA|9kNTSC 78?t$rMQ$$$F7W;;5l$?;k8wEY$bIA2h$7 $^$9! #3NBP1~4X78$O! "$PALETTE $H$$&L>A0$N%G! <%?%V%m%C%/$K$b<h$j9~$^$l$^$9! #

Toggle

=q<0:

```
toggle {<plotno> | "plottitle" | all}
```

3N%3%^%s%I$O!"BPOC7?=PNO7A<0 (qt, wxt, x11) $GI=< ($5lF$$k%0%i%U$Nkey % (%s%H%j>e$G:8%/%j%C%/7? NHF1$88z2L$rM?$ ($^$9!#9JoA!"$=$N%0%i%U$,I=< ($5lF$$lP=lr>C$7!"%0%i%U$,>C$ ($F$$$l$P:F$S I=< (7^$9!#**toggle all** $O!"%[%C%H%-!<"i" $HF1MM!"M-8z$J%0%i%U9YFK:nMQ7^$9!#**toggle "title"** $N7A <0$O!"%0%i%U$N%?%$%H%k$H40A4$K0lCW9k%?%$%H%k$r;XDj9kI,MW$,$"j^9,!"**toggle "ti*"** $N>19g$O!"%0 %i%U$N%?%$%H%k$H*' $NA0$NItJ,$,0lCW$9$k:G=i$N%0%i%U$K:nMQ$7$^$9!#8=:_$N=PNO7A<0$,BPOC7?GJ$>19g $O!"%3%^%s%I toggle $O2?$b7^$;$s!#

Undefine

1 $D!"$^$?$OJ#?t$NDj5A:Q$_$N%f!<%6JQ?t$r:o=|7^$9!#$3lO!"=i4|2=%F%9%H$r4^$`%h$&$J%9%/%j%W%H$N>u BV$r%j;%C%H9kNKJXMxG7g&!#

JQ?tL>KO!":G8e$NJ8;z$H7F%o%$%k%I+!<%LJ8;z* $r;H$&3H$,$G$-$^$9!#%o%$%k%I+!<%LJ8;z$,8+$D$+$k $H!"$=lh$jA0$NItJ,$G;O$^k9YF$NJQ?t$r:o=|7^$9!#$3lO!"6&DL$N\F,8l$r;HCF$$$kJ#?t$NJQ?t$r :o=|9kNKJXMxG7g&!#$?$@$7!"%o%$%k%I+!<%LJ8;z$OJQ?tL>$N:G8eK7$+;H$ ($J$$$3HKCm0U7F$/$@ $5$$!#**undefine** $K%o%$%k%I+!<%LJ8;zN_$r0z?t$H7FM?$ ($?>19g$O2?b7$^$;$s!#

Nc:

```
undefine foo foo1 foo2
if (!exists("foo")) load "initialize.gp"

bar = 1; bar1 = 2; bar2 = 3
undefine bar*                  # 3 $D$NJQ?t$rA4It:o=|
```

Unset

%3%^%s%I **set** $G@_Dj$7$?%*%W%7%g%s$O!"$=$l$KBP1~$7$? **unset** %3%^%s%I$KhCF=$N%G%U%)%k%H$NCMKLa9 3H$,2DG=$G$9!#**unset** %3%^%s%I$K$O7+$jJV$7@a$bMxMQG-$^$9!#0J2<;2>H: **plot for (p. 104)**!#

Nc:

```
set xtics mirror rotate by -45 0,10,100
...
unset xtics

# HV9f 100 $+$i 200 $^$G$N%i%Y%k$r unset
unset for [i=100:200] label i
```

Linetype

=q<0:

```
unset linetype N
```

0JA0$KC10l$N@~<o$K3d$jEvF?9YF$NFC@-$r:o=|7^$9!#$3$N8e$K3N@~<o$r;HMQ$7$?>19g!"FC@-!"?'$O8= :_$N=PNO7A<0$K%G%U%)%k%H$G@_Dj$5lF$$kbN$r;HMQ$7$^$9 (9JoA gnuplot 4.6 hjA0$N%P!<%8%g%s$G M-8z$@$C$?!"$$ofk%G%U%)%k%H$N@~<o)!#

Monochrome

8=:_M-8z$JGr9u$N@~<o$r%+%i!<$N@~<o$K@Z$jBX$($^$9!#**set color** $HF1Ey$G$9!#

Output

J#?t$N%0%i%U$r01DN=PNO%U%!%$%k$K=q$-=P$9$3$H$,$G$-$k=PNO7A<0b"kN$G!"IA2h$N8e$G=PNO%U%!%$%k$r<+F0E*$KOJD8$^$;$s!#$hCF$=$N%U%!%$%k$r0BA4$K0u:~Ey$r9k$?$aKO!"$^$:L@<(E*$K **unset out** $d **set output** H9k3HGA0$N%U%!%$%krJD8$?>e$G?7$7$$%U%!%$%k$r3+$$F$/$@$5$$!#

Terminal

%W%m%0%i%`$N:G=i$KM-8z$K$J$k%G%)%k%H$N=PNO7A<0$O!"8D!9$N%7%9%F%`4D6-!"gnuplot $N%3%s%Q%$%k%*%W%7%g%s!"$*$h$S4D6-JQ?t GNUTERM $K0MB8$7$^$9!#%3%^%s%I **unset terminal** $O!"$=$N=i4|=i4|=PNO7A<0$KI|5"$7!"$3lO!"**set terminal GNUTERM** H9k3HHF1$8$G$9!#%7$+$7!"GNUTERM $,=PNO7A<0L>$N8e$K terminal %*%W%7%g%s$b4^sG$$$k>l9g$O!"$=NBeojK **set terminal @GNUTERM** H9kI,MW,$"$j$^$9!#

Update

Cm0U: 3N%3%^%s%I$O!VHs?d>)!W$G$9!#Be$ojK **save fit** $r;HMQ$7F/$@$5$$!#

%3%^%s%I **update** $O!"%P!<%8%g%s 5.2 GO8eJ}8_49@-N?aK;D7F$"$j$^$9$,!"%>-Mh$O:o=|9kM=Dj$G$9!#

=q<0:

```
update <filename> {<filename>}
```

3N%3%^%s%I$O!"M?$(il?%U%!%$%k$KJ]B8$5$l$F$$$kJQ?t$r8=:_$NCM$K99?7$7$^$9,!"3liO=i4|CM$N%U%!%$%k$HF1$8=q<0GJ1l$P$$1$^$;$s!#0J2<;2>H: **fit (p. 75)**!#

$=$N%U%!%$%k,B8:_$7J>l9g!"8=:_Dj5A5l$F$$k$9Y$F$N%f!<%6JQ?t$r4^$`?7$7$$%U%!%$%k$r:n@.7^9,!":G8e$NFit Fb$G;HMQ7J$+$C$?JQ?t$KO9Y$F"#FIXED" $H0u$rD1$F$$$^$9!#$3lO!"fit JQ?t$N8=:_$NCM$r8e$G;H$&$?aK!"$"$k$$$O=*N;/CfCG7?EvFOar:F<B9T9k$?$a$KJ]B8$7F*/NKM-MQ$G$9!#

2 HVL\$N%U%!%$%kL>$r;XDj9k$H!"85$N%Q%i%a!<%?%U%!%$%k$OJQ99$;$:$K2 HVL\$N%U%!%$%kNJ}$K99?7$5$l$?CM$r=q$-=P$7$^$9!#

$=$&GJ1l$P!";XDj$7$?%U%!%$%k,B8:_9l$P **gnuplot** O=$N%U%!%$%kL>$K **.old** rD1F%U%!%$%kL>$rJQ99$7!";XDj$7$?%U%!%$%kL>$N%U%!%$%k$r?7$?$K3+$-D>7^$9!#$D$^$j!"**"update 'fred'"** H9kH!"$=$l$O **"!rename fred fred.old; update 'fred.old' 'fred'"** H7$?$3HHF1$8$3HKJj$^$9!#

While

=q<0:

```
while (<expr>) {
    <commands>
}
```

3l$O!"%3%^%s%I%V%m%C%/$r!"<expr> $, 0 GJ$$$CM$HI>2A$5lk4V!"7+jJV7<B9T7^$9!#$3$N%3%^%s%I$O!"8E$7A<0($+C3$J$7) $Nif/else 9=J8$H0l=o$K;H$&3HOG$-$^$;$s!#0J2<b;2>H: **do (p. 74)**, **continue (p. 74)**, **break (p. 72)**!#

Part IV

=PNO7A<0 (Terminal)

=PNO7A<0$N0lMw

gnuplot OHFbB?$/$N=PNO7A<0$r%5%]!<%H$7$F$$^$9!#$3li$O!"E,@Z$J=PNO7A<0$r!"I,MW$J$i5!G=$rJQ99$9$kDI2C%*%W%7%g%srD1FA*Br9k3HKh$j@_Dj$5l^$9!#0J2<;2>H: **set terminal (p. 176)**!#

3NJ8=q$O!"$"J?$N%7%9%F%`>e$G=i4|@_Dj$*$h$S%$%s%9%H!<%k$,$J5lJ+C?$?$a$KMxMQ$G$-$J$$=PNO7A<0KD$$F$b5-=R$5lF$$k$+$bCNl^$;$s!#%$%s%9%H!<%k$5l?8D!9$Ngnuplot $G!"$I$N=PNO7A<0$,M-8zJN$+$N0lMw$r8+$kKO!"%*%W%7%g%s$r2?$bD1$:$K'set terminal' HBGCF/$@$5$$!#

(LuCm: 3NF|K\8lLu$K4^$^lk terminal $N%^%K%e%"%k$O!"$=$N0lMwKO$J$$=PNO7A<0NbNb4^$^$l$F$$k$+$b7l$^$;s7!"5UK=$N0lMwF'b$N=PNO7A<0$G%^%K%e%"%k$,$J$$bNb$"$k$+$b7l$^$;$s!#)

legacy $H0u$N$D$$?=PNO7A<0$O!":G6a$N%P!<%8%g%s$N gnuplot GO%G%U%)%k%HGO%S%k%I5l$:!"<B:]$K$O;HMQ$G$-$J$$+b7l^$;$s!#

Aifm

Cm0U: 8E$$ **(legacy)** =PNO7A<0!"85!9$O Adobe Illustrator 3.0+ MQ!#Adobe Illustrator $O%l%Y%k1$N PostScript %U%!%$%k$rD>@\G'<1$9$kNG!"3lNBeojK **set terminal post level1 ;** H$&$Y$-$G7g$&!#

=q<0:

```
set terminal aifm {color|monochrome} {"<fontname>"} {<fontsize>}
```

Aqua

3N=PNO7A<0$O Mac OS X >e$NI=<($K4X$9$k AquaTerm.app $K0MB8$7$F$$^$9!#

=q<0:

```
set terminal aqua {<n>} {title "<wintitle>"} {size <x> <y>}
                  {font "<fontname>{,<fontsize>}"}
                  {linewidth <lw>}"}
                  {{no}enhanced} {solid|dashed} {dl <dashlength>}}
```

<n> $OIA2h$9$k%&%#%s%I%&$NHV9f(%G%U%)%k%HGO0) <wintitle> $O%?%$%H%k%P!<$KI=<($5lkL>A0(%G%U%)%k%H$O"Figure <n>"), <x> <y> $OIA2h%5%$%:(%G%U%)%k%H$O846x594 pt = 11.75x8.25 %$%s%A) $G$9!#

;HMQ9k%U%)%s%H$O<fontname> $G;XDj$7(%G%U%)%k%H$O"Times-Roman")!"%U%)%s%H%5%$%:$O<fontsize> $G;XDj$7$^$9(%G%U%)%k%H$O14.0 pt)!#

aqua =PNO7A<0$O!"3HD%J8;zNs=hM}%b!<%I(enhanced text mode; 0J2<;2>H:**enhanced (p. 27)**) $r!"=E$M=q$-0J30$O%5%]!<%H7F$^$9!#%U%)%s%H$N;HMQ$O%7%9%F%`$GM-8z$J%U%)%s%H$K@)8B$5lF$$^$9!#J8;z%(%s%3!<%G%#%s0$O!"**set encoding** $GA*Br$G$-$^9,!"8=:_$O iso_latin_1, iso_latin_2, cp1250 $H UTF8 (default) $r%5%]!<%H$7$F$$^$9!#

6J@~$O!"<B@~$+E@@~(%G%U%)%k%H$O<B@~) $N$$:l+$GIA2h$G$-!"E@@~$N4V3V$OG\N(<dashlength> (>0) $GJQ99$G$-$^$9!#

Be

=PNO7A<0 **be** $O!"X %5!<%P$rMxMQ9k **beos** %*%Z%l!<%F%#%s%0%7%9%F%`>e$Ggnuplot $r%3%s%Q%$%k$9$k?M$N$?$a$N$b$N$G$9!#4D6¬JQ?t **DISPLAY** $,%;%C%H$5$l$F$$k$+!"4D6¬JQ?t **TERM** $, **xterm** $K%;%C%H$5$l$F$$k$+!"$^$?$O%3%^%s%I%i%$%s%*%W%7%g%s$H$7$F **-display** $,;H$o$l$F$$l$P!"%W%m%0%i%`$N5/F0;~$K3N=PNO7A<0$,A*Br$5l^$9!#

=q<0:

```
set terminal be {reset} {<n>}
```

J#?t$N%0%i%UIA2h%&%#%s%I%&$r%5%]!<%H7F$$^$9!#**set terminal be <n>** $OHV9fn $N%&%#%s%I%&$K=PNO7^$9!#n>0 $N>l9g!"$=$NHV9f$O%&%#%s%I%&?%$%H%k$H%"%$%3%sL>$K **gplt <n>** H7FIU1il$^$9!#8=:_$N%&%#%s%I%&$O%+!<%=%k5-9f$NUQ2=$G6hJLG-$^$9(%G%U%)%k%H%+!<%=%k$+$i==;z%+!<%=%k$X)!#

gnuplot %I%i%$%P$,JL$J=PNO%I%i%$%P$KJQ99%5$lFb!"IA2h%&%#%s%I%&$O3+$$?$^$^KJj^$9!#IA2h%&%#%s%I%&$O!"$=$N%&%#%s%I%&$K%+!<%=%k$rCV$$FJ8;zq $r2!$9$+!"%&%#%s%I%&^M!<%8%c$N%a%K%e!<$N **close** $rA*Br$9lPJD8k3H$,$G$-$^$9!#**reset** $r<B9T$9lPA4FN%&%#%s%I%&$r0lEY$KJD8l$^$9!#$=$l$O<B:]$K%&%#%s%I%&$r4IM}$7$F$$k;R%W%m%;%9$r=*N;$7$^$9(b7 **-persist** $,;XDj$5lF$$J1l$P)!#

IA2h%&%#%s%I%&$O **-persisit** %*%W%7%g%s$,M?$(il$F$$J1l$P!"BPOC$N=*N;;~$K<+F0E*$KJD8il^$9!#

IA2h%5%$:$H%"%9%Z%/%HHf$O!"**gnuplot** $N%&%#%s%I%&$r%j%5%$:$9k3HG$bJQ99$G$-$^$9!#

@~$NI}$HE@$N%5%$:$O **gnuplot** $N **set linestyle** $GJQ992DG=$G$9!#

=PNO%I%i%$%P **be** $K4X$7FO!"**gnuplot** $O(5/F0;~$K)!"%3%^%s%I%i%$%s!"$^$?$O@_Dj%U%!%$%k$+$i!"geometry $d font, name JI$NDL>o$N X Toolkit %*%W%7%g%s$d%j%=!<%9$N;XDj$r<u$1IU1^$9!#$=li$N%*%W%7%g%sKD$$F$OX(1) %^%K%e%"%k%Z!<%8($d$=$l$HF1Ey$NbN) $r;2>H$7F/$@$5$$!#

B>Kb **be** =PNO7A<0MQ$NB?$/$N **gnuplot** $N%*%W%7%g%s$,$"$j$^$9!#3liO **gnuplot** $r8F$VH-$K%3%^%s%I%i%$%s%*%W%7%g%sH7$F;XDj$9$k+!"$^$?$O@_Dj%U%!%$%k ".Xdefaults" $N%j%=!<%9$H7F;XDjG-$^$9!#3liO5/F0;~$K@_Dj$5lkNG!"**gnuplot** <B9T;~KOJQ99G-$^$;$s!#

%3%^%s%I%i%$%s%*%W%7%g%s **(command-line_options)**

X Toolkit %*%W%7%g%s$K2C$(!"0J2<$N%*%W%7%g%s, gnuplot $NN)$A>e$2;~$N%3%^%s%I%i%$%s$G!"$^$?$O%f!<%6$N%U%!%$%k ".Xdefaults" Fb$N%j%=!<%9H7$F;XDj$G$-$^$9:

'-mono'	%+%i!<%G%#%9%W%l%$>e$G6/@)E*$KGr9uIA2h
'-gray'	%0%l%$%9%1!<%k$^$?$O%+%i!<%G%#%9%W%l%$>e$G$N%0%l%$%9%1!<%kIA2h(%G%U%)%k%HGO%0%l%$%9%1!<%k%G%#%9%W%l%$$OGr9uIA2h$r<u$1IU1k)
'-clear'	?7$7$IA2h$rI=<($9$kA0$K(=V4VE*$K)2hLI$r>C5n
'-raise'	3FIA2h8e$KIA2h%&%#%s%I%&$r:GA0LI$X=P$9
'-noraise'	3FIA2h8e$KIA2h%&%#%s%I%&$r:GA0LI$X=P$9$3$HO7$J$$
'-persist'	gnuplot %W%m%0%i%\=*N;8e$bIA2h%&%#%s%I%&$r;D$9

>e5-$N%*%W%7%g%s!"$O%3%^%s%I%i%$%s>e$G$N;XDj=q<0$G!"".Xdefaults" $K%j%=!<%9$H7F;XDj9kH-$O0[$J$k=q<0$r;H$$^$9!#

Nc:

```
gnuplot*gray: on
```

gnuplot $OIA2h%9%?%$%k **points** $GIA2h$9$kE@$N%5%$:$N@)8fKb!"%3%^%s%I%i%$%s%*%W%7%g%s(**-pointsize <v>**) $H%j%=!<%9(**gnuplot*pointsize: <v>**) $rDs6!$7$F$$$9!#CMv $OE@$N%5%$:$N3HBgN(H7$F;H$olk<B?tCM(0 < v <= 10) $G!"Nc$($P **-pointsize 2** $O%G%U%)%k%H$N5%$:$N2G\!"**-pointsize 0.5** $OIaDL$N%5%$:$NH>J,$NE@$,;Hol$^$9!#

Gr9u%*%W%7%g%s **(monochrome_options)**

Gr9u%G%#%9%W%l%$$KBP7F$O **gnuplot** $OIA2h?'(foreground) $bGX7J?'(background) $bM?$($^$;$s!#%G%U%)%k%H$G$OGX7J$OGr!"IA2h$O9u$G$9!#**-rv** $d **gnuplot*reverseVideo: on** $N>l9g$K$OGX7J$,9u$GIA2h$OGrKJj^$9!#

%+%i!<%j%=!<%9 **(color_resources)**

%+%i!<%G%#%9%W%l%$$KBP7F$O!"**gnuplot** $O0J2<$N%j%=!<%9($3$3GO=$N%G%U%)%k%H$NCM$r<($7$^$9)!"$^$?$OGr9u3,D4(greyscale) $N%j%=!<%9$r;2>H7^$9!#%j%=!<%9$NCM$O%7%9%F%\>e$N BE rgb.txt %U%!%$%k$K=q$+$l$F$$$k?'L>!"$^$?$O16 ?J$N?';XDj(BE $N%^%K%e%"%k$r;2>H)$+!"?'L>$H6/EY(0 $+$i1 $N4V$NCM)$r%3%s%^$G6h@ZC?CM$r;HMQ$G$-$^$9!#Nc$($P **blue, 0.5** $OCH>J,$N6/EY$N@D!"$r0UL#7^$9!#

```
gnuplot*background: white
gnuplot*textColor: black
gnuplot*borderColor: black
gnuplot*axisColor: black
gnuplot*line1Color: red
gnuplot*line2Color: green
gnuplot*line3Color: blue
gnuplot*line4Color: magenta
gnuplot*line5Color: cyan
gnuplot*line6Color: sienna
gnuplot*line7Color: orange
gnuplot*line8Color: coral
```

3liK4X9k%3%^%s%I%i%$%s$N=q<0$O!"Nc$($P0J2<$NDLjG$9!#

Nc:

```
gnuplot -background coral
```

3%?'3,D4%j%=!<%9 **(grayscale_resources)**

-gray $rA*Br$9kH!"**gnuplot** $O!"%0%l%$%9%1!<%k$^$?$O%+%i!<%G%#%9%W%l%$$KBP7F!"0J2<$N%j%=!<%9$r;2>H7^$9($3$3$G$O=$N%G%U%)%k%HNCMr<(7^$9)!#%G%U%)%k%H$NGX7J?'$O9u$G$"$k3H$KCm0U$7F/$@$5$$!#

```
gnuplot*background: black
gnuplot*textGray: white
gnuplot*borderGray: gray50
gnuplot*axisGray: gray50
gnuplot*line1Gray: gray100
gnuplot*line2Gray: gray60
gnuplot*line3Gray: gray80
gnuplot*line4Gray: gray40
gnuplot*line5Gray: gray90
gnuplot*line6Gray: gray50
gnuplot*line7Gray: gray70
gnuplot*line8Gray: gray30
```

@~IA2h%j%=!<%9 **(line_resources)**

gnuplot $OIA2h$N@~$NI}(%T%/%;%kC10L)$N@_DjN?aK0J2<$N%j%=!<%9$r;2>H7^$9($3$3$G$O=$N%G%U%)%k%HNCMr<(7^$9)!#0 $^$?$O1 $O:G>.$N@~I}$N1 %T%/%;%kI}$r0UL#7^$9!#2 $^$?$O3 NCMKhC$F%0%i%U$N304Q$r2~A1G-$k>l9gb"kG7g$&!#

```
gnuplot*borderWidth: 2
gnuplot*axisWidth: 0
gnuplot*line1Width: 0
gnuplot*line2Width: 0
gnuplot*line3Width: 0
gnuplot*line4Width: 0
gnuplot*line5Width: 0
gnuplot*line6Width: 0
gnuplot*line7Width: 0
gnuplot*line8Width: 0
```

gnuplot $O@~IA2h$G;HMQ9kE@@~$N7A<0$N@_DjMQ$K0J2<$N%j%=!<%9$r;2>H$7$^$9!#0 $O<B@~$r0UL#7^$9!#2 7e$N10 ?J?t **jk** (**j** $H**k** $O1 $+$i9 $^$G$NCM)$O!"**j** 8D$N%T%/%;%k$NIA2h$K**k** 8D$N6uGr$N%T%/%;%k,B3$/%Q%?!<%s$N7+$jJV7+iJ$kE@@~$r0UL#7^$9!#Nc$($P'16' $O1 8D$N%T%/%;%k$N8e$K6 DN6uGr$,B3$/%Q%?!<

%s$NE@@~$KJj$^$9!#5i$K!"4 7e$N10 ?J?tGh$j>\:Y$J%T%/%;%k$H6uGr$NNs$N%Q%?!<%s$r;XDjG-$^$9!#Nc $($P!"'4441' $O4 DN%T%/%;%k!"4 DN6uGr!"4 DN%T%/%;%k!"1 DN6uGr$N%Q%?!<%s$r0UL#7^$9!#0J2<$N %G%U%)%k%H$N%j%=!<%9CM$O!"Gr9u%G%#%9%W%l%$!"$"$k$$$O%+%i!<$dGr9u3,D4 (grayscale) %G%#%9%W%l%$>e$NGr9u IA2hK*1kCM$G$9!#%+%i!<%G%#%9%W%l%$$GO=li$N%G%U%)%k%H$NCMO[Hs$I0 (<B@~) $G!"**axisDashes** N_$,%G%U%)%k%H$G'16' $NE@@~$HJC$F$$$^$9!#

```
gnuplot*borderDashes: 0
gnuplot*axisDashes: 16
gnuplot*line1Dashes: 0
gnuplot*line2Dashes: 42
gnuplot*line3Dashes: 13
gnuplot*line4Dashes: 44
gnuplot*line5Dashes: 15
gnuplot*line6Dashes: 4441
gnuplot*line7Dashes: 42
gnuplot*line8Dashes: 13
```

Caca

[;n83CJ3,] **caca** =PNO7A<0$O!"**libcaca** $r;H$C$F%"%9%-!<J8;z$Khk%0%i%UrIA/!"$[$\8d3ZE*$J=PNO%b!<%I$G $9!#**dumb** =PNO7A<0$HHfYk$H!"$3Ai$O?'!"H"$NEIjDY7!"2hA|!"J8;zNs$N2sE>!"B?3Q7A$NEIjDY7!"%^%& %9A`:n$r%5%]!<%H$7$F$$$^$9!#

=q<0:

```
set terminal caca {{driver | format} {default | <driver> | list}}
                  {color | monochrome}
                  {{no}inverted} {{no}enhanced}
                  {background <rgb color>}
                  {title "<plot window title>"}
                  {size <width>,<height>}
                  {charset ascii|blocks|unicode}
```

%*%W%7%g%s **driver** ($^$?$O **format**) $O!"I=<(%I%i%$%PH7$F **libcaca** $rA*Br$9k+!"$^$?$O=PNO%I%i%$%P$r A*Br$7$^$9!#**default** $O!"**libcaca** K=$N4D6-$N%G%U%)%k%H$N%G%#%9%W%l%$%I%i%$%P$rA*Br5;$^$9!#%G%U%) %k%H$N%I%i%$%P$O!"**gnuplot** $N5/F0A0$K4D6-JQ?tCACA_DRIVER $r@_Dj$7F*$/$3HGJQ99G-$^$9!#**set term caca driver list** $r;HMQ$9kH!"%5%]!<%H9k=PNO%b!<%I$N0lMw$rI=<(!7$^$9!#

%*%W%7%g%s **color** $H **monochrome** $O!"%+%i!<$+Gr9u=PNO$rA*Br$7$^$9!#3l$O!"@~$N5-9f$bJQ99$9k3$H $KCm0U$7F/$@$5$$!#%G%U%)%k%H$NGrGX7J$r9uGX7JK7$?$>19g$O!"%*%W%7%g%s **inverted** $r;H$CF/$@$5$$!# 3l$O!"%G%U%)%k%H$N@~<o$N9u$rGrKbJQ$($^$9!#

3HD%J8;zNs=hM}$O!"%*%W%7%g%s **enhanced** $r;H$&3H$GM-8z$KJj$^$9!#0J2<;2>H **enhanced text**!#

=PNO%&%#%s%I%&$N%?%$%H%k$O!"**libcaca** %I%i%$%P$,%5%]!<%H$7$F$$$l$P!"%*%W%7%g%s **title** $GJQ99$G$-$^$9!#

%*%W%7%g%s **size** $O!"%-%c%s%P%9$N%5%$:$rJ8;zC10L$GA*Br$7$^$9!#%G%U%)%k%H$O80 x 25 $G$9!#%P%C%/%(%s %I$,%5%]!<%H$7$F$$$l$P!"%-%c%s%P%9%5%$:$O!"8=:_$N%&%#%s%I%&$N%G%U%)%k%H$N%5%$:$K<+F0E*$K9g$$$^$9!# "x11" $H"gl" %&%#%s%I%&$N%G%U%)%k%H$N%5%$:$O!"4D6-JQ?tCACA_GEOMETRY $G@)8f$G$-$^$9!#"win32" %I%i%$%PGN%&%#%s%I%&$NOLCV!&%5%$:>pJs$O!"%"%W%j1!<%7%g%s%a%K%e!<$G@)8f!"5Z$S91>dE*$JJQ99$,9T$($^$9!#

%*%W%7%g%s **charset** $O!"%J@~!"E@!"B?3Q7A$dD9U}7ANEIjDY$7!"2hA|$NCf4V?'I=8=JI$G;H$olkJ8;z=89g$rA* Br$7$^$9!#%P%C%/%(%s%I$H%?!<%_%J%k$H%U%)%s%HNAH_9go;KhCF$O!"**blocks** $+ **unicode** $NJ8;z=89g$O %5%]!<%H7J$2DG=@-$b$"$k3H$KCm0U$7F/$@$5$$!#FC$KWindows GO!"'Lucida Console" $d"Consolas" Nh$&$JHs%i%9%?%U%)%s%H$N;HMQ$r4+a^$9!#

caca =PNO7A<0$O!"%^%&%9A`:n$r%5%]!<%H9kH7$F$$$^$9!#**libcaca** $N$$/D+$N%P%C%/%(%s%I(Nc$($P slang $d ncurses) $O%^%&%9%/%j%C%/$7$?%^%&%9$N0LCV7+99?7$7$J$$$3HKCm0U7F$/$@$5$$!#=$>~%-!<(Ctrl, Alt, Shift) $O!"**libcaca** GO%5%]!<%H7F$$J$$N$G!"MxMQ$G$-$^$;$s!#

caca =PNO7A<0$N%G%U%)%k%H**encoding** $Outf8 $G$9!#cp437 **encoding** $b%5%]!<%H$7$F$$$^$9!#"x11" %P%C %/%(%s%I$O!"libcaca $N%P!<%8%g%s0.99.beta17 $+$iunicode $r%5%]!<%H$7$F$$$^$9!#**libcaca** $N%P!<%8%g%s$K

hCFO! "IT@5$J8 bit Ns$rM?$ (kHL58B%k! <%W$K4Y$k%P%0$,$"k3HKCm0U7F$/$@$5$$! #

libcaca $N%5%]! <%H$9$k?'$N?t$O! "%P%C%/% (%s%I$Khj0 [Jj$^$9! #$?$$F$$N%P%C%/% (%s%I$O! "16 ?'$NA07J ?'$H 16 ?'$NGX7J?'N_$r%5%]! <%H$7$F$$^9,! "Nc$ ($P "x11" %P%C%/% (%s%I$O! "Truecolor $r%5%]! <%H$7$F$$^$9! #

=PNO7A<0$H **libcaca** %P%C%/% (%s%IKhCF$O! "GX7J?' 8 ?'$7$+%5%]! <%H$5$J$$>l9gb"j^$9! #L@?' (GX7J?'$NCf$G:G$b=EMW) $O! "J8; z$r51$+$;$F$$k$H2r<a$5l^$9! #$3$N>l9g! "**background rgb "gray"** $r; HMQ$7F_F/$@$5$$! #

0J2<$N libcaca Web %5%$%Hhttp://caca.zoy.org/wiki/libcaca

$*$h$S libcaca 4D6-JQ?t$K4X9k@bL@http://caca.zoy.org/doxygen/libcaca/libcaca-env.html

$b; 2>H$7F_F/$@$5$$! #

Caca limitations and bugs

caca =PNO7A<0KO! "4{CN$N%P%0$H@)8B$,$"j^$9:

%?%$%H%k9T$N>e$G "X" $r%/%j%C%/$7$F%?! <%_%J%k%&%#%s%I%&$rJD8k5!G=$O@5>o$KF0:n7^$;$s! #%&%#%s%I%&rJD8kK$O "q" rBGCF/$@$5$$! #

Unicode $N%5%]! <%H$O! "%I%i%$%P$H=PNO7A<00MB8$G$9! #L@kGX7J?'$OE@LG$7$^$9! #%^%&%9A`:nGO=$>~%-! <$O%5%]! <%H7^$;$s! #0J2<; 2>H: **term caca**

3HD%J8; zNs$N2sE>! "$*hSF)L@2=$O%5%]! <%H$7$F$$^$;$s! #**size** %*%W%7%g%s$O! "%*%s%9%/%j! <%s%G%#%9%W%l%$$G$O9MN8$5l^$;$s! #

K^Nc (key) $NH"$r@5$7$/IA$/$K$O! "0J2<$Nh&K7F/$@$5$$:

```
set key width 1 height 1
```

3HD%J8; zNs$N0LCV9g$o$;$O! "UTF-8 J8; zNs$,4^$^lF$$k>l9gO&$^$/$$$-$^$;$s! #"ncurses" %I%i%$%P$r;H$C$F$$k>l9g! "%9%/%j%W%H$G gnuplot $r<B9T$9kH gnuplot $,; '$K$^$9! #IT@5$J UTF-8 Ns$O! "**libcaca** (8=:_:G?7HGGO=$@5:Q$_) $NL58B%k! <%W$r0z$-5/$3$9>l9g$,$"$j$^$9x11 %&%#%s%I%&$N%j%5%$%:$O! "%7%9%F%'$KhCFO8z$-$^$;$s! #<space> BGAKhk%F%-%9%HF~NO%&%#%s%I%&XNF~NO%U%)! <%+%9$NJQ9$O! "wgnuplot GO3N<B$KF0:n$7$^$;$s! #

Cairolatex

=PNO7A<0 **cairolatex** $O! "cairo $H pango $NJd=u%i%$%V%i%j$r; H$C$F! "EPS (Encapsulated PostScript) $+PDF =PNO$r@8@.7^9,! "J8; zNs=PNOKO! "=PNO7A<0 **epslatex** $HF1$8djJ}$G LaTeX $r; HMQ$7$^$9! #

=q<O:

```
set terminal cairolatex
                {eps | pdf}
                {standalone | input}
                {blacktext | colortext | colourtext}
                {header <header> | noheader}
                {mono|color}
                {{no}transparent} {{no}crop} {background <rgbcolor>}
                {font <font>} {fontscale <scale>}
                {linewidth <lw>} {rounded|butt|square} {dashlength <dl>}
                {size <XX>{unit},<YY>{unit}}
```

cairolatex =PNO7A<0$O! "epscairo =PNO7A<0 (**termnal epscairo**) $dpdfcairo =PNO7A<0 (**terminal pdfcairo**) $HF1Ey$N%O%i%U$r=PNO$7$^$9$,! "%F%-%9%HJ8; zNs$O%O%i%UNCfKF~lkNGOJ$/! "LaTeX KEO7$^$9! #0J2<$G? ($lJ%*%W%7%g%sKD$$F$O! "0J2<; 2>H: **pdfcairo (p. 236)**! #

eps $H **pdf** $O! "%O%i%U=PNO$N7A<0$rA*Br$7$^$9! #latex/dvips MQKO **eps** $r! "pdflatex MQ$K$O **pdf** $r; HMQ$7F/$@$5$$! #

blacktext $O! "%+%i! <%b! <%I$Gb9YF$NJ8; zNs$r9u$G=q$/h&K7$^$9! #

cairolatex =PNO% I% i% $% P$O! "J8; zNs$N0LCV$NFCJL$J@)8fJ}K!$rDs6!7^$9: (a) '{' $G; O$^k9YF$NJ8; zNs $O! "}' b=$NJ8; zNs$N:G8eKI,MWG9,! "$=$NJ8; zNsA4BN$r LaTeX $G2#$K$b=D$K$b%;%s%?%j%s%0$7$^$9! #(b) '[' $G; O$^$kJ8; zNs$O! "$=$N<!$K0LCV; XDjJ8; z(t,b,l,r,c N&$A2 D^$G)! "]{'! "BP>]J8; zNs! "$HB3$-:G8e$K'}' GJD8$^9,! "3NJ8; zNs$O! "LaTeX $, LR-box H7$F=hM}G-$kbNJiJsGb9=$$^$;$s! #0LCV9g$o $;$r40A4$K9T$&KO! "\rule{}{} $hM-MQ$G7g$&! #0J2<$b; 2>H: **pslatex (p. 243)**! #J#?t9TKEOk%i%Y%k$r@8@.$9$k>l9g! "\shortstack $r; HMQ$7F/$@$5$$! #Nc:

```
set ylabel '[r]{\shortstack{first line \\ second line}}'
```

%3%^%s%I **set label** $N%*%W%7%g%s **back** $O! "B>$N=PNO7A<0HOdd0[JkJ}K!$G=hM}$7$^$9! **#back** $r; HMQ$7$? %i%Y%k$O! "B>N9YF$NIA2hMWAG$N8emK0u; z$7! **"front** $r; HMQ$7$?%i%Y%k$O! "B>N9YF$N>e$K0u; z7^$9! #

3N%I%i%$%P$O2 DN0[Jk%U%!%$%k$r:n@.7^$9! #0l$D$O?^$Neps $+$^$?$Opdf ItJ,$G! "$b$&0l$D$OLaTeX ItJ,$G$9! #$=$NLaTeX %U%!%$%k$NL>A0$O! "%3%^%s%I **set output** NbNr; HMQ$7! "eps/pdf %U%!%$%k$NL>A0 $O! "$=$N3HD%; R(DL>o$O'.tex') $r'.eps' $+'.pdf' KCV-49$($?bN$r; HMQ7^$9! #=PNO%U%!%$%k$r; XDj7J $+$C$?>l9g$O! "LaTeX =PNOO7$^$;$s! **#multiplot** %b! <%I0J30GO! "<!$Nplot $r9T$&A0$K=PNO%U%!%$%k$rJD 8kNrK:lJ$$G$/$@$5$$! #

3N2hA|r"J?$NLaTeX J8=q$K<h$j9~$\$K$O! "\input{filename}' $r; HMQ$7F/$@$5$$! #.eps' $d'.pdf' %U%! %$%k$O! "\includegraphics{...} %3%^%s%I$G<h$j9~$\$N$G! "LaTeX J8=q$N%W%j%"%s%V%k$K\usepackage{graphicx} $rF~$lkI,MW,$"$j$^$9! #?'IU$-$NJ8; z(%*%W%7%g%s **colourtext**) $r; HMQ$9$k>l9g$O! "%W%j%"%s%V%k$K \usepackage{color} $bF~$lkI,MW,$"$j$^$9! #

%U%)%s%HA*Br$K4X$9$k5sF0$O! "%X%C%@! <%b! <%I$K0MB8$7$^$9! #$$:lN>l9gGb! "M?$($il?%U%)%s%H%5%$%:$O E,@ZJBg-5r7W; ;9kNK; Hol$^$9! **#standalone** %b! <%I$r; H$C$F$$J$>l9g$O! "$=$lrFI_3s$@$H3m $G<B:]$KLaTeX $,; HMQ$7$F$$$k%U%)%s%H$H%U%)%s%H%5%$%:$,; H$olkNG! "%U%)%s%H$rJQ99$9kK$OLaTeX $N%3%^%s%I$r; HMQ7F$/$@$5$$! #LaTeX J8=q$NJ}$G12pt $N%U%)%s%H%5%$%:$r; H$C$F$$l$P! "%*%W%7%g%s$H$7 $F'", 12"' $r; XDj$7F/$@$5$$! #%U%)%s%HL>$OL5; k$5l^$9! #'standalone' $N>l9g$O! "M?$($il?%U%)%s%H$H %U%)%s%H%5%$%:$r; HMQ$7$^$9! #>\:Y$O0J2<$r; 2>H7F$/$@$5$$! #

J8; zNs$r?'IU$1$7$F0u; z9k$+$I$&$+$O! "TeX $N%V! <%kJQ?t \ifGPcolor $H\ifGPblacktext $G@)8f$G$-$^$9! # \ifGPcolor $, true $G\ifGPblacktext $, false NH$-N_J8; zNs$,?'IU$1$5l^$9! #$3$1iNJQ99$9$O! "@8@.$5 l?TeX %U%!%$%kCf$G9T$&$+! "$^$?$OBg0hE*K"J?$NTeX %U%!%$%k$N%W%j%"%s%V%k$G! "Nc$($P0J2<$Nh& K7$F@_DjG-$^$9:

```
\newif\ifGPblacktext
\GPblacktexttrue
```

6I=jE*$J@_Dj$O! "Bg0hE*JCM,$J$$>l9gKN$_8zNO$r; }A^$9! #

=PNO7A<0 cairolatex $r; H$&>l9g$O! "%3%^%s%I **set output** $GTeX %U%!%$%k@_Dj9k:]$K%U%!%$%k$N3HD%; R(DL >o$O",tex") rD1F$/$@$5$$! #%0%i%U$N%U%!%$%kL>$O! "$=$N3HD%; R$rCV$-$+$($k3H$G:n$il^$9! #

standalone %b! <%I$r; H$&>l9g! "LaTeX %U%!%$%k$K40A4$JLaTeX $N%X%C%@$,DI2C5l! "%0%i%U%U%!%$%k$N%U%! %$%kL>$K$O "-inc" $,DI2C$5l^$9! **#standalone** %b! <%I$O! "dvips, pdfTeX, VTeX $r; H$&>l9g$K@5$7$$%5%$ %:$N=PNO$r:n$kTeX %U%!%$%k$r@8@.$7$^$9! #%G%U%)%k%HGO **input** $G! "$3lOLaTeX J8=q$+$i\input %3%^ %s%I$G<h$j9~$^$lkI,MW,$"$k%U%!%$%k$r@8@.7^$9! #

"" $d "default" 0J30$N%U%)%s%H$rM?$($?>l9g! "$=lO LaTeX $N%U%)%s%HL>$G$"$kH_J5l^ $9! #$=lO',' 6h@ZjG:GBg3 DNItJ,$+$iJk! "'fontname,fontseries,fontshape' $N7A<0$G$9! #%G%U %)%k%H$N fontshape $d fontseries $r; H$$?$$>l9g$O! "$=li$O>JN,$G$-$^$9! #$hCF! "%U%)%s%HL>$N <B:]$N=q<0$O! "'{fontname}{,fontseries}{,fontshape}' HJj^$9! #(LuCm: hj gnuplot Iw$K8@$($P '{<fontname>}{,{<fontseries>}{,<fontshape>}}') L>A0$N3FItJ,$N; XDjK!$O! "LaTeX $N%U%)%s%H7O$N47=, $K=>$&I,MW$,$"j^$9! #%U%)%s%HL>(fontname) $O3$+$i4J8; z$ND9$5$G! "0J2<Nh$&$KJC$F$$$^$9: :G=i $NJ8; z$O%U%)%s%H$N6!5k<T! "<!$N2DNJ8; z$O%U%)%s%HL>MQ! "%*%W%7%g%sH7$FFCJL$J%U%)%s%HMQ$K1J8; zDI 2C$G$-$^$9! #Nc$($P! "j'$O8E$$%9%?%$%k$N?t; zMQ$N%U%)%s%H! "x'$O%(%-%9%Q! <%H%U%)%s%HMQ$G$9! #B?$/$N%U%) %s%HL>$,0J2<$K5-=R5l$F$$^$9: http://www.tug.org/fontname.pdf

Nc$($P! "cmr' $OComputer Modern Roman $r! "ptm' $OTimes-Roman, 'phv' $OHelvetica $r0UL#$7$F$$$^ $9! #font series $O! "%0%j%U$NB@5rI=$7! "B?$/$N>l9g$O! "m' $,I8=`("medium")! "bx' $+'b' $,B@; z(bold) $N %U%)%s%H$r0UL#7^$9! #font shape $O! "0lHIE*$K$O'n' $,N)BN(upright)! "it' $,%$%?%j%C%/(italic)! "sl' $,<P BN(slanted)! "sc' $,%9%b! <%k%-%c%T%?%k(small caps) $r0UL#$7$^$9! #0[Jkseries $dshapes $rDs6!$9$k%U%) %s%H$b$"$j$^$9! #

Nc:

Times-Roman $N%\!<%k%IBN(<~$j$NJ8;zNs$HF1$87A>u) $r;H$&KO:

```
set terminal cairolatex font 'ptm,bx'
```

Helvetica, %\!<%k%IBN!"%$%?%j%C%/$r;H$&$K$O:

```
set terminal cairolatex font 'phv,bx,it'
```

<~jHF1$8$G<PBN$N7A>u$N%U%)%s%H$r;H$&KO:

```
set terminal cairolatex font ',,sl'
```

%9%b!<%k%-%c%T%?%k$r;H$&KO

```
set terminal cairolatex font ',,sc'
```

3NJ}K!GO!"%F%-%9%H%U%)%s%H$@$1$,JQ9$5l^$9!#t<0%U%)%s%H$bJQ9$7$?$>19g$O!"%U%!%$%k"gnuplot.cfg"$+!"$^$?$OJ2<$G@bL@9k*%W%7%g%s**header** $r;H$&I,MW$,$"j^$9!#

standalone %b!<%IGO!"%U%)%s%H%5%$:$O%3%^%s%I **set terminal** $G;XDj$7$?%U%)%s%H%5%$:$r<h$j$^$9!#;XDj7?%U%)%s%H%5%$:$r;H$&$?aK$O%U%!%$%k"size<size>.clo"$,LaTeX $N8!:w%Q%9$K$"$kI,MW$,$"j^$9!#G%U%)%k%H$G$O10pt, 11pt, 12pt $r%5%]!<%H$7$F$$$^$9!#%Q%C%1!<%8"extsizes"$,%$%s%9%H!<%k$5lF$$$l$P!"8pt, 9pt, 14pt, 17pt, 20pt $bDI2C$5l^$9!#

%*%W%7%g%s **header** $C0l$D$NJ8;zNs$r0z?tH7$F<h$j!"$=$NJ8;zNs$r@8@.$9$kLaTeX %U%!%$%k$K=q$-=P7^$9!#**standalone** %b!<%I$G$O!"$=lO%W%j%"%s%V%k$N\begin{document} $ND>A0$K=q$-$^9,!"**input** %b!<%IGO!"$=$l$O%0%i%U$K4X9k9YFN@_Dj$r6I=j2=$9k?aN\begingroup %3%^%s%INND>8e$K=q$-$^$9!#

Nc:

T1 %U%)%s%H%(%s%3!<%G%#%s%0$r;H$$!"%F%-%9%H%U%)%s%H$H?t<0%U%)%s%H$rTimes-Roman $K!"sans-serif %U%)%s%H$rHelvetica KJQ(kK$O:

```
set terminal cairolatex standalone header \
"\\usepackage[T1]{fontenc}\n\\usepackage{mathptmx}\n\\usepackage{helvet}"
```

%0%i%UFbGOCB@;z (bold) $r;H$&$,!"%0%i%U30$N%F%-%9%HO=$&$7$J$$:

```
set terminal cairolatex input header "\\bfseries"
```

LaTeX $,%U%!%$%k"gnuplot.cfg" $r8+$D1k$H!"**standalone** %b!<%I$GO=lr%W%j%"%s%V%k$K<h$j9~$_$^$9!#3$l$O!"$5iK@_Dj$rDI2C$9kN$K;H$($^$9!#Nc: J8=q$N%U%)%s%H$r!"?t<0%U%)%s%H("mathptmx.sty" $,=hM}) $b9g$o$;$FTimes-Roman, Helvetica, Courier K9kK$O:

```
\usepackage{mathptmx}
\usepackage[scaled=0.92]{helvet}
\usepackage{courier}
```

%U%!%$%k"gnuplot.cfg" $O!"%3%^%s%I **header** $G@_Dj$9$k%X%C%@!<>pJs$hjbA0KFI_9~$_$^9N$G!"'gnuplot.cfg" $G@_Dj$9kbNr **header** $r;H$C$F>e=q$-9k3H$,$G$-$^$9!#

Canvas

=PNO7A<0 **canvas** $O!"HTML5 $Ncanvas MWAG>e$KIA2h9kjavascript %3%^%s%I$N=89g$r@8@.7^$9!#=q<0:

```
set terminal canvas {size <xsize>, <ysize>} {background <rgb_color>}
                    {font {<fontname>}{,<fontsize>}} | {fsize <fontsize>}
                    {{no}enhanced} {linewidth <lw>}
                    {rounded | butt | square}
                    {dashlength <dl>}
                    {standalone {mousing} | name '<funcname>'}
                    {jsdir 'URL/for/javascripts'}
                    {title '<some string>'}
```

<xsize> $H<ysize> $OIA2hNN0h$N%T%/%;%kC10LGN%5%$:$r@_Dj7^$9!#standalone %b!<%I$G$N%G%U%)%k%H$N%5%$:$O!"600x400 %T%/%;%k$G$9!#%G%U%)%k%H$N%U%)%s%H%5%$:$O10 $G$9!#

Cm %U%!%$%kcanvastext.js $GDs6!$7$F$$$kHershey simplex Roman %U%)%s%H$N%"%9%-!<ItJ,$N%U%)%s%H0lD@1,MxMQG-$^$9!#3l$O!"%U%!%$%kcanvasmath.js GCV-49$($k3HbG$-!"$=3K$OUTF-8 %(%s%3!<%I$5l?Hershey simplex Greek $Hmath symbols $b4^$^lF$$$^$9!#B>$N=PNO7A<0$K9g$o$;$F!'**font "name,size"** $N7A<0$b;H$($kh&KJCF$$$^$9!#:#$NH3$m**name** $N%U%)%s%HL>ItJ,$OL5;k5l$^$9$,!"$=N&AK%V%i%&6$,L>A0IU$-%U%)%s%H$r%5%]!<%H$7$@$9G7g&!#

%G%U%)%k%H$N**standalone** %b!<%I$O!"HTML 5 $Ncanvas MWAG$r;HMQ7F%0%i%U$rIA2h$9kh$&$Jjavascript %3!<%I$r4^$`HTML %Z!<%8$r@8@.$7$^$9!#$=$NHTML %Z!<%8$O!"2 $D$NI,MW$Jjavascript %U%!%$%k'canvastext.js'!"'gnuplot_common.js' $K%j%s%/$7$^$9!#E@@~$r%5%]!<%H$9$k?$a$K$O5$i$KDI2C%U%!%$%k'gnuplot_dashedlines.js' $,I,MW$G$9!#G%U%)%k%H$G$O$=$l$i$O%m!<%+%k%U%!%$%k$X$N%j%s%/$G!"Unix 8_4 9$N%7%9%F%`GODL>oO=li%G%#%l%/%H%j/usr/local/share/gnuplot/<version>/js K"j^$9!#B>$N4D6-KD$$$F$O!"%$%s%s%9%H!<%k%K4X9kCm0U$r;2>H$7F/$5$$!#3N@_Dj$O!"%*%W%7%g%s**jsdir** KJLN%m!<%+%k%G%#%l%/%H%j!"$"$k$$$OCOlHIE*$JURL $r;XDj$9k3HGJQ9G-$^$9!#%0%i%U%r%j%b!<%H%/%i%$%"%s%H$N%^%7%s$G8+$lkh$&$K9k>l9g$O!"DL>o$O8e<T$N@_Dj,E,@Z$G7g$&!#

canvas =PNO7A<0$G@8@.$5lkIA2hO9YF%^%&%9A':n2DG=$G$9!#%-!<%o!<%I**mousing** $rDI2C$9kH!"**standalone** %b!<%I$N%0%i%U$N2<$K%^%&%9%H%i%C%-%s%0%\%C%/%9rD1^$9!#$3lO!"**canvastext.js** $,CV$+lF$$$kNHF1$8%m!<%+%k%G%#%l%/%H%j!"$^$?$O URL Fb$N!"'gnuplot_mouse.js' $H$$$&javascript %U%!%$%k$X$N%j%s%/$H'gnuplot_mouse.css' $H$$$&%^%&%9%\%C%/%9$K4X$9$k%9%?%$%k7!<%H$bDI2C$7$^$9!#

%*%W%7%g%s**name** $O!"javascript N_$r4^$`%U%!%$%k$r0l$D@8@.$7$^$9!#$=$l$,4^$`javascript 4X?t$H!"$=l,IA2h9k canvas MWAG$Nid $NN>J}$O!"0J2<$NU8;zNs%Q%i%a!<%?$+$i<h$il^$9!#Nc($P0J2<$N3%^%s%I

```
set term canvas name 'fishplot'
set output 'fishplot.js'
```

$O!"javascript 4X?t fishplot() $r4^$`%U%!%$%k$r@8@.$7!"$=$N4X?t$O%0%i%U$rid=fishplot $Ncanvas >e$KIA2h7^$9!#$3$Njavascript 4X?t$r8F$S=P$9HTML %Z!<%8$O!">e$G@bL@7?canvastext.js $bF1$_9~$^$J1l$P$$$1$^$;$s!#>e$Nh&$K@8@.$7$?!"$3$Nfishplot $r<h$j3':G>.$NHTML %U%!%$%k$O0J2<$Nh&KJj^$9:

```
<html>
<head>
    <script src="canvastext.js"></script>
    <script src="gnuplot_common.js"></script>
</head>
<body onload="fishplot();">
    <script src="fishplot.js"></script>
    <canvas id="fishplot" width=600 height=400>
        <div id="err_msg">No support for HTML 5 canvas element</div>
    </canvas>
</body>
</html>
```

3N%-%c%s%P%9>eKIA+lk$=$l$>$l$N%0%i%U$NL>A0$O!"fishplot_plot_1, fishplot_plot_2 EyHJj^$9!#30It$Njavascript %k!<%A%sG=li$r;2>H$9k3HbG-$^$9!#Nc: gnuplot.toggle_visibility("fishplot_plot_2")

Cgm

cgm %I%i%$%P$O CGM =PNO (Computer Graphics Metafile Version 1) $r@8@.$7$^$9!#3N%U%!%$%k%)!<%^%C%H$O ANSI 5,3J=q X3.122-1986 "Computer Graphics - Metafile for the Storage and Transfer of Picture Description Information" $GDj5A$5lF$$$kbN$N0lItJ,$G$9!#

=q<0:

```
set terminal cgm {color | monochrome} {solid | dashed} {{no}rotate}
                 {<mode>} {width <plot_width>} {linewidth <line_width>}
                 {font "<fontname>,<fontsize>"}
                 {background <rgb_color>}
 [deprecated]    {<color0> <color1> <color2> ...}
```

solid $OA4$F$N6J@~$r<B@~GIA-!"Is$JE@@~%Q%?!<%s$bEIjDV7$^$9;<mode> $O**landscape**, **portrait**, **default** $N$$:l+;<plot_width> $O%]%$%s%HC10LGN%0%i%U$N2>D j$5lF$$$kI};<line_width> $O%]%$%s%H

C10LGN@~I}(%G%U%)%k%H$O1); <fontname> $O%U%)%s%H$NL>A0(0J2<$N%U%)%s%H0lMw;2>H); $=$7$F<fontsize> $O%]%$%s%HC10LGN%U%)%s%H$N%5%$%:(%G%U%)%k%H$O12) $G$9!#

:G=i$N6 DN%*%W%7%g%sOI$N=gHV$G;XDj7F$b9=$$^$;$s!#**default** $rA*Br$9kH!"A4FN%*%W%7%g%sr=$N%G%U%)%k%H$NCMK7$^$9!#

@~$N?'$r**set term** %3%^%s%I$G@_Dj$9$k;EAH$_$O!":#$OHs?d>)$G$9!#Beoj$K!"GX7J?'$OJ,N%5l$?%-!<%o!<%I background $G!"@~$N?'$O**set linetype** $G@_Dj$9Y-G7g&!#3NHs?d>)$N;EAH$_GO?'$O'xrrggbb' $N7A<0$G<u1D1^9,!"x $OJ8;z'x' $=$NbN!"'rrggbb' $O16?J?t$G$N@V!"NP!"@D$N@.J,$G$9!#:G=i$N?'$rGX7J?'H7$F;H$$!"$=$N8e$KB3$/?';XDj$r=g<!@~$N?'HH7F3djEvF$F$$^7?!#

Nc:

```
set terminal cgm landscape color rotate dashed width 432 \
               linewidth 1  'Helvetica Bold' 12       # %G%U%)%k%H
set terminal cgm linewidth 2  14  # $d$d9-$$@~$H$d$dBg$-$$%U%)%s%H
set terminal cgm portrait "Times Italic" 12
set terminal cgm color solid    # LIE]$JE@@~$J$I>C$($F$7$^$(!
```

CGM $N%U%)%s%H (font)

CGM (Computer Graphics Metafile) %U%!%$%k$N:G=i$NItJ,!"%a%?%U%!%$%k$N5-=RItJ,$K$O!"%U%)%s%H%j%9%H (font table) $,4^$^lF$$$^$9!#2hA|$NK\BNIt$G$O!"%U%)%s%H$O3$N%j%9%HK"$kHV9f$G;XDj5l$^$9!#%G%U%)%k%HGO3$N%I%i%$%P$O0J2<$N35 8D$N%U%)%s%H%j%9%H$r@8@.$7!"$5iK3$N%j%9%H$N**Helvetica**, **Times**, **Courier** $N3F%U%)%s%H$N**italic** $r**oblique** GCV-49$($?bN!"$*$hS=$N5U$Khk6 DNDI2C$N%U%)%s%H$,4^$^l^$9(Microsoft Office $H Corel Draw CGM $N import %U%#%k%?$O**italic** $H**oblique** $rF1$8bNH7$F07$&$+$i$G9)!#

CGM fonts	
Helvetica	Hershey/Cartographic_Roman
Helvetica Bold	Hershey/Cartographic_Greek
Helvetica Oblique	Hershey/Simplex_Roman
Helvetica Bold Oblique	Hershey/Simplex_Greek
Times Roman	Hershey/Simplex_Script
Times Bold	Hershey/Complex_Roman
Times Italic	Hershey/Complex_Greek
Times Bold Italic	Hershey/Complex_Italic
Courier	Hershey/Complex_Cyrillic
Courier Bold	Hershey/Duplex_Roman
Courier Oblique	Hershey/Triplex_Roman
Courier Bold Oblique	Hershey/Triplex_Italic
Symbol	Hershey/Gothic_German
ZapfDingbats	Hershey/Gothic_English
Script	Hershey/Gothic_Italian
15	Hershey/Symbol_Set_1
	Hershey/Symbol_Set_2
	Hershey/Symbol_Math

$3$1iN%U%)%s%H$N:G=i$N13 8D$O WebCGM $GMW5a$5$1$F$$$kbN$G9!#Microsoft Office $N CGM import %U%#%k?$O$=$N13 8D$NI8=`%U%)%s%H$'ZapfDingbats' $H'Script' $r%5%]!<%H$7$F$$^$9!#$7$+$7!"$=$N%9%/%j%W%H (script) %U%)%s%H$O'15' $H$$&L>A0G7$+%"%/%;%9$G$-$^$;$s!#Microsoft $N import %U%#%k?$N font NCV-49$($K4X9khj>\$7$$>pJsKD$$F$O!"

```
C:\Program Files\Microsoft Office\Office\Cgmimp32.hlp
```

$N%X%k%W%U%!%$%k!"$^$?$O

```
C:\Program Files\Common Files\Microsoft Shared\Grphflt\Cgmimp32.cfg
```

$N@_Dj%U%!%$%kJI$r%A%'%C%/$7F/$@$5$$!#

set term %3%^%s%I$G%G%U%)%k%H$N%U%)%s%H%j%9%HKJ$%U%)%s%HL>$r;XDj9k3H$b2DG=$G$9!#$=$N>19g!"$=$N;XDj$7$?%U%)%s%H$,:G=i$K8=$olk?7$7$%U%)%s%H%j%9%H$,:n$il^$9!#$=$N%U%)%s%HL>$K4X7F!"%9%Z%k!"C181l$N@hF,$NBgJ8;z2=dI3K%9%Z!<%9$,F~$k$+$JI,!":nil$k CGM %U%!%$%k$rF I$'%"%W%j%1!<%7%g%sKHCFE,@ZJbNG$"$k$+$rAcsH3NG'9kI,MW$,$"j^$9!#(gnuplot HG0U$N MIL-D-28003A = '5r%"%W%j%1!<%7%g%s$O!"%U%)%s%HL>$NBgJ8;z>.J8;z$N0c$$$OL5;k7^$9!#) ?7$7$%U%)%s%H$r$$/DbDI2C7?$$>l9g$O!"**set term** %3%^%s%I$r7+jJV7;HMQ7F$/$@$5$$!#

Nc:

```
     set terminal cgm 'Old English'
     set terminal cgm 'Tengwar'
     set terminal cgm 'Arabic'
     set output 'myfile.cgm'
     plot ...
     set output
```

set label %3%^%s%IGO?7$7$%U%)%s%H$rF3F~$9k3HCG-$^$;$s!#

CGM $N%U%)%s%H%5%$:(fontsize)

%U%)%s%H$O!"%Z!<%8$,6%$%s%A$NI}G"kH2>Dj7F?-=L5l$^$9!#**size** %3%^%s%I$G%Z!<%8$N=D2#Hf$,JQ9$5lF$$?$j!'CGM %U%!%$%k$,0[$J$kI}$KJQ4$9$5lF$$k>19g!"7k2LH7$F%U%)%s%H$N%5%$:$b3HBg5l$?$j=L>.5l$?$j9k3HKJj^$9!#2>Dj$5lF$$kI}$rJQ9$9kK$O!"**width** %*%W%7%g%s$r;HMQ7F$/$@$5$$!#

Cgm linewidth

linewidth %*%W%7%g%s$O@~$NI}$r%]%$%s%HC10L(pt) $G@_Dj$7$^$9!#%G%U%)%k%H$NI}$O1 pt $G$9!#**fontsize** $d**width** %*%W%7%g%s$NH3mG@bL@5l$F$$kh&$K!"%Z!<%8$N<B:]$NI}$KhCF=$N=L<\$O1F6A$r<u$1$^$9!#

Cgm rotate

norotate %*%W%7%g%s$O%F%-%9%H$N2sE>r7$J$$$h$&$K7^$9!#Nc$($P Word for Windows 6.0c MQ$N CGM F~NO%U%#%k%?$O2sE>5l$?J8;zNs$r<u$1IU$1$^$9$,!"Word $KIUB0$9$k DRAW %(%G%#%?$O$=$l$r<u$1IU1k3H$,$G$-$:!"%0%i%U$rJT=8$9kH(Nc$($P6J@~$K8+=P$7rD1k)!"A4FN2sE>5l$?J8;zNs$O?eJ?J}8~KJCFJ]B8$5$lF7$^$$!"Y <4$N8+=P$7$O%/j%C%W$5lk6-3&@~$r1[$(F7$^$&G7g&!#**norotate** %*%W%7%g%s$r;H$($P!"8+1I$(NNI/$J$$>l=j$+$i Y <4$N8+=P$7$,;O$^CF7^$$$9$^$,!"JT=8KhCF%@%a!<%8$r<u$1k3HOJ/Jj$^$9!#**rotate** %*%W%7%g%s$O%G%U%)%k%H$N5sF0$rJ]>Z$7$^$9!#

Cgm solid

solid %*%W%7%g%s$OIA2h$NE@@~$N@~IA2h%9%?%$%k$rL58z$9kN;H$$$^$9!#$3lO!"%+%i!<$,M-8z$G$"$k>19g!"$^$?E@@~K9k3HG%0%i%U$,8+$K$/$J$k>19g$KM-MQG7g&!#**dashed** %*%W%7%g%s$O%G%U%)%k%H$N5sF0$rJ]>Z$7!"3N>19g8D!9$N@~<o$K0[JkE@@~$N%Q%?!<%s$,M?$($il^$9!#

CGM $N%5%$:(size)

CGM %0%i%U$N%G%U%)%k%H%5%$:$O!"2#CV$-(landscape) GOI}32599, =D23457!"=DCV$-(portrait) GOI}23457, =D32599 $G$9!#

Cgm width

CGM %U%!%$%k$NA4FND9$5$OCj>]E*$JC10L$r;}$A!"$=$N%U%!%$%k$rF I$'%"%W%j%1!<%7%g%s$,:G=*E*$J%0%i%U$N%5%$:$r7hDj$7$^$9!#%G%U%)%k%HGO:G=*E*$J%0%i%U$NI}$O6%$%s%A(15.24 cm) G"kH2>Dj5l$F$$$^$9!#$3$NI}$O@5$7$%U%)%s%H%5%$:$r7W;;9kNK;Hol!'**width** %*%W%7%g%s$GJQ9$G$-$^$9!#%-!<%o!<%I**width** $N8e$KI}$r%]%$%s%HC10L$G;XDj$7$^$9!#($3$3$G!"%]%$%s%H$O PostScript $HF1MM1/72 %$%s%A$r0UL#$7$^$9!#3NC10L$O TeX GO"big point" $H8F$PlF$$^$9!#)B>$NC10L$+$iJQ4$9$kKO!"gnuplot $N?t<0$,;H$($^$9!#

Nc:

```
set terminal cgm width 432            # %G%U%)%k%H
set terminal cgm width 6*72           # >e$HF1$8CM
set terminal cgm width 10/2.54*72     # 10 cm $NI}
```

Cgm nofontlist

%G%U%)%k%H$N%U%)%s%H%j%9%H (font table) $O WebCGM $G4+9p$5lF$$k%U%)%s%H$r4^$s$G$$F!"3l$O Microsoft Office $H Corel Draw $N CGM (Computer Graphics Metafile) F~NC%U%#%k%?$KE,9g$7$F$$^$9!#B>$N%"%W%j%1!<%7%g%s$C0[$J$k%U%)%s%H!"$"$k$$C0[Jk%U%)%s%HL>$r;HMQ$9k+bCNl$^$;s,!"$=$l$C%^%K%e%"%k$K$O=q$+lF$$J$$+bCNl$^$;$s!#%*%W%7%g%s **nofontlist** (**winword6** $bF1$80UL#) $r;HMQ$9kH CGM %U%!%$%k$+$i%U%)%s%H%j%9%H$r:o=|7^$9!#$3$N>19g!"FI$_9~s@%"%W%j%1!<%7%g%s$C%G%U%)%k%H$N%U%)%s%H%j%9%H$r;HMQ$9kG7g$&!#gnuplot O=$N>19gGb%U%)%s%HHV9f$NA*BrN?aK<+J,$N%G%U%)%k%H$N%U%)%s%H%j%9%H$r;HMQ7^$9!#hC$F!"'Helvetica' $,1 HV$KJj!"$=$l$,$"J?$N;HMQ$9$k%"%W%j%1!<%7%g%s$N%G%U%)%k%H%U%)%s%H%j%9%H$N:G=i$NbNKJj^$9!#'Helvetica Bold' $,$=$N%U%)%s%H%j%9%H$N2 HVL\$N%U%)%s%H$KBP1~$7!"B>$bF1MM$HJj$^$9!#

Context

ConTeXt $O(3($NIA2hN?aK) Metapost $H9bEY$KM;9g$7!"9bIJ<A$J PDF J8=q$r@8@.$9k?aN TeX $N%^%/%m%Q%C%1!<%8$G$9!#$3$N=PNO7A<0$O!"Metafun %=!<%9$r@8@.$7$^$9$,!"$3lO<jF0$GJT=8$G$-!"30It$+i[HsIN3Hr"J?$,@_Dj$G$-$^$9!#

ConTeXt + gnuplot %b%8%e!<%k$NJ?6QE*$J%f!<%6KO!"3N%Z!<%8rFI`hj$b!"**Using ConTeXt** $r;2>H$9k+!"ConTeXt $N gnuplot %b%8%e!<%k$N%^%K%e%"%k$r;2>H$9k3Hr?d>)7^$9!#

=PNO7A<0 **context** $O!"0J2<$N%*%W%7%g%s$r%5%]!<%H$7$F$$$^$9:

=q<0:

```
    set term context {default}
            {defaultsize | size <scale> | size <xsize>{in|cm}, <ysize>{in|cm}}
            {input | standalone}
            {timestamp | notimestamp}
            {noheader | header "<header>"}
            {color | colour | monochrome}
            {rounded | mitered | beveled} {round | butt | squared}
            {dashed | solid} {dashlength | dl <dl>}
            {linewidth | lw <lw>}
            {fontscale <fontscale>}
            {mppoints | texpoints}
            {inlineimages | externalimages}
            {defaultfont | font "{<fontname>}{,<fontsize>}"}
```

standalone GJ$$%0%i%U (**input**) GO!"%*%W%7%g%s$O%0%i%U%5%$%:$rA*Br$9$k **size**!"$9YF$N%i%Y%k$rG\N(<fontscale> $G?-=L$9$k **fontscasle**!"$*hS font %5%$%:$N$_0UL#$r;}$A!"B>$N%*%W%7%g%s$O7Y9p$J/L5;k5lkN$_$G!"$=$liO$=$N%0%i%U%#C%/rFI_9~$`.tex %U%!%$%k$NJ}$G@_Dj7F$/$@$5$$!#5NJ8=q$N%U%)%s%H$,12pt GOJ>19g$O!"E,@Z$J%U%)%s%H%5%$%:$r;XDj9k3Hr6/$/?d>)$7$^$9!#$=$lKh$j!"gnuplot $,%i%Y%kMQ$KIl$/$i$$NBg$-$5$N%9%Z!<%9$r3NJ]9l$P$$$$+rCNk3H,G-$^$:!#

default $O!"$9YF$N%*%W%7%g%s$r%G%U%)%k%HNCMK%j;%C%H7^$9!#

defaultsize $O!"IA2h%5%$%:$r5in x 3in $K@_Dj$7$^$9!#**size** <scale> $O!"IA2h%5%$%:$r%G%U%)%k%H%5%$%:$N<scale> G\$K7^9,0z?t$r','6h@Z$j$G2$DM?$(B?>19g$O!":G=iNbNO2#$N%5%$%:$r!"2$DL\$NbN$O?bD>%5%$%:$r@_Dj$7$^$9!#$=$liN%5%$%:$K$O!"C10L$H7F%$%s%A('in'), %;%s%A('cm') $,;H$($^$9$,!">JN,$7$?>19g$O%G%U%)%k%HCMKBP9kHfG$"$kH_J7$^$9!#

input (%G%U%)%k%H) $O!"B>$N ConTeXt J8=q$+$i<h$j9~$a$k%0%i%U$r@8@.7^$9!#**standalone** $O!"$=lK?t9TDI2C$7!"$=$l<+?H$,$=$N$^$^3%s%Q%kG-kh$&$K7^$9!#$=$N>19g!"**header** %*%W%7%g%s$,I,MW$KJk$+$b7l$^$;$s!#

standalone $N%0%i%U$K@_Dj/Dj5A/%^%/%m$rDI2C$7$?$>19g$O **header** $r;HMQ$7F/$@$5$$!#%G%U%)%k%H$O **noheader** $G$9!#

notimestamp $O! "%3&a%s%HItJ,$NF|; ~$N=PNO$rM^@)7^$9(%P!<%8%g%s4IM}%7%9%F%`$r; HCF$$$k>19g! "F|IU$@$10c$&$bNr?7$7$$%P!<%8%g%sH7$FEPO?$7$?$/OJ$$G7g$&)!#

color (%G%U%)%k%H) $O! "%+%i!<IA2h$r@8@.7^9,! "**monochrome** $O0l@Zspecial $rF~$1$^$;$s! #Gr9u%W%j%s%?MQ$K$O! "$=$N5sF0$r3sJIwKJQ$($?J}$,$bCHNI$/$JkH$$$&%"%$%G%"$r; }CF$$k?M$O! "@'HsDs0F$7F/$@$5$$! #

rounded (%G%U%)%k%H) $H **mitered**, **beveled** $O! "@~J,$N@\9gIt$N7A>u$r@)8f$7! "**round** (default) $H **butt**, **squared** $O! "@~J,$NC<$N7A>u$r@)8f7^$9! #>\:Y$O! "PostScript $+ PDF $N%j%U%!%l%s%9%^%K%e%"%k$r; 2>H7F$/$@$5$$! #7c7/JQ2=9k4X?t$HB@$$@~MQKO! "@~J,$N@\9gIt$G$N@m$C$?3Q$rHr1kh&$K**rounded** $H **round** $r; H$&$H$$$$G7g$&! #($3lK4X9k0lHE*$J; EAH$_$O! "$3$N%*%W%7%g%s$r3FIA2h%9%?%$%kKh$KJL! 9$K; XDj$G$-$kh& gnuplot $,%5%]!<%H$9Y$-$@$H; W$$^$9! #)

dashed (%G%U%)%k%H) $O! "0[$J$k@~<o$K0[JkE@@~%Q%?!<%s$r; H$$! "**solid** $O! "$9YF$NIA2h$K<B@~$r; HMQ$7$^$9! #

dashlength ($^$?$O **dl**) $O! "E@@~$N@~J,$ND9$5$r<dl> G\$7$^$9! #**linewidth** ($^$?$O **lw**) $O! "$9YF$N@~I}$r<lw> G\$7$^$9! #(lw 1 $O0.5bp $r0UL#$7! "3l$OMetapost $NIA2h$N%G%U%)%k%H$N@~I}$G$9) **fontscale** $O! "%F%-%9%H%i%Y%k$r%G%U%)%k%H$NJ8=q%U%)%s%H$N<fontscale> G\$K3HBg7^$9! #

mppoints $O! "Metapost $GIA2h$5l?Dj5A:Q$_$NE@$N7A>u$r; HMQ7^$9! #**expoints** $O! "4JC1$K@_DjG-$k5-9f%;%C%H$r; HMQ7^$9! #$3lO! "0J2<Nh$&$K7F ConTeXt $GDj5A$G$-$^$9:

```
\defineconversion[my own points][+,{\ss x},\mathematics{\circ}]
\setupGNUPLOTterminal[context][points=tex,pointset=my own points]
```

inlineimages $O! "%P%$%J%j2hA|$rJ8; zNs$H7F=q$-=P$7$^$9,! "3l$OConTeXt MKIV N_$G5!G=7^$9! # **externalimages** $O! "PNG %U%!%$%k$r30It=PNO$7! "3l$OConTeXt MKII $G5!G=$7$^$9! #3l$,F0:n$9k?aK$O! "gnuplot $, PNG 2hA|=PNO$r%5%]!<%H7F$$kI,MW$,$"j^$9! #

standalone $N%0%i%U$G$O! "**font** $G%U%)%s%HL>$H%5%$%:$r@DjG-$^$9! #standalone GJ$$%b!<%I(**input**) GO! "%F%-%9%H%i%Y%k$K=-J,$J%9%Z!<%9$r3d$jEvFk$?$a$K%U%)%s%H%5%$%:N_,0UL#$r; }$A$^$9%3%^%s%I

```
set term context font "myfont,ss,10"
```

$O! "0J2<$Nh&KJj^$9:

```
\setupbodyfont[myfont,ss,10pt]
```

Nc$($P5i$KDI2C$G **fontscale** $r0.8 $K@_Dj$9kH! "7k2LH7$F%U%)%s%H$O8pt NBg-5KJj! "

```
set label ... font "myfont,12"
```

$O9.6pt KJj^$9! #

E,Ev$J%?%$%W%/%j%W%H%U%)%s%H($H%X%C%@!<) $rMQ0U$9kN$O<+J,$G9TCF5bJ/$P%U%)%s%H$N@ZjBX($O8z2L$r; }A^$;$s! #ConTeXt MKII (pdfTeX) $NI8=`%U%)%s%H$O! "0J2<Nh$&$K7F; H$($^$9:

```
set terminal context standalone header '\usetypescript[iwona][ec]' \
    font "iwona,ss,11"
```

%U%)%s%H$NMxMQ$K4X9k ConTeXt $N:G?7$N>pJsKD$$$F$O! "ConTeXt $NJ8=q! "wiki!"%a!<%j%s%0%j%9%H(%"!<%+%$%v) $rC5$7F_F/$@$5$$! #

Nc:

```
set terminal context size 10cm, 5cm     # 10cm, 5cm
set terminal context size 4in, 3in      # 4in, 3in
```

UTF-8 %(%s%3!<%I%i%Y%k$r standalone (%Z!<%8A4BN) %0%i%U$G; HMQ$9kK$O:

```
set terminal context standalone header '\enableregime[utf-8]'
```

Requirements

ConTeXt MQ$N gnuplot %b%8%e!<%k: http://ctan.org/pkg/context-gnuplot

$H! ":G?7$N ConTeXt $,I,MW$G$9! #$=3+$i gnuplot $r8F$S=P9K$O! "write18 $r2DG=$K9kI,MW$,$"j^$9! #$[HsIN TeX G[IUJ*GO! "3l$O texmf.cnf $G shell_escape=t H9k3HG@_DjG-$^$9! #

$3 $N=P NO 7A<0 $H $h $j>\ $7 $$ %X %k %W $H Nc $K 4X $7 $F $O 0J 2< $b ;2 >H $7 $F $/ $@ $5 $$:
http://wiki.contextgarden.net/Gnuplot

Calling gnuplot from ConTeXt

ConTeXt J8=q$G%0%i%U$r:n@.9k:G$b4JC1$JJ}K!$O0J2<$NDL$j:

```
\usemodule[gnuplot]
\starttext
\title{How to draw nice plots with {\sc gnuplot}?}
\startGNUPLOTscript[sin]
set format y "%.1f"
plot sin(x) t '$\sin(x)$'
\stopGNUPLOTscript
\useGNUPLOTgraphic[sin]
\stoptext
```

3l$O<+F0E*$K gnuplot $r<B9T$7!"$=$N7k2L$N2hA|$rJ8=qCf$K<h$j9~$_$^$9!#

Corel

CorelDraw (1995 G/:") MQ$N8E$$ (legacy) =PNO7A<0 $G$9!#

=q<0:

```
set terminal corel {monochrome | color} {"<font>" {<fontsize>}}
                   {<xsize> <ysize> {<linewidth> }}
```

$3$3$G!"%U%)%s%H%5%$%: (**fontsize**) $H@~I} (**linewidth**) $O%]%$%s%HC10L!"2#I} (**xsize**) $H=DI} (**ysize**) $O%$%s%AC10L$G$9!#%G%U%)%k%HNCMO$=$l$>$l!"monochrome, "SwitzerlandLight", 22, 8.2, 10, 1.2 $G$9!#

Debug

3N%I%i%$%P$O **gnuplot** $N%G%P%C%0$N$?$a$KDs6!$5lF$$$kbN$G$9!#$*$=i/%=!<%9%3!<%I$r=$@5$9$k%f!<%6N_$,;HMQ$9kbNG7g$&!#

Domterm

domterm =PNO7A<0$O!"domterm, qtdomterm %W%m%0%i%`Ey$N DomTerm %?!<%_%J%k%(%_%e%l!<%?>e$GF0:n$7$^$9!#$3$l$O!"%?!<%_%J%k=PNOFb$XD>@\ SVG %0%i%U2hA|$rKd$a9~$`3H$r%5%]!<%H$7$F$$$^$9!# http://domterm.org $r;2>H$7F/$@$5$$!#

svg =PNO7A<0$N%X%k%W$rFIsG$/$@$5$$!#

Dumb

%@%`C<Kv (**dumb**) %I%i%$%P$O!"ASCII J8;z$r;HMQ$7$F%F%-%9%HNN0h$KIA2h7^$9!#%5%$%:$N;XDj$H2~9T@)8fMQ$N%*%W%7%g%s$,$"$j$^$9!#

=q<0:

```
set terminal dumb {size <xchars>,<ychars>} {[no]feed}
                  {aspect <htic>{,<vtic>}}
                  {[no]enhanced}
```

<xchars>, <ychars> $O%F%-%9%HNN0h$N%5%$%:$r@_Dj$7!"%G%U%)%k%H$O 79 x 24 HJCF$$$^$9!#:G8e$N2~9T$O!"**feed** %*%W%7%g%s$,@_Dj5l$F$$$k>l9gN_=PNO5l$^$9!#

%*%W%7%g%s **aspect** $O!"%0%i%U$N%"%9%Z%/%HHf$N@)8f$K;HMQ7^$9!#$3lO?eJ?<4!"?bD><4$NL\@9$j9o$_$ND9$5$r@_Dj7^$9!#@0?t$N;XDjN_$,5v$5lF$$$F!"%G%U%)%k%H$O 2,1 $G!"$3lO6&DL$N%9%/%j!<%s%U%)%s%H$N%"%9%Z%/%HHf$KBP1~$7$^$9!#

%*%W%7%g%s **ansi**, **ansi256**, **ansirgb** $O?'07$&$?$a$K=PNO$K%(%9%1!<%W%7!<%1%s%9$rA^F~$7$^$9$,!"$"J?$N%?!<%_%J%k$G$O=hM}$G$-$J$$$+b7l^$;$s!#%G%U%)%k%H$O **mono** $G$9!#**ansi** %b!<%IGO!"?'$O **set colorsequence classic** $r;H$&N,0lHV9g$$$^$9!#$I$N%b!<%I$r;HMQ9k$+$KhC$F!"**dumb** =PNO7A<0$O!"0J2<$N%7!<%1%s%9$r=PNO7^$9(6uGr$rDI2C$;$:$K):

```
ESC [ 0 m           B0@-$r%G%U%)%k%H$K%j%;%C%H
foreground color:
I=<(?':
ESC [ 1 m           6/D4/B@;z$r%;%C%H
ESC [ 22 m          6/D4/B@;z$r%*%U$K
ESC [ <fg> m        30 <= <fg> <= 37 $N%+%i!<%3!<%I;XDj
ESC [ 39 m          %G%U%)%k%H$K%j%;%C%H
ESC [ 38; 5; <c> m  %Q%l%C%H$NHV9f;XDj (16 <= <c> <= 255)
ESC [ 38; 2; <r>; <g>; <b> m  @.J,;XDj (0 <= <r,g,b> <= 255)
GX7J?':
ESC [ <bg> m        40 <= <bg> <= 47 $N%+%i!<%3!<%I;XDj
ESC [ 49 m          %G%U%)%k%H$K%j%;%C%H
ESC [ 48; 5; <c> m  %Q%l%C%H$NHV9f;XDj (16 <= <c> <= 231)
ESC [ 48; 2; <r>; <g>; <b> m  @.J,;XDj (0 <= <r,g,b> <= 255)
```

Nc$($P!"0J2<$N5-=R$b;2>H7F$/$@$5$$: https://en.wikipedia.org/wiki/ANSI_escape_code#Colors

Nc:

```
set term dumb mono size 60,15 aspect 1
set tics nomirror scale 0.5
plot [-5:6.5] sin(x) with impulse ls -1
```

```
    1 +-------------------------------------------------+
  0.8 +|||++                    ++||||++                  |
  0.6 +||||||+                 ++|||||||+  sin(x) +----+ |
  0.4 +|||||||+               ++|||||||||+               |
  0.2 +|||||||+             ++|||||||||||+             +|
    0 +++++++++++++++++++++++++++++++++++++++++++++++++|
 -0.2 +         +|||||||||||+              +|||||||||||+ |
 -0.4 +          +|||||||||+                +|||||||||+  |
 -0.6 +           +|||||||+                  +|||||||+   |
 -0.8 +            ++||||+                    ++||||+    |
   -1 +----+--------+--------+-------+--------+--------+-+
        -4       -2        0       2        4        6
```

Dxf

dxf $O AutoCad (%j%j!<%9 10.x) MQ$N=PNO%I%i%$%P$G$9!#3N%I%i%$%P$K$O%*%W%7%g%s$O"j^$;$s!#%G%U%)%k%HNBg-5O AutoCad $NC10L$G$N 120x80 $G$9!#**dxf**$O7?'(Gr!"@V!"2+!"NP!"?e?'!"@D!"@V;g) $r;H$$^9,!"3l$rJQ9&$9kKO%I%i%$%P%=!<%9%U%!%$%k$r=$@5$9$kI,MW$,$"j^$9!#Gr9u$N=PNOAuCV$r;H$&>19g!"$=$liN?'$O@~$NB@5N0c$$GI=8=5l$^$9!#Cm0U: IJ$?$+!"DXF 5,3J2012 $r;H$&h&$K99?7$7F/$@$5$$!

Dxy800a

Cm0U: 8E$$(legacy) =PNO7A<0$G$9!#3N%I%i%$%P$O Roland DXY800A %W%m%C%?$r%5%]!<%H$7$^$9!#%*%W%7%g%s$O"$j$^$;$s!#

Eepic

eepic %I%i%$%P$O LaTeX picture 4D6-$r3HD%$9kbNr%5%]!<%H7^$9!#$3lO **latex** %I%i%$%P$KBeokJL$JA*Br;h$G$9!#

3N%I%i%$%P$Khk=PNO$O!"LaTeX MQ$N"eepic.sty" %^%/%m%Q%C%1!<%8$H6&$K;Holk3Hr2>D j7F$$^$9!#$=lr;H&KO!""eepic.sty" $H"epic.sty"!"$*hS"tpic" \special L?Na72$r%5%]!<%H$7$^$9!#H9k%W%j%s%?%I%i%$%P$,I,MW$G$9!#b7!"$"$J$?%j%s%?%I%i%$%P$,$=li$N"tpic" \special L?Na$r%5%]!<%H7F$$J$>19g$G$b!""eepicemu.sty" $r;H$&3HG=liN&A$N$$/D+$r;H$(kh&KJj^$9!#dvips $H dvipdfm $O"tpic" \special $r%5%]!<%H$7$F$$^$9!#

=q<0:

```
set terminal eepic {default} {color|dashed} {rotate} {size XX,YY}
                   {small|tiny|<fontsize>}
```

%*%W%7%g%s: %*%W%7%g%sOG0U$N=gHV$GM?$ (k3H,G-$^$9!#'color' $O gnuplot $K \color{...} %3%^%s%I $r@8@.$5$;!"$=1Khj%0%i%U$r%+%i!<$K7^$9!#$3$N%*%W%7%g%s$r;HMQ9k>19g$O!"latex J8=q$N%W%j%"%s %V%k$K \usepackage{color} $rF~$1kI,MW,$"$j$^$9!#'dashed' $O@~<o$KE@@~$r;HMQ$9k3Hr5v2D7^$9!# 3N%*%W%7%g%s$r;XDj7J$$$H!"?'!9$JB@$5$N<B@~$N$_$,;Ho1$^$9!#'dashed' $H'color' $O01J}$N$_$,0UL# $r;}$A!"'color' $,;XDj$5$1$?>19g!"'dashed' $OL5;k$5$1$^$9!#'rotate' $OK\Ev$K2sE>(90 EY) $5$1$?J8;zNs $r;HMQ$9kh$&$KJj$^$9!#;XDj7J$>19g$O!"1 J8;z1 J8;z!">e$K@Q$_>e2F$$/J}K!$G2sE>$5$1$?J8;z Ns$r:n$j$^$9!#3N%*%W%7%g%s$r;H$&>19g$O!"\usepackage{graphicx} $r%W%j%"%s%V%k$KF~1kI,MW$,$"j^ $9!#'small' $O point %9%?%s%k$G$N%0%i%UIA2h$N0uH7$F\scriptsize $N5-9f$r;HMQ7^$9(B?J,$3$1$O TeX $G O@aG!"LaTeX2e G7$+;H$($J$$$G7g$&)!#%G%U%)%k%H$G$OI8='$N?t<0$N%5%s%:$r;HMQ7^$9!#tiny' $O!" $=$1$K\scriptscriptstyle $N5-9f$r;HMQ7^$9!#default' $OA4$F$N%*%W%7%g%s$r%G%U%)%k%HNCMK%j%;%C%H7^ $9!#%G%U%)%k%H$O!"color OJ$7!"dashed line OJ$7!"5?;w2sE>(@Q$_>e$2) J8;zNs$N;HMQ!"Bg$-$J%5%s%:$N5-9f$N;HMQ!"$G$9!#<fontsize> $Opicture 4D6-Fb$G$N%U%)%s%H%5%s%:$r;XDj9k?t;z$G$9!#C10L$O pt (%]%s%H) $G!"10 pt O[$\3.5 mm $G$9!#%U%)%s%H%5%s%:$r;XDj$7J>19g!"A4FN%0%i%UFb$NJ8;z$O\footnotesize $K @_Dj$5$1$^$9!#

Cm0U: J8;z# ($*$hS=$NB>(La)TeX $GFCJL$J0UL#$r;}$D$=$NB>$NJ8;z) $r\\ (%P%C%/%9%i%C%7%e2 $D) $G%(%9%1!<%W$9k3HrK:lJ$$G$/$5$!#%0%i%U$N3Q$,6a$9$.$k$HE@@~$O<B@~Nh$&$KJj$^$9!#(B$3$1$, tpic specials $N0lHIE*$JLdBjJN$+!"eepic.sty $ddvips/dvipdfm $N%P%0$,860xJN$+$O;dKOo+j^$;$s!#) %G%U%)%k%H$Neepic %0%i%U$NBg$-$5$O5x3 %$%s%A$G!"$3$1$Oteminal %*%W%7%g%s$N**size** $GJQ992DG=$G$9!#?t$" kCfG!"E@(point) $O!"LaTeX $N%3%^%s%I"\Diamond", "\Box" JI$r;HC$FIA$+$1$^$9!#$3$1iN%3%^%s %I$O8=:_$OLaTeX2e $N%3%"$K$OB8:_$;$:latexsym %Q%C%1!<%8$K4^$^$1$F$$$^9,!"3N%Q%C%1!<%84pK\G[I[$N0lIt$G$"j!"$hCFB?$/$N LaTeX $N%7%9%F%'$N0lItKJCF$$$^$9!#$3$N%Q%C%1!<%8$r;H$&$3HrK:lJ $$G$/$@$5$$!#latexsym NBeojK amssymb %Q%C%1!<%8$r;H$&3H$b2DG=$G$9!#LaTeX $K4X$9$kA4$F$N%I %i%$%P$OJ8;zNs$NG[CV$N(B)8f$KFCJL$JJ}K!$rDs6!7^$9:'{'$G;O$^$kJ8;zNs$O!"'}'$GJD8kI,MW$,$"j^$9 $,!"$=$NJ8;zNsA4BN$,?eJ?J}8~Kb?bD>J}8~Kb%;%s?%j%s%0$5$1$^$9!#[' $G;O$^$kJ8;zNs$N>19g$O!"0LCV$N ;XDjr9$kJ8;zNs(t,b,l,r N&$A2 D^$G) $,B3$-!"<!$K']{'!"J8;zNsK\BN!"$G:G8e$K'}' H7$^9,!"3NJ8 ;zNs$OLaTeX $, LR-box H7$F@07A7^$9!#'\rule{}{}' $r;H$(P5i$KNI$$0LCV9go;$,2DG=$G7g$&!#

Nc: set term eepic

```
$O!"%0%i%U$r picture 4D6-$K4^$^$1$? eepic %^%/%m$H$7$F=PNO$7$^$9!#
$=$N%U%!%$%k$r LaTeX J8=q$K \input $G<h$j9~$s$G$/$@$5$$!#
```

set term eepic color tiny rotate 8

```
eepic %^%/%m$r \color %^%/%m!"point 0u$O \scripscriptsize $NBg$-$5!"
K\Ev$K2sE>$5$1$?J8;z$N;HMQ!"$*$h$SA4$F$NJ8;z$r 8pt $K%;%C%H$7$F=PNO
$7$^$9!#
```

8+=P7N0LCV9go;$K4X$7$F: gnuplot $N%G%U%)%k%H(BgDq$=1JjKJk,!"$=$&GJ$$$3Hb$"$k):

```
      set title '\LaTeX\ -- $ \gamma $'
```

?eJ?J}8~Kb?bD>J}8~Kb%;%s?%j%s%0:

```
      set label '{\LaTeX\ -- $ \gamma $}' at 0,0
```

0LCV$rL@<(E*$K;XDj(>e$K9g$o$;$k):

```
      set xlabel '[t]{\LaTeX\ -- $ \gamma $}'
```

B>$N8+=P$7-L\@9jND9$$8+=P7KBP9k8+@Q$j:

```
      set ylabel '[r]{\LaTeX\ -- $ \gamma $\rule{7mm}{0pt}}'
```

Emf

emf %I%i%$%P$O EMF (Enhanced Metafile Format) %U%!%$%k$r@8@.7^$9!#$3$N7A<0$N%U%!%$%k$OB?$/$N MS-Windows %"%W%j%1!<%7%g%s$GG'<1$G$-$^$9!#

=q<0:

```
set terminal emf {color | monochrome}
                 {enhanced {noproportional}}
                 {rounded | butt}
                 {linewidth <LW>} {dashlength <DL>}
                 {size XX,YY} {background <rgb_color>}
                 {font "<fontname>{,<fontsize>}"}
                 {fontscale <scale>}
```

monochorome %b!<%I$O@^$l@~$rE@@~$N%Q%?!<%s$r=[4D$5$;$FBG$A=P$7$^$9!#**linewidth** <**factor**> $OA4$F$N@~I}$r$3$3$G;XDj$9$kCMG\$K7^$9!#**dashlength** <**factor**> $O!"B@$$@~KOJXMxG7g&!#<**fontname**>$O%U%)%s%HL>!"<**fontsize**> $O%]%$%s%HC10LGN%U%)%s%HNBg-5G$9!#

=PNO2hA|$N7A<0E*$J(L>P+jN) %5%$%:$O!"%G%U%)%k%HGOE,Ev$JC10L$G$N1024x768 KJCF$$$^$9!#%*%W%7%g%s **size** $r;H$CFJLJ7A<0E*$J%5%$%:$r;XDj$G$-$^$9!#

3HD%J8;zNs=hM}%b!<%I(enhanced text mode) $O!"%W%m%]!<%7%g%J%kJ8;z4V3V$r6a;w$7h&H7$^$9!#%b%N%9%Z!<%9%U%)%s%H$r;H$&>19g!"$"$k$$$O3$N6a;w$r9%$^$J$$>19g!"%*%W%7%g%s **noproportional** $r;H$&3HG3NJd@5$r%*%U$KG-$^$9!#

%G%U%)%k%H$N@_Dj$O!"**color font "Arial,12" size 1024,768** $G!"**default** $rA*Br$9kHA4FN%*%W%7%g%s$,$=$N%G%U%)%k%H$NCMKJj^$9!#

Nc:

```
set terminal emf 'Times Roman Italic, 12'
```

Emxvga

Cm0U: 8E$$(legacy) =PNO7A<0$G$9!#**emxvga**, **emxvesa**, **vgal** $N3F%I%i%$%P%O$=$l$>$l SVGA, vesa SVGA, VGA %0%i%C%U%#%C%/%\!<%I$N PC $r%5%]!<%H$7$^$9!#3liO DOS!"$^$?$O OS/2 >e$G!"'"emx-gcc" $G%3%s%Q%$%k5l$?%k$3Hr0U?^7F$$$^$9!#$3liKO5i$K VESA %Q%C%1!<%8$H SVGAKIT $,I,MW$G$9!#$3li$O Johannes Martin (JMARTIN@GOOFY.ZDV.UNI-MAINZ.DE) $,J]<i$7 David J. Liu (liu@phri.nyu.edu) $,3HD%$7$F$$$k%i%$%V%i%j$G$9!#

=q<O:

```
set terminal emxvga
set terminal emxvesa {vesa-mode}
set terminal vgal
```

M#0l$N%*%W%7%g%s$O **emxvesa** KBP9$k vesa $N%b!<%I$G!"%G%U%)%k%HGO=lO G640x480x256 HJCF$$$^$9!#

Epscairo

=PNO7A<0 **epscairo** $O!"cairo, pango %i%$%V%i%j$rMQ$$$F EPS =PNO(Encapsulated PostScript) $r@8@.$7$^$9!#cairo $O version 1.6 0J9_$,I,MW$G$9!#

>\:Y$O!"**pdfcairo** =PNO7A<0$N%X%k%W$r;2>H$7F/$@$5$$!#

Epslatex

epslatex %I%i%$%P%O LaTeX $G=hM}$9Y-=PNO$r@8@.$7$^$9!#

=q<O:

```
set terminal epslatex   {default}
set terminal epslatex   {standalone | input}
                        {oldstyle | newstyle}
                        {level1 | leveldefault | level3}
                        {color | colour | monochrome}
                        {background <rgbcolor> | nobackground}
```

```
{dashlength | dl <DL>}
{linewidth | lw <LW>} {pointscale | ps <PS>}
{rounded | butt}
{clip | noclip}
{palfuncparam <samples>{,<maxdeviation>}}
{size <XX>{unit},<YY>{unit}}
{header <header> | noheader}
{blacktext | colortext | colourtext}
{{font} "fontname{,fontsize}" {<fontsize>}}
{fontscale <scale>}
```

epslatex =PNO7A<0$O!"J8;zNs$r PostScript %3!<%I$K4^$^$;$kBeoj$K LaTeX %U%!%$%k$K0\$9$3$H$r=|$1$P **terminal postscript eps** F1MM$KIA2h$7$^$9!#hC$F!"**postscript terminal** $HB?$/$N%*%W%7%g%s$,6&DL$G$9!#

version 4.0 $+$i 4.2 $N4V$K!"postscript =PNO7A<0HNhjNI$$8_49@-N?aK epslatex =PNO$OJQ99$5$1$^7?!#IA2h%5%$%:$O 5 x 3 %$%s%A$+$i5 x 3.5 %$%s%AXHJQ99$5$1!"J8;zI}$O=>Mh$O%U%)%s%H%5%$%:$N 50% $H8+$J7F$$$^7?$,!"8=:_$O 60% $HI>2A$7$F$$$^$9!#$h$jB?$/$N Postscript $N@<c$d5-9f$b;H$o1^$9!#0JA0$N>uBVK[$\Ey$7$>uBV$K9kKO%*%W%7%g%s **oldstyle** $r;XDj$7F/$@$5$$!#(<B:]KO4/o:$+$J0c$$,;Dj^$9:5-9f$N%5%$%:$,o:$+$K0c$!"L\@99o$_(tics) $O=>Mh$NH>J,KJCF$$$^9,$=$1$O **set tics scale** $GJQ99$G$-$^$9!#$=7FLp(arrow) $K4X$7FOpostscript =PNO7A<0$G;H$($kA4$F$N5!G=$,MxMQG-$^$9!#)

0J2<Nh$&$J%(%i!<%a%C%;!<%8$,=P$?>19g:

```
"Can't find PostScript prologue file ... "
```

0J2<;2>H: **postscript prologue (p. 243)**!#$=$7F=$N;X<($K=>CF$/$@$5$$!#

%*%W%7%g%s **color** $O%+%i!<$rM-8z$K$7!"**monochrome** $O3FMWAG$r9u$HGrIA2h$7$^$9!#5i$K!"**monochrome** $O3%?'$N **palette** $b;HMQ$7$^$9$,!"$3$1$O!"L@<(E*$K **colorspec** $G;XDj$5$1$?ItIJ$N?'$rJQ99$7$^$;$s!#

dashlength $^$?$O **dl** $OE@@~$N@~J,$ND9$5$r<DL>(0 hjBg$-$$<B?t) $K@_Dj$7!"**linewidth** $^$?$O **lw** $OA4$F$N@~$NI}$r<LW> $K@_Dj$7$^$9!#

%G%U%)%k%HGO!"@8@.$5$1$k PostScript %3!<%I$O!"FC$K%U%#%k%?%j%s%0$dfilledcurves Nh$&$JG3$\$3$JNN0h$N%Q%?!<%sEIjDV7K*$$F!"PostScript Level 2 H7$F>R2p$5$1$F$$k8@815!G=$r;H$$^$9!#PostScript Level 2 $N5!G=$O>r7oE*$KJ]8n$5$1$F$$F!"PostScript Level 1 $N%$%s%?!<%W%j%?$,%(%i!<$r=P5:!"$'$7$m%a%C%;!<%8$+PostScript Level 1 Kh$k6a;w$G$"$k3H$rI=<($9kh$&$KJC$F$$$^$9!#**level1** %*%W%7%g%s$O!"$3$1iN5!G=$r6a;w$9$k PostScript Level1 $GBeMQ$7!"PostScript Level 2 %3!<%I$r01@Z;HMQ$7$^$;$s!#$3$1$O8E$$%W%j%s%?$d!"Adobe Illustrator $N8E$$%P!<%8%g%sJIGI,MWKJk$+$b$7$1$^$;$s!#$3$N%U%i%0 **level1** $O=PNO$5$1$?PostScript %U%!%$%k$N"$k01gT$r<j$GJT=8$9k3HG!"8e$+$i6/@)E*$K PostScript Level 1 5!G=$r ON/OFF K9k3HbG-$^$9!#level 2 $N%3!<%I$,4^$^$1$F$$k>19g!">e$N5!G=$O8=o1JJ$$+!"3N%U%i%0$,%;%C%H$5$1$?>19g!"$"$k$$$O PostScript %$%s%?%W%j%?%W%m%0%i%',level 2 0J>e$N PostScript $r2r<a$9kH$O8@$oJ+C?>19g$K7Y9pJ8$KCV$-4$9oj$^$9!#**level3** %*%W%7%g%s$O!"%S%C%H%^%C%W2hA|$N PNG 2=$N5!G=$rM-8zK7$^$9!#$=$1Kh$j=PNO%5%$%:r+Jj:o8:G-$^$9!#

rounded $O!"@~$NC<$d@\9gIt$r4]$/$7!"%G%U%)%k%H$N **butt** $O@m$C$?C<$H3QD%C?@\9gIt$r;HMQ$7$^$9!#

clip $O!"PostScript K9YF$N=PNO$r BoundingBox (PostScript $N3OOH) $G%/j%C%W$9k3Hr;X<(7^$9;%G%U%)%k%H$O **noclip** $G$9!#

palfuncparam $O **set palette functions** $+$i=PNO$N79$-rINh$&$K%3!<%I=9k$+$r@)8f7^$9!#2r@OE*$J?'$N@.,4X?t (**set palatte functions** $G@_Dj$5$1$k) $O!"postscript =PNO$G$O79$-$N@~7AJd40$rMQ$$$F%3!<%I=$5$1$^$9:$^$:?'$N@.,4X?t$,<samples> 8D$NE@$GI8K\2=$5$1!"$=$7F=1i$NE@$O!"7k2LH7$F@~7AJd40$H$NJP:9$,<maxdeviation> 0JFb$K<}$^kh$&$K:o=|$5$1$^$9!#[Hs$IA4$F$NM-8z$J%Q%1%C%H$G!"%G%U%)%k%H$N<samples> =2000 $H<maxdeviation>=0.003 NCMr$=$N$^$^;H$&$N$,NI$$$G7g&!#

PostScript =PNO$N%G%U%)%k%H$NBg$-$5$O10 %$%s%Ax 7 %$%s%A$G$9!#EPS =PNO$N%G%U%)%k%HNBg-5O5 x 3.5 %$%s%A$G$9!#%*%W%7%g%s **size** O3$1$i$r%f!<%6$,;XDj7?bN$KJQ99$7$^$9!#%G%U%)%k%HGO X $H Y $N%5%$%:$NC10L$O%$%s%A$H$_$J$5$1$^$9$,!"B>$NC10L(8=:_$O cm N_) $b;H$&3HOG$-$^$9!#IA2h$N BoundingBox (PostScript %U%!%$%k$N3OOH) $O!"%5%$%:$,JQ99$5$1$?2hA|$rCzEY4^$'h&$K@5$7$/@_Dj$5$1$^$9!#%9%/j!<%s:BI8$O!"%*%W%7%g%s **size** $G;XDj$5$1$?IA2hOH$NA4BN$,0.0 $+$i1.0 KJj^$9!#Cm0U:$3$1$O!"0JA0$O!"=PNO7A<0$G$N@_Dj$hjb!"%3%^%s%I **set size** $G@_Dj$7$?J}$,$$$$!"$H8@$C$F$$?3HNJQ99$r0UL#$7$^$9!#0JA0$NJ}K!$G$O BoundingBox $OJQ99$5$1$:$K;D$CF7$^$$!"%9%/j!<%s:BI8$,<B:]$NIA2h$N8B3&$KBP1~7F$$^$;$sG7$?!#

blacktext $O! "$?H (%+%i! <%b! <%IGbA4FNJ8; zNs$r9u$G=q$-$^$9! #

epslatex %I%i%$%P$OJ8; zNs$NG[CV$N@)8f$KFCJL$JJ}K!$rDs6!$7$^$9: (a) '{' $G; O$^$kJ8; zNs$O! "}' GJD8$k I,MW$,$"$j$^$9$,! "$=$NJ8; zNsA4BN$, LaTeX KhCF?eJ?J}8~Kb?bD>J}8~Kb%;%s%?%j%s%0$5$l$^$9! #(b) '[' $G; O$^$kJ8; zNs$N>19g$O! "0lCV$N; XDjr9$kJ8; zNs (t,b,l,r,c N&$A2 D^$G) $,B3$-! "<!$K']{'! "U8; zNsK\ BN! "$G:G8e$K'}' H7$^9,! "3NJ8; zNs$O LaTeX $, LR-box H7$F@07A7^$9! #\rule{}{} $r; H$ (P5iK NI$$0lCV9go;$,2DG=$G7g$&! #0J2<$b; 2>H: %I%i%$%P **pslatex (p. 243)** $K4X$9$k@bL@! #J#?t9T$N8+=P7r :n@.9kKO\shortstack $r; HMQ$7F/$@$5$$! #Nc$ ($P! "

```
  set ylabel '[r]{\shortstack{first line \\ second line}}'
```

set label %3%^%s%I$N%*%W%7%g%s **back** $O; H$ ($^$9$,! "B>$N=PNO7A<0$N%b$NHO>/$70c$C$F$$$^$9! #**front** $N >19g$N8+=P7,B>$NA4$F$NMWAG$N>e$K=PNO$5$1$kNKBP7F! "**back** $r; H$C$?8+=P$7$OB>$NA4FNMWAG$N2<$K =PNO$5$1$^$9! #

3N%I%i%$%P$O2 DNJL$N%U%!%$%k$r:n$j$^$9! #1 DO?^$N eps $NItJ,$G! "b&0lDO LaTeX $NItJ,$G$9! # LaTeX %U%!%$%k$NL>A0$O! "**set output** %3%^%s%I$N%b$N$,; H$o$1! "eps %U%!%$%k$NL>A0$O$=$N3HD%; R(DL>o **.tex**) $r**.eps** KCV-49$ ($?$bNKJj$^$9! #=PNO%U%!%$%k$r; XDj7J1l$P LaTeX =PNO$O9TJol^$;$s! **multiplot** %b! <%I0J30GO! "<!$NIA2h$r9TJ&A0K=$N=PNO%U%!%$%k$r%/%m! <%:$9kN$rK:$l$J$$G$/$@$5$$! #

LaTeX $NJ8=q$G?^$r<h$j9~$`$K$O'\input{filename}' $H$7$F$/$@$5$$! #**eps** %U%!%$%k$O\includegraphics{...} %3%^%s%I$G<h$j9~$`$N$G! "$hCF LaTeX $N%W%j%"%s%V%k$K\usepackage{graphicx} $bF~$lkI,MW,$"$j$^$9! # **textcolour** %*%W%7%g%s$G?'IU$-$NJ8; zNs$r; HMQ7F$$k>19g$O! 'LaTeX $N%W%j%"%s%V%k$K\usepackage{color} $bF~$lkI,MW,$"$j$^$9! #

3N eps %U%!%$%k$+$i 'epstopdf' $r; H$C$F pdf %U%!%$%k$r:n$k3HbG$-$^$9! #graphics %Q%C%1!<%8$,E,@Z $K@_Dj$5lF$$$k>19g! "$=$N LaTeX $N%U%!%$%k$O! "JQ99$J7K pdflatex KhCF$b=hM}$G$-! "$=$N>19g eps %U%!%$%kNBeojK pdf %U%!%$%k$,<h$j9~$^l^$9! #

%U%)%s%H$NA*Br$K4X9k5sF0$O%X%C%@! <%b! <%I$K0MB8$7$^$9! #$I$N>19g$G$b! "M?$ (il$?%U%)%s%H%5%$%:$O%9 %Z! <%9$N7W; ;KAcs$H; HMQ$5l^$9! #**standalone** %b! <%I$,; H$olJ$+$C$?>19g$O! "include 5l$k>l=j$G $N<B:]$N LaTeX %U%)%s%H$H%U%)%s%H%5%$%:$,; H$olkNG! "hC$F%U%)%s%H$NJQ99KO LaTeX %3%^%s%I$r ; H$CF/$@$5$$! #Nc$ ($P%U%)%s%H%5%$%:H7$F LaTeX J8=qCf$G 12pt $r; H$&>19g$O! "%*%W%7%g%s'"" 12' $r; H $$^$9! #$3$N>19g%U%)%s%HL>$OL5; k5l$^$9! #**standalone** $r; H$&>19g$O! "M?$ (il$?%U%)%s%H$H%U%)%s%H%5 %$%:$,; Hol$^$9! #>\:Y$O2<5-$r; 2>H7F$/$@$5$$! #

J8; zNs$,%+%i!<$GI=< (5lk+I&$+$O TeX $N Bool CMJQ?t \ifGPcolor $H\ifGPblacktext $G@)8f$7$^$9! # \ifGPcolor $, true $G\ifGPblacktext $, false $N>19g$N$_J8; zNs$O%+%i!<$GI=< ($5l^$9! #$=li$O@8@.$5$l $k TeX %U%!%$%k$rJQ99$9k+! "$^$?$O"$J$?$N TeX %U%!%$%k$GBg0hE*$KM?$ (F/$@$5$$! #Nc$ ($P

```
  \newif\ifGPblacktext
  \GPblacktexttrue
```

r"J?$N%U%!%$%k$N%W%j%"%s%V%k$K=q$-$^$9! #ItJ,E*$J; XDj$OBg0hE*$JCM$,M?$ (il$F$$$J$$H$-$N$_F/$- $^$9! #

epslatex =PNO7A<0$r; H$&>19g! "**set output** %3%^%s%I$G TeX %U%!%$%k$NL>A0$r3HD%; RIU$-(DI>o ".tex") $GM? $ (F/$@$5$$! #eps %U%!%$%k$NL>A0O=$N3HD%; R$r ".eps" KCV-49$ ($?L>A0$KJj$^$9! #

standalone %b! <%I$r; H$&>19g! "$=$N LaTeX %U%!%$%k$K40A4$J LaTeX $N%X%C%@$,IU2C5l! "eps %U%!%$%k$N %U%!%$%kL>$K$O"-inc" $,DI2C$5l^$9! #**standalone** %b! <%I$O! "dvips, pdfTeX, VTeX $r; H$&>19g$K@5$7$$5 %$%:$G=PNO5lkh$&$J TeX %U%!%$%k$r:nj^$9! #%G%U%)%k%H$O **input** %b! <%I$G! "$3lO\input %3%^%s%I $r; H$C$F! "JL$N
LaTeX %U%!%$%k$+iFI_9~$^$lkh$&$J%U%!%$%k$r@8@.7^$9! #

"" $+ "default" 0J30$N%U%)%s%HL>$,M?$ (il$?>19g! "$=lO LaTeX $N%U%)%s%HL>$H2r<a5l$^$9! #$=$l $O! "'fontname,fontseries,fontshape' $N! "%3%s%^$G6h@Zil$?3 $D0J2<$NItJ,$+$iJj$^$9! #%G%U%)%k%H$N%U%) %s%H%7%'%$%W! "%U%)%s%H%7%j! <%:$,; H$$?$>19g$O$=$liO>JN,G-$^$9! #D^$j! "%U%)%s%HL>$KBP9k@5<0$J =q<0$O! "'[fontname][,fontseries][,fontshape]' HJj^$9! #$=$N$$:lNItJ,$bL>A0$K4X7F$O LaTeX $N%U%) %s%HBN7O$N47=,$K=>$$$^$9! #fontname $O3 $+$i4 J8; z$ND9$5$G! "<!$Nh&$J5,B'$G:nil$F$$$^$9: 1 $DL\$, %U%)%s%H$N@=B$85$rI=$7! "<!$N2 D,%U%)%s%HL>! "%*%W%7%g%s$GD12C$5lk1 DOFCJL$J%U%)%s%H$r0UL#$7! " Nc$ ($P'j' $O5l<0$N?t; z$r; }$D%U%)%s%H! "'x' $O expert %U%)%s%HEy$HJC$F$$$^$9! #0J2<$K$O! "B?$/$N%U%)%s %H$NL>A0KD$$F=q$+$l$F$$$^$9! #http://www.tug.org/fontname/fontname.pdf

Nc$ ($P 'cmr' $O Computer Modern Roman %U%)%s%H! "'ptm' $O Times-Roman, 'phv' $O Helvetica Ey$rI=$7 $^$9! #%U%)%s%H%7%j! <%:$OJ8; z$N@~$NB@$5$r0UL#$7! "BgH>$O'm' $GIaDL("medium")! "'bx' $^$?$O'b' $,B@; z

(bold) %U%)%s%H$r0UL#$7$^$9!#%U%)%s%H%7%'%$%W$C0lHL$K'n' $,N)BN (upright)!"it' $O%$%?%j%C%/!"sl' $O<PBN (slanted)!"sc' $O>.$5$$BgJ8;z (small caps) HJj^$9!#$3$1$iHC0 [Jk%U%)%s%H%7%j!<%:$d%U%)%s%H%7%' %$%W$GM?$ (i1$k%U%)%s%H$bB8:_7^$9!#

Nc:

Times-Roman $GB@;z (%7%'%$%W$O<~$j$NJ8;zNs$HF1$8$b$N) $r;H$&>19g:

```
set terminal epslatex 'ptm,bx'
```

Helvetica $GB@;z$G%$%?%j%C%/$r;H$&>19g:

```
set terminal epslatex 'phv,bx,it'
```

<PBN$N%7%'%$%W$G<~$j$N%U%)%s%H$r;H$B3$1$k>19g:

```
set terminal epslatex ',,sl'
```

>.7?$NBgJ8;z (small caps) $r;H$&>19g:

```
set terminal epslatex ',,sc'
```

3NJ}K!GOJ8;zNs$N%U%)%s%H$_$,JQ99$5$1$^$9!#?t<0$N%U%)%s%H$bJQ99$7$?$$>19g$O!""gnuplot.cfg" %U%!%$%k$+$^$?$O **header** %*%W%7%g%s$r;H$&I,MW$,$"j^9,!"$3$1KD$$F$O0J2<$K=q$-$^$9!#

standalone %b!<%IGO!"%U%)%s%H%5%$%:$O **set terminal** %3%^%s%I$GM?$ (i1$?%U%)%s%H%5%$%:$,;H$o1^$9!#;XDj$7$?%U%)%s%H%5%$%:$,;H$ (k?aK$OLaTeX $N8!:w%Q%9$K"size<size>.clo" $H$$&%U%!%$%k$,B8:_7J1lPJj^$;$s!#%G%U%)%k%HGO10pt, 11pt, 12pt $,%5%]!<%H$5$1$F$$$^$9!#%Q%C%1!<%8"extsizes" $,%$%s%9%H!<%k$5$1$F$$$1$P!"8pt, 9pt, 14pt, 17pt, 20pt $bDI2C$5$1$^$9!#

%*%W%7%g%s **header** $OJ8;zNs0z?t$r<hj^$9!#$=$NJ8;zNs$O!"@8@.$5$1$kLaTeX %U%!%$%k$K=q$-9~$^$1$^$9!# **standalone** %b!<%I$r;H$&>19g!"$=$NJ8;zNs$O%W%j%"%s%V%k$N\begin{document} %3%^%s%I$ND>A0$K=q$-9~$^1^$9!# **input** %b!<%I$G$O!"$=$NJ8;zNs$O\begingroup %3%^%s%I$ND>8e$KCV$+$1!"IA2hXN@_Dj$,$9YF6I=jE*KJkh$&$K7^$9!#

Nc:

T1 %U%)%s%H%(%s%3!<%G%#%s%0$r;H$$!"J8;zNs!"?t<0%U%)%s%H$r Times-Roman $H$7!"%5%s%;%j%U%U%)%s%H$r Helvetica $HJQ99$9$k>19g:

```
set terminal epslatex standalone header \
"\\usepackage[T1]{fontenc}\n\\usepackage{mathptmx}\n\\usepackage{helvet}"
```

IA2h$N30$NJ8;zNsKO1F6A$rM?$ ($J$$$h$&$KIA2hFb$GB@;z (boldface) %U%)%s%H$r;H$&>19g:

```
set terminal epslatex input header "\\bfseries"
```

%U%!%$%k"gnuplot.cfg" $,LaTeX KhCF8+D1ilkH!"**standalone** %b!<%I$r;H$C$F$$$k>19g$O!"$=lO@8@.5l$kLaTeX J8=q$N%W%j%"%s%V%k$K<h$j9~$^$l$^$9!#$=$l$OCDI2C$N@_Dj$r9T$J$&$N$K;H$ ($^$9!#Nc$ ($P!"J8=q$N%U%)%s%H$rTImes-Roman, Helvetica, Courier $HJQ99$7!"("mathptmx.sty" $G07$olF$$$k) ?t<0%U%)%s%H$rF~$l$k>19g:

```
\usepackage{mathptmx}
\usepackage[scaled=0.92]{helvet}
\usepackage{courier}
```

%U%!%$%k"gnuplot.cfg" $O **header** %3%^%s%I$GM?$ (i1$k%X%C@>pJs$NA0KFI_9~$^$l$^$9!#hC$F!""gnuplot.cfg" $G9T$Jol$k@_Dj$N$$/D+$r **header** $r;H$C$F>e=q$-9k3H$,$G$-$^$9!#

Epson_180dpi

Cm0U: gnuplot $,–with-bitmap-terminals $G:n$il?>19gN_;H$ ($^$9!#3N%I%i%$%P$O (%W%=%s%W%j%s%?$N$$/D+H=lKN';w9kbN$r%5%]!<%H$7$^$9!#

epson_180dpi $H **epson_60dpi** O=l>$l 180dpi (%I%C%H/%$%s%A), 60dpi $N2rA|EY$N Epson LQ 7?24 %T%s%W%j%s%?MQ$N%I%i%$%P$G$9!#

epson_lx800 $OEpson LX-800, Star $NNL-10 $dNX-1000, PROPRINTER JINE,EvJ%W%j%s%?$KN.MQ$G$-$k!"0lHLE*$J9%T%s%W%j%s%?%I%i%$%P$G$9!#

nec_cp6 $O NEC CP6 $d Epson LQ-800 JI$N%W%j%s%?$G;H$($k!"0lHIE*$J24 %T%s%W%j%s%?MQ$N%I%i%$%P$G$9!#

okidata %I%i%$%P$O9 %T%s$N OKIDATA 320/321 I8=`%W%j%s%?$r%5%]!<%H$7$^$9!#

starc %I%i%$%P$O Star %+%i!<%W%j%s%?MQ$G$9!#

tandy_60dpi %I%i%$%P$O9 %T%s 60dpi $N Tandy DMP-130 %7%j!<%:MQ$G$9!#

dpu414 %I%i%$%P$O Seiko DPU-414 46G.%W%j%s%?MQ$G$9!#

nec_cp6 KO%*%W%7%g%s$,$"j^$9:

=q<0:

```
set terminal nec_cp6 {monochrome | colour | draft}
```

%G%U%)%k%HGOGr9u (monochrome) $G$9!#

dpu414 KO%*%W%7%g%s$,$"j^$9:

=q<0:

```
set terminal dpu414 {small | medium | large} {normal | draft}
```

%G%U%)%k%H$O medium (= %U%)%s%H%5%$%:) $G normal $G$9!#$*$9$9$aNAH_9go;$O!"**medium normal** $+**small draft** $G$9!#

Excl

Cm0U: 8E$$ (legacy) =PNO7A<0$G$9!#**excl** %I%i%$%P$O EXCL %l!<%6!<%W%j%s%?!<$d 1590 Nh$&$J Talaris %W%j%s%?$r%5%]!<%H7^$9!#%*%W%7%g%s$O"j^$;$s!#

Fig

fig %I%i%$%P$O Fig %0%i%U%#%C%/8@8lGN=PNO$r@8@.$7$^$9!#

=q<0:

```
set terminal fig {monochrome | color}
                 {landscape | portrait}
                 {small | big | size <xsize> <ysize>}
                 {metric | inches}
                 {pointsmax <max_points>}
                 {solid | dashed}
                 {font "<fontname>{,<fontsize>}"}
                 {textnormal | {textspecial texthidden textrigid}}
                 {{thickness|linewidth} <units>}
                 {depth <layer>}
                 {version <number>}
```

monochrome $H **color** $O 2hA|$rGr9uK9k+**color** K9k+$r7hDj$7$^$9!#**small** $H **big** $O!"%G%U%)%k%H$N **landscape** %b!<%IGO%0%i%U$r5x3 %$%s%AK9k+8x5 %$%s%A$K9k$+!"**portrait** %b!<%I$G$O3x5 %$%s%AK9k+5x8 %$%s%A$K9k$+$r7hDj7^$9!#**size** $OIA2hHC0O$r<xsize>*<ysize> $K@_Dj(JQ99) 7^$9!#3N>19g$NC10L$O!"**inches** $+**metric** $+$N@_DjKhCF$=$l$>$l%$%s%A$+%;%s%A%a!<%H%k$+$KJj$^$9!#3N@_Dj$O"xfig" GNJT=8KBP9$k%G%U%)%k%H$NC10LH7Fb;Hol$^$9!#

pointsmax <**max_points**> $O@^$l@~$N:GBgE@?t$r@_Dj7^$9!#

solid $O!"<B@~(solid) $N linestyle $,A4It;H$olF7^C?8e$G<+F0E*$K;Hol$kE@@~$N;HMQ$rM^@)$7!"JL$J7A$GI=<(7^$9!#

font $O!"%F%-%9%H%U%)%s%H%U%'!<%9L>$r<fontname> $K!"%U%)%s%H%5%$%:$r<fontsize> %]%$%s%H$K@_Dj$7$^$9!#**textnormal** $O%F%-%9%H%U%i%0$N@_Dj$r;w;C%H$7$F postscript %U%)%s%H$rA*Br$7!"**textspecial** $O%F%-%9%H%U%i%0$r LaTeX special $K@_Dj$7!"**texthidden**, **textrigid** O=l>$lL5I=<($N%F%-%9%H!"%9%1!<%j%s%0$5$l$J$$%F%-%9%HMQ$N%U%i%0$r@_Dj7^$9!#

depth $OA4$F$N@~$HJ8; zNsKBP9$k! "=E$JjK4X9k%G%U%)%k%H$N?<$5 (depth layer) $r@_Dj$7$^$9! #%G%U%)%k%H$N?<$5$O10 $G! ""xfig" $G%0%i%U$N>e$K2?$+$r>e=q$-9k$?$a$NM>CO$r; D7F$$$^$9! #

version $O@8@.$5lk fig =PNO$N=q<0%P! <%8%g%s$r@_Dj7^$9! #8=:_$O! "%P! <%8%g%s 3.1 $H 3.2 N_$,%5%]! <%H$5lF$$$^$9! #

thickness $O%G%U%)%k%H$N@~$NB@$5$r@_Dj$7! "; XDj5lJ1lP 1 KJj^$9! #B@$5$NJQ99$O! "**plot** %3%^%s%I$N **linetype** NCMK 100 G\$N?t$r2C$ (k3HG<B8=G-$^$9! #F1MM$K! "(%G%U%)%k%H$N?<5KBP9k) 3FIA2hMWAG$N?<$5NCMO <linetype> $K 1000 G\$N?t$r2C$ (k3HG@)8fG-$^$9! #hCF=$N?<$5$O <layer>+<linetype>/1000 KJ$j! "@~$NB@5O (<linetype>%1000) /100 HJj^9,! "$=$NCM$, 0 $N>l9g $O%G%U%)%k%H$N@~$NB@$5KJj^$9! #**linewidth** $O**thickness** $HF15A$G$9! #

plot %3%^%s%I$N **point** %9%?%$%kKh$kIA2h$N:]$N5-9f$r **fig** %I%i%$%P$GDI2C9k3HbG$-$^$9! #5-9f$N; XDj$O (**pointtype** $NCM) % 100 $N50 0J>e$NCM$,; H$o$l! "$=NEIjDV7NG;5O <pointtype> % 5 NCMG@)8f$7! "$=$NNX3T$O9u (<pointtype> % 10 < 5 $N>l9g) $^$?$O8=:_$N?'$G=q$+l^$9! #MxMQ2DG=$J5-9f$O0J2<$NDLjG$9! #

```
50 - 59:  1_
60 - 69:  @5J}7A
70 - 79:  $R$77A
80 - 89:  >e8~$-$N;03Q7A
90 - 99:  2<8~$-$N;03Q7A
```

3liN5-9fNBg-5O%U%)%s%HNBg-5H4X78$7$F$$$^$9! #%G%U%)%k%H$G$O5-9f$N?<5O! "NI$$% (%i! <%P! <$r<B8=$9k?aK! "@~$N?<$5hj1 $@$1>.$5$$CMKJCF$$$^$9! #<pointtype> $, 1000 hjBg$-$$>l9g! "?<5O <layer> +<pointtype>/1000-1 KJj^$9! #<pointtype>%1000 $, 100 hjBg$-$$>l9gEIjD$V$7?' $O (<pointtype>%1000)/100-1 KJj^$9! #

M-8zJEIjDV$7?' (1 $+$i9) $O! "9u! "@D! "NP! "?e?'! "@V! "; g! "2+! "Gr! "0E$$@D (Gr9u%b! <%IGO1 $+$i6 $^$G$O9u$G7 $+$i9 $^$G$OGr) $G$9! #

<linetype> $H <pointtype> $N>\:Y$K$D$$$F$O! "0J2<; 2>H: **plot with (p. 106)**! #

big %*%W%7%g%s$O0JA0$N%P! <%8%g%s$N **bfig** %I%i%$%P$NBeMQIJ$G9,! "3N%I%i%$%P$O:#Ob$&%5%]! <%H$5lF$$$^$;$s! #

Nc:

```
set terminal fig monochrome small pointsmax 1000  # %G%U%)%k%H

plot 'file.dat' with points linetype 102 pointtype 759
```

$O! "2+?'$GEIjDV5l?1_$r@8@.$7! "$=$l$iNX3T$OI}1 $N@D$$@~$G$9! #

```
plot 'file.dat' using 1:2:3 with err linetype 1 pointtype 554
```

$O9u$$@~Kh$k% (%i! <%P! <$H@VGEIjDV5l$?1_$r@8@.7^$9! #$3$N1_$O@~hj$b1 AX$@$1>e$KJj$^$9 (%G%U%)%k%HGO?<5O9)! #

1_$N>e$K% (%i! <%P! <$r=q$/KO0J2<Nh$&$K7F/$@$5$$! #

```
plot 'file.dat' using 1:2:3 with err linetype 1 pointtype 2554
```

Ggi

3l$O GGI (General Graphics Interface) %W%m%8%'%/%HMQ$N8E$$ (legacy) =PNO%I%i%$%P$G$9! #

=q<0:

```
set terminal ggi [acceleration <integer>] [[mode] {mode}]
```

X GO! "%&%#%s%I%&%^%M! <%8%c$N5!G=$r; HCF%&%#%s%I%&$N%5%$:$rJQ99$9k3HOG-$^$;s,! "%b! <%I$r mode %*%W%7%g%s$r; HCF! "Nc$ ($P0J2<$Nh&$KJQ99$9k3H,G-$^$9:

- V1024x768
- V800x600
- V640x480
- V320x200

B>$N%b! <%I$K$D$$F$O! "ggi (libggi) $N%I%-%e%a%s%H$r; 2>H7F$/$@$5$$! #%-! <%o! <%I **mode** $CDI2C$7Fb7J$/$F$b7k9=$G$9! #libggi $N%^%K%e%"%k%Z! <%8$G>R2p5l$F$$kh&$K! "4D6-JQ?t$G%?! <%2%C%H$rA*Br$9k3Hr$*4+$a7^$9! #X >e$G DGA $r; H$&Ji! "Nc$ ($P0J2<$Nh&K7F/$@$5$$! #

```
bash> export GGI_DISPLAY=DGA
csh>  setenv GGI_DISPLAY DGA
```

acceleration $O! "AjBPE*$J%]%$%s%?F0:n%$%Y%s%H$rH/@8$9$k%?! <%2%C%H(Nc$ ($P DGA) GN$_; HMQ5l! "@5$N@0?t$GAjBPE*$J5wN%KBP9$kG\N((@Q0x; R) $rI=$7$^$9! #%G%U%)%k%H$N acceleration $O7 $G$9! #

Nc:

```
set term ggi acc 10
set term ggi acc 1 mode V1024x768
set term ggi V1024x768
```

Gif

=q<0:

```
set terminal gif
       {{no}enhanced}
       {{no}transparent} {rounded|butt}
       {linewidth <lw>} {dashlength <dl>}
       {tiny | small | medium | large | giant}
       {font "<face> {,<pointsize>}"} {fontscale <scale>}
       {size <x>,<y>} {{no}crop}
       {animate {delay <d>} {loop <n>} {{no}optimize}}
       {background <rgb_color>}
```

PNG, JPEG, GIF 2hA|$O! "30It%i%$%V%i%jlibgd $r; H$C$F@8@.$5l^$9! #GIF $NIA2h$O! "ImageMagick %Q%C%1! <%8$N%=%U%H'display' K=$N=PNO$r0J2<Nh$&$K%Q%$%WGEO9$3HGBPOCE*$KI=< (5;$k3H$,G-$^$9:

```
set term gif
set output '| display gif:-'
```

<!$NIA2h%3%^%s%I$+iN=PNO$O! "display %&%#%s%I%&>e$GBPOCE*$K <space> rBGD3H$G8+$k3H$,G-$^$9! #8=:_$NIA2h$r%U%!%$%k$KJ]B8$9kK$O! "display %&%#%s%I%&$G:8%/%j%C%/$7! "**save** $rA*Br$7F/$@$5$$! #

transparent $O! "%I%i%$%P$KGX7J?'$NF)L@2=(transparent) $r9T$&h&; X< (7^$9! #%G%U%)%k%H$O **notransparent** $G$9! #

%*%W%7%g%s **linewidth** $H **dashlength** $O3HBgN($G! "IA2h5lk9YF$N@~$K1F6A$rM?$ ($^$9! #9JoA! "3liOMM! 9$JIA2h%3%^%s%I$GMW5a5lkCMK$+$1; ;5l$^$9! #

butt $O@~J,$NIA2h$G! "$=$NC<$NE@GNO_$@$7$r5/$3$5$J$$IA2h%a%=%C%I$r; H$&h&%I%i%$%P$K; X< (7^$9! #$3$N@_Dj$O! "@~I}$, 1 hjBg$-$$>19gKN$_M-8z$G$9! #$3$N@_Dj$O! "?eJ?@~! "?bD>@~$NIA2h$N>19g$KM-MQ$G7g$&! #%G%U%)%k%H$O **rounded** (4]$a) $G$9! #

%U%)%s%H$NA*Br$N>\:Y$O! "$d$dJ#; ($G$9! #0J2<$KF1$80ULl#$r; }$D4JC1$JNc$r< ($7$^$9:

```
set term gif font arial 11
set term gif font "arial,11"
```

hj>\$7$$>pJsKD$$F$O! "**fonts** $N2<$N3:Ev9k%;%/%7%g%s$r; 2>H$7F/$@$5$$! #

%*%W%7%g%s **animate** O"J?$N<j8$5K"$k gd %i%$%V%i%j$,%"%K%a! <%7%g%s gif $N:n@.$r%5%]! <%H9k>19gKN$_M-8z$G$9! #:n@.$5lk2hA|$NI=<(4V3V$O! "1/100 ICC10L$G; XDj$G$-$^$9(%G%U%)%k%H$O5)! #$?$@$7<B:]$NI=<(4V3V$O! "; HMQ$9$kI=<(%=%U%H$KhC$FJQ2=$7$^$9! #%"%K%a! <%7%g%s$N7+$jUV$72s?t$b; XDjG-$^$9$, ! "%G%U%)%k%H$O0 G=lOL58B$N7+$jUV7r0ULl#7^$9! #%"%K%a! <%7%g%s2hA|Ns$O! "<!$N **set output** $+**set term** %3%^%s%I$KhC$F=*N;$7$^$9! #%*%W%7%g%s **optimize** $O! "%"%K%a! <%7%g%s$K4X9k2 DN8z2L$r; }$A$^$9! #

1) %"%K%a! <%7%g%sA4BNrDL8$FC10l$N%+%i! <%^%C%W$,; HMQ$5l^$9! #$3lO%"%K%a! <%7%g%s$NA4$F$N%U%l! <%`$G; HMQ$5$l$kA4$F$N?'$,:G=i$N%U%l! <%`$GDj5A5l$F$$kI,MW$,"$j$^$9! #

2) 2DG=JiP! "8D! 9$N%U%l! <%`$G0l$DA0$N%U%l! <%`$H0c$&ItJ,$N$_$,%"%K%a! <%7%g%s%U%!%$%k$KJ]B8$5$l$^$9! #3l$O%U%!%$%k%5%$%:$r>.5/7F$/$l$^$9$,! "F)L@2=5!G=$r; HMQ7F$$k>19gKOF/$+$J$$$+b7l^$;$s! #

3l$iN>J}$N:GE,2=Oh$j>.$5$$%5%$%:$N=PNO%U%!%$%k$r:nm&H9kbNG9,!"B?J,$=$N8:>/NL$O!"D9$$%"%K%a!<%7%g%s$+$^$?$O%U%l!<%`%5%$%:$,$H$F$b>.$5$J>19g$K$N$_0UL#$,$"$kDxEY$G$7$g$&!#%*%W%7%g%s **nooptimize** $O$3$l$i$N8z2L$r$$$:$l$bL58z$K$7$^$9!#3F%U%l!<%`$O!"8D!9$N%+%i!<%^%C%W(%W%i%$%Y!<%H%+%i!<%^%C%W)$r;H$$!"4]4HJ]B8$5$l$F$$$-$^$9!#0l$DCm0U$7F*$-$^9,!":GE,2=5l$F$$$J$$%"%K%a!<%7%g%s%U%!%$%k$O30It%f!<%F%#%j%F%#$r;H$C$F8e=hM}$9k3H,G-$^$9$7!"$=$N8e=hM}$KhC$F gnuplot $N:GE,2=$hjb>.5J%U%!%$%k$,:nilk+b7l^$;$s!#%G%U%)%k%HGO **nooptimize** $G$9!#

=PNOIA2h%5%$%:<x,y>$O%T%/%;%kC10l$GM?$($^$9!#%G%U%)%k%H$O640x480 $G$9!#0J2<$b;2>H: **canvas (p. 25)**, **set size (p. 168)**!#IA2h=*N;8e$NC<$NM>Gr$O!"%*%W%7%g%s **crop** $G<h$j=|$/$3H,G-!"$=$N7k2LH7F=$N2hA|%5%$%:$O>.$5$/$Jj^$9!#%G%U%)%k%H$O **nocrop** $G$9!#

Nc

```
set terminal gif medium size 640,480 background '#ffffff'
```

3NNc$O medium %5%$%:$N!"Bg$-$5JQ99ITG=$G2sE>G-$J$$$AH$_9~$_%U%)%s%H$r;HMQ$7!"F)L@2=5l$J$$$GX7J?'H7$FGr(16?J?t$N24bit RGB)$r;HMQ$7$^$9!#

```
set terminal gif font arial 14 enhanced
```

3l$O!"'arial'$H$$$&%U%'!<%9L>$N%9%1!<%i%V%k%U%)%s%H$r8!:w$7!"%U%)%s%H%5%$%:$r14pt $K@_Dj$7$^$9!#%U%)%s%H$N8!:w$,INh&$K9T$olk$+$K$D$$F$O0J2<;2>H: **fonts (p. 37)**!#3l$O%9%1!<%i%V%k%U%)%s%H$JNG!"3HD%J8;zNs=hM}%b!<%I$,;HMQ$G$-$^$9!#

```
set term gif animate transparent opt delay 10 size 200,200
load "animate2.dem"
```

3l$O!"%"%K%a!<%7%g%s GIF %U%!%$%k$N:n@.MQ$K gif=PNO7A<0$r3+$-$^$9!#%"%K%a!<%7%g%sNs$N8D!9$N%U%l!<%`$O!"I8=`%G%b%U%!%$%k=8K"$k%/%j%W%H%U%!%$%k animate2.dem KhCF@8@.5l$^$9!#

Gpic

gpic %I%i%$%P$O FSF (the Free Software Foundations) $N"groff" %Q%C%1!<%8$NCf$N GPIC 7A<0$N%0%i%U$r@8@.$7$^$9!#%G%U%)%k%HNBg-5O5 x 3 %$%s%A$G$9!#%*%W%7%g%s$O8GE@$K4X$9kbNN_$G!"%G%U%)%k%H$G$O(0,0)$G$9!#

=q<0:

```
set terminal gpic {<x> <y>}
```

$3$3$G **x** $H **y** $NC10l$O%$%s%A$G$9!#

C1=c$J%0%i%U$r@07A9kKO0J2<Nh$&$K7^$9!#

```
groff -p -mpic -Tps file.pic > file.ps
```

pic $+$i$N=PNO$O%Q%$%W$G eqn KEO9$3$HbG$-$kNG!"'set label'$H **set {x/y}label** %3%^%s%I$G%0%i%U$KJ#;($J4X?t$N<0$rF~$lk3Hb2DG=$G$9!#Nc$($P!"

```
set ylab '@space 0 int from 0 to x alpha ( t ) roman d t@'
```

H9lP!"0J2<$N%3%^%s%I$KhC$F y<4$Ke:No$J@QJ,$,8+=P$7IU$1$5$l$^$9!#

```
gpic filename.pic | geqn -d@@ -Tps | groff -m[macro-package] -Tps
    > filename.ps
```

3Nh&K7$F:n$il??^$OJ8=q$Ke:NoKEvFO^kh$&$K?-=L9k3H$,$G$-$^$9!#pic 8@8l$O4JC1$KM}2r$G$-$kNG!"I,MWJiMF0W$K%0%i%U$rD>@\JT=8G-$^$9!#**gnuplot** $G:n$ilk pic %U%!%$%k$NA4FN:BI8$O x+gnuplotx, y+gnuploty $N7A$GM?$($il^$9!#%G%U%)%k%H$G$O x, y NCMO0 $G$9!#$$/D+$N%U%!%$%kKBP7F=$N x,y $r0 $H@_Dj$7$F$$$k9T$r:o=|$9lP!"0J2<Nh$&$K7FJ#?t$N%0%i%U$r0lDN?^NCfKF~lF7^$&$3HbG-$^$9(%G%U%)%k%HNBg-5O5.0x3.0 %$%s%A):

```
.PS 8.0
x=0;y=3
copy "figa.pic"
x=5;y=3
copy "figb.pic"
x=0;y=0
copy "figc.pic"
x=5;y=0
copy "figd.pic"
.PE
```

3l$O!"2#$K2 $D!"=D$K2 D:DJBs$@4 DN%0%i%U$+$iJk!"8 %$%s%A$N9-5N?^$r@8@.7^$9!#

0J2<Nh$&$Kx, y $r;XDj$9k3HG$bF1$8$3$H$,$G$-$^$9!#

```
set terminal gpic x y
```

Grass

Cm0U: 8E$$(legacy) =PNO7A<0$G$9!#**grass** %I%i%$%P$OGRASS COM}>pJs%7%9%F%`$N%f!<%6$, **gnuplot** $rMxMQ$9$k$3$H$r2DG=$K$7$^$9!#>\$7$$>pJs$K$D$$$F$Ograssp-list@moon.cecer.army.mil $KO"Mm$r<h$C$F$/$@$5$$!#%Z!<%8$OGRASS %0%i%U%&%#%s%I%&$N8=:_$N%U%l!<%`$K=q$+l^$9!#%*%W%7%g%s$O$"$j$^$;$s!#

Hp2623a

hp2623a %I%i%$%P$O%R%e!<%l%C%H%Q%C%+!<%I(Hewlett Packard) HP2623A $r%5%]!<%H$7$^$9!#%*%W%7%g%sO"j^$;$s!#

Hp2648

hp2648 %I%i%$%P$O%R%e!<%l%C%H%Q%C%+!<%I(Hewlett Packard) HP2647 $HHP2648 $r%5%]!<%H$7$^$9!#%*%W%7%g%sO"j^$;$s!#

Hp500c

Cm0U: gnuplot $,–with-bitmap-terminals $G:n$il?>l9gN_;H$($^$9!#**hp500c** %I%i%$%P$O%R%e!<%l%C%H%Q%C%+!<%I(Hewlett Packard) <R$NHP DeskJet 500c $r%5%]!<%H$7$^$9!#3lKO2rA|EY$H05=L$K4X9k%*%W%7%g%s$,$"j^$9!#

=q<0:

```
set terminal hp500c {<res>} {<comp>}
```

$3$3$G**res** $O75, 100, 150, 300 $N$$$:l+$N2rA|EY(DPI; dots per inch) $G!"**comp** $O"rle" $+"tiff" $G$9!#B>$N@_Dj$r9kH=lO%G%U%)%k%HNCMKJj$^$9!#%G%U%)%k%H$O75 dpi $G05=L$OJ7$G$9!#9b2rA|EYGN%i%9%?%i%$%:$O$?$/5s$N%a%b%j$rI,MWH7$^$9!#

Hpgl

hpgl %I%i%$%P$OHP7475A %W%m%C%?Nh$&$JAuCVMQ$NHPGL =PNO$r9T$J$$$^$9!#$3lO2 DN@_Dj2DG=$J%*%W%7%g%s$r;}A^$9:$=lO%Z%s$N?t$H**eject** %*%W%7%g%s$G!"'"eject" $OIA2h8e$K%W%m%C%?%Z!<%8$rGS=P$5$;$kh&;X<($7%G%U%)%k%H$G$O6 DN%Z%s$r;H$$!"IA2h8e$N%Z!<%8$NGS=P$O9T$J$$$^$;$s!#

9q:]E*J8;z%;%C%HISO-8859-1 $HCP850 $r**set encoding iso_8859_1** $d**set encoding cp850** $GG'<1$5$;$k3H$,$G$-$^$9(>\:Y$O!"0J2<;2>H:**set encoding (p. 127)**)!#

=q<0:

```
set terminal hpgl {<number_of_pens>} {eject}
```

0J2<$N@_Dj

```
set terminal hpgl 8 eject
```

$O!"0JA0$N **hp7550** %I%i%$%P$HF1Ey$G!"@_Dj

```
set terminal hpgl 4
```

$O!"0JA0$N **hp7580b** %I%i%$%P$HF1Ey$G$9!#

pcl5 %I%i%$%P$O!"Hewlett-Packard Designjet 750C!"Hewlett-Packard Laserjet III, Hewlett-Packard Laserjet IV Nh$&$J%W%m%C%?$r%5%]!<%H$7$^$9!#$3$1$O<B:]$K$OHPGL-2 $r;HMQ$7$F$$$kNG9,!"AuCV4V$GL>A0$N>WFM$,$"j^$9!#$3$N%I%i%$%PKO$$/D+$N%*%W%7%g%s$,$"$j$^$9$,!"$=1i$O0J2<$K<(7?=g=x$G;XDj$7J1lP$$$1$^$;$s:

=q<0:

```
set terminal pcl5 {mode <mode>} {<plotsize>}
    {{color {<number_of_pens>}} | monochrome} {solid | dashed}
    {font <font>} {size <fontsize>} {pspoints | nopspoints}
```

<mode> $O**landscape** $+**portrait** $G$9!#<plotsize> $O%0%i%U$NJ*M}E*$JIA2h%5%$%:$G!"$=1O0J2<$N&$A$N$$:1+$G$9:**letter** $OI8=`$N(8 1/2" X 11") =PNO!"**legal** $O(8 1/2" X 14") =PNO!"**noextended** $O(36" X 48") =PNO(letter %5%$%:Hf)!"**extended** $O(36" X 55") =PNO($[$\legal %5%$%:Hf)!"**color** $OJ#?t$N%Z%s(9JoA%+%i!<) IA2hMQ$G<number_of_pens> $O%+%i!<=PNO$G;HMQ$5$1$k%Z%s$NK\?t(9JoA?'?t) $G$9!#**monochrome** $O1K\$N%Z%s(Nc$($P9u)$NIA2h$G$9!#**solid** $OA4$F$N@~$r<B@~GIA-!"**dashed** $O0[$J$kE@@~$d:?@~%Q%?!<%s$G@~$rIA$-J,$1$^$9!#<font> $O**stick**, **univers**, **cg_times**, **zapf_dingbats**, **antique_olive**, **arial**, **courier**, **garamond_antigua**, **letter_gothic**, **cg_omega**, **albertus**, **times_new_roman**, **clarendon**, **coronet**, **marigold**, **truetype_symbols**, **wingdings** $N$$:1+$G$9!#<fontsize> $O%]%$%s%HC10LGN%U%)%s%HNBg-5G$9!#E@$N<cN`(point type) $O!"**nopspoints** $r;XDj$9$k$3$H$GI8=`E*$J%G%U%)%k%H$N@_Dj$+$iA*BrG-kh$&$KJj$^$9$,!"**pspoints** $r;XDj$9kHpostscript terminal $HF1$8E@$N<cN`$N@_Dj$+$iA*BrG-kh$&$KJj$^$9!#

$3$1iN%*%W%7%g%s$N$$/D+NAH_9~$^$1$?%5%]!<%H$O!"%W%j%s%?$K0MB8$9k3HKCm0U7F$/$@$5$$!#Nc$($PA4FN%U%)%s%H$O62$i$/HP Laserjet IV GO5%]!<%H$5$1$F$$$kG7g&$,!"HP Laserjet III $HDesignjet 750C GO2,3(Nc$($Punivers, stick) $,%5%]!<%H$5$1$F$$$kN_G7g&!#$^$?!"laserjet $OGr9u$N=PNOAuCVJN$G!"$=1iGO%+%i!<$bL@$i$+$K;H$($^$;$s!#

%G%U%)%k%H: landscape, noextended, color (6 pens), solid, univers, 12
point, nopspoints

pcl5 GO9q:]E*J8;z%;%C%H$O%W%j%s%?$G07o1$^$9NG!"%F%-%9%HJ8;zNs$KE,@Z$JJ8-bit J8;z%3!<%I$rF~$1k@1G!"o6o6**set encoding** $G<YKb$r9kI,MWO"j^$;$s!#

HPGL %0%i%U%#%C%/$OB?$/$N%=%U%H%&%'%"%Q%C%1!<%8$G<h$j9~$`3H$,2DG=$G$9!#

Hpljii

Cm0U: gnuplot $,–with-bitmap-terminals $G:n$i1?>19gN_;H$($^$9!#**hpljii** %I%i%$%P$OHP Laserjet Sries II %W%j%s%?$r!"**hpdj** %I%i%$%P$OHP DeskJet 500 %W%j%s%?$r%5%]!<%H7^$9!#$3$1$i$N%I%i%$%PGO!"2rA|EY$NA*Br$,2DG=$G$9!#

=q<0:

```
set terminal hpljii | hpdj {<res>}
```

$3$3$G**res** $O75, 100, 150, 300 $N$$:1+$N2rA|EY(DPI; dots per inch) $G!"%G%U%)%k%H$O75 $G$9!#9b2rA|EYGN%i%9%?%i%$%:$O$?$/5s$N%a%b%j$rI,MWH7$^$9!#

hp500c %I%i%$%P$O**hpdj** H[$\F1$8G9$,!"**hp500c** $O2C$($F%+%i!<$H05=L$b%5%]!<%H$7$F$$$^$9!#

Hppj

Cm0U: gnuplot $,–with-bitmap-terminals $G:n$i1?>19gN_;H$($^$9!#**hppj** %I%i%$%P$OHP PaintJet $HHP3630 %W%j%s%?$r%5%]!<%H7^$9!#%*%W%7%g%s$O%U%)%s%H$rA*Br$9kbN,$"$kN_$G$9!#

=q<0:

```
set terminal hppj {FNT5X9 | FNT9X17 | FNT13X25}
```

Cf4V%5%$%:%U%)%s%H (FNT9X17) $,%G%U%)%k%H$G$9!#

Imagen

imagen %I%i%$%P$O Imagen %l!<%6%W%j%s%?$r%5%]!<%H$7$^$9!#3l$O1 %Z!<%8$KJ#?t$N%0%i%U$rG[CV9k$3 Hb2DG=$G$9!#

=q<0:

```
set terminal imagen {<fontsize>} {portrait | landscape}
                    {[<horiz>,<vert>]}
```

fontsize $O%G%U%)%k%H$G$O12 %]%$%s%H$G!"%l%$%"%&%H$N%G%U%)%k%H$O**landscape** $G$9!#<**horiz**> $H<**vert**> $O%0%i%U$r2#J}8~$H=DJ}8~$K2?NsCV$/$+$r;XDj$7$^$9!#3liN%G%U%)%k%H$O1 $G$9!#

Nc:

```
set terminal imagen portrait [2,3]
```

3l$O"1 %Z!<%8$K6 DN%0%i%U$r2#$K2 Ns!"=D$K3 Ns!"=DCV$-(portrait) $GG[CV$7$^$9!#

Jpeg

=q<0:

```
set terminal jpeg
       {{no}enhanced}
       {{no}interlace}
       {linewidth <lw>} {dashlength <dl>} {rounded|butt}
       {tiny | small | medium | large | giant}
       {font "<face> {,<pointsize>}"} {fontscale <scale>}
       {size <x>,<y>} {{no}crop}
       {background <rgb_color>}
```

PNG, JPEG, GIF 2hA|$O!"30It%i%$%V%ijlibgd $r;H$C$F@8@.$5l^$9!#BgDq$N>19g!"C10l$NIA2h$J$iPNG $NJ}$,8~$$F$$F!"GIF $O%"%K%a!<%7%g%sMQ$G$9!#$=li$OB;<:$N>/$J$$2hA|7A<0$G!"B;<:$N$"$kJPEG 7A<0 hj$b>e<A$N2hA|$r@8@.$7$^$9!#3l$O!"FC$K%Y%?EIjDY7?GX7JGN%+%i!<$N<B@~!"$D$^$j$^$5$Kgnuplot $,@8@.$9$kE57?E*$J2hA|KBP7FOCm0U9Y$-$3HG$9!#

%*%W%7%g%s **interlace** $O!"%W%m%0%l%C%7%VJPEG 2hA|$r@8@.$7$^$9!#%G%U%)%k%H$O **nointerlace** $G$9!#

%*%W%7%g%s **linewidth** $H **dashlength** $O3HBgN($G!"IA2h5lk9YF$N@~$K1F6A$rM?$($^$9!#9JoA!"3liOMM!9$JIA2h%3%^%s%I$GMW5a5lkCMK$+$1;;5l$^$9!#

butt $O@~J,$NIA2h$G!"$=$NC<$NE@GNO_$@$7$r5/$3$5$J$$IA2h%a%=%C%I$r;H$&h&%I%i%$%P$K;X<(7^$9!#$3$N@_Dj$O!"@~I}$,1 hjBg$-$$>19gKN$_8z$G$9!#$3$N@_Dj$O!"?eJ?@~!"?bD>@~$NIA2h$N>19g$KM-MQ$G 7g$&!#%G%U%)%k%H$O **rounded** (4]$a) $G$9!#

%U%)%s%H$NA*Br$N>\:Y$O!"$d$dJ#;($G$9!#0J2<$KF1$80UL#$r;}$D4JC1$JNc$r<($7$^$9:

```
    set term jpeg font arial 11
    set term jpeg font "arial,11"
```

hj>\$7$$>pJsKD$$F$O!"**fonts** $N2<$N3:Ev9k%;%/%7g%s$r;2>H$7F/$@$5$$!#

=PNOIA2h%5%$%:<x,y> $O%I%/%;%kC10l$GM?$($^$9!#%G%U%)%k%H$O640x480 $G$9!#0J2<$b;2>H **canvas (p. 25)**, **set size (p. 168)**!#IA2h=*N;8e$NC<$NM>Gr$O!"%*%W%7%g%s **crop** $G<h$j=|$/$3H,G-!"$=$N7k2LH7F=$N2hA|$5%$%:$O>.5/Jj$^$9!#%G%U%)%k%H$O **nocrop** $G$9!#

Kyo

kyo $H **prescribe** $N%I%i%$%P$OKyocera (5~%;%i) %l!<%6!<%W%j%s%?$r%5%]!<%H$7$^$9!#3NN><T$NM#0l$N0c $$O!"**kyo** $, "Helvetica" $r;H$&NKBP7F **prescribe** $, "Courier" $r;H$&3H$@$1$G$9!#%*%W%7%g%s$O" j^$;$s!#

Latex

=q<0:

```
set terminal {latex | emtex} {default | {courier|roman} {<fontsize>}}
             {size <XX>{unit}, <YY>{unit}} {rotate | norotate}
```

%G%U%)%k%HGO! "$=$1rKda9~$ 'U8=q$N%U%)%s%H$N@_D j$r0z$-7Q$.$^9,! "Beoj$K Courier (cmtt) $+ Roman (cmr) %U%)%s%H$N$$$:1+K9$k%*%W%7%g%s$,;H$ ($^$9! #$=$N:]$O%U%)%s%H%5%$%:$b;XDj$G$-$^$9! #$"J?$N DVI %I%i%$%P$,G$0U$N%5%$%:$N%U%)%s%H$r:n$j=P$9$3$H$,$G$-$J$>l9g(Nc$ ($P dvips)! "I8=`E*$J 10, 11, 12 %]%$%s%H%5%$%:GJsH$+$7$N$$G$/$@5! #

METAFONT %f!<%6XN7Y9p: METAFONT $OL/$J%5%$%:$O9%$_$^$;$s! #

LaTeX $K4X$9$kA4$F$N%I%i%$%P$OJ8;zNs$NG[CV$N@)8f$KFCJL$JJ}K!$rDs6!7^$9: '{' $G;O$^$kJ8;zNs$O! "'}' GJD8kI,MW,$"$j$^$9$,! "$=$NJ8;zNsA4BN$,?eJ?J}8~Kb?hD>J}8~Kb%;%s%?%j%s%0$5$l$^$9! #[' $G;O$^$kJ8;zNs$N>l9g$O! "0lCV$N;XDjr9$kJ8;zNs(t,b,l,r N&$A2 D^$G) $,B3$-! "<!$K']{'! "J8;zNsK\BN! "$G:G8e$K'}' H7$^9,! "3NJ8;zNs$O LaTeX $, LR-box H7$F@07A7^$9! #'\rule{}{}' $r;H$(P5iKNI$$0lCV9go;$,2DG=$G7g$&! #

?t$"$kCf$G! "E@(point) $O! "LaTeX $N%3%^%s%I"\Diamond" $H"\Box" $r;H$CFIA+1^$9! #$3$1$i$N%3%^%s%I$O8=:_$O LaTeX2e $N%3%"$K$OB8:_$;$:! "latexsym %Q%C%1!<%8$K4^$^$l$F$$$^9,! "3N%Q%C%1!<%84pK\G[I[$N0lIt$G$"$j! "hC$FB?$/$N LaTeX $N%7%9%F%`$N0lItKJCF$$$^$9! #$3$N%Q%C%1!<%8$r;H$&$3HrK:1J$$$G$/$@$5$$! #B>$NE@<o$O! "amssymb %Q%C%1!<%8$N5-9f$r;HMQ7^$9! #

%G%U%)%k%H$NIA2h%5%$%:$O 5 inch !_3 inch G9$,! "%*%W%7%g%s **size** G3$1$r%f!<%6$N4uK>$9kbNKJQ99G-$^$9! #$^$?! "%G%U%)%k%HGO X $H Y $N%5%$%:$NC10L$O inch G9$,! "B>$NC10L$r;H$&3H$b2DG=$G$9(8=:_$O cm N_)! #

'rotate' $r;XDj$9kH! "J8;zNs$N2sE>! "FC$Ky<4$N%i%Y%k$N2sE>$,2DG=$KJj$^$9 (graphics $+ graphicx %Q%C%1!<%8$,I,MW)! #$=$N>l9g! "y<4%i%Y%k$r' @Q$_>e$27?' K9$k;EAH$_$OCd;_$5$1$^$9! #

Nc: 8+=P7N0lCV9go;$K4X$7$F: gnuplot $N%G%U%)%k%H(BgDq$=1JjKJk$,! "$=$&$G$J$$$3Hb$"$k):

```
set title '\LaTeX\ -- $ \gamma $'
```

?eJ?J}8~Kb?hD>J}8~Kb%;%s%?%j%s%0:

```
set label '{\LaTeX\ -- $ \gamma $}' at 0,0
```

0lCV$rL@<(E*$K;XDj(>e$K9g$o$;$k):

```
set xlabel '[t]{\LaTeX\ -- $ \gamma $}'
```

B>$N8+=P$7-L\@9jND9$$8+=P7KBP9k8+@Q$j:

```
set ylabel '[r]{\LaTeX\ -- $ \gamma $\rule{7mm}{0pt}}'
```

Linux

linux %I%i%$%P$K$O;XDj$9$k%*%W%7%g%s$O2?b"j^$;$s! #$=$l$O%G%U%)%k%H$N%b!<%IMQ$K4D6-JQ?t GSVGAMODE $r;2>H$7$^$9! #b7$=$l$,@_Dj$5lF$$$J1l$P 1024x768x256 $r%G%U%)%k%H$H7F;HMQ7^9,! "$=$l$,$G$-$J1l$P 640x480x16 (I8=`$N VGA) H7$^$9! #

Lua

3N **lua** =PNO%I%i%$%P$O! "BP>]@h;XDjIA2h%U%!%$%k$r:n@.9k$?$a$N! "3$0It Lua %9%/%j%W%HHNAH$_9g$o$;$G5!G=7^$9! #8=:_%5%]!<%H$7$F$$kBP>]$O! "TikZ -> pdflatex N_$G$9! #

Lua $K4X$9$k>pJs$O! "http://www.lua.org $G;2>H$G$-$^$9! #

=q<0:

```
set terminal lua <target name> | "<file name>"
                    {<script_args> ...}
                    {help}
```

%9%/%j%W%HMQ$K 'target name'! "$^$?$O0zMQIdIU$-$N 'file name' $,I,?\$G$9!#%9%/%j%W%H$N 'target name' $rM?$($?>19g$O! "3N=PNO7A<0$O! "'gnuplot-<target name>.lua" r^$:%m!<%+%k%G%#%l%/%H%j$GC5$7! "$=lK<:GT9k$H4D6-JQ?t GNUPLOT_LUA_DIR $rC5$7$^$9!#

$=$NB>N9YF$N0z?t$O! "A*Br7?%9%/%j%W%H$KI>2A$5$;$kh&$KM?$(il$^$9!#Nc$($P! "'set term lua tikz help' $O! "%9%/%j%W%H$=$l<+?H$K! "%9%/%j%W%HMQ$N%*%W%7%g%s$HA*Br$K4X$9$kDI2C$N%X%k%W$rI=<($5$;$^$9!#

Lua tikz

TikZ %I%i%$%P$O! "HFMQ Lua =PNO7A<0$N=PNO%b!<%I$N0lDG$9!#

=q<0:

```
   set terminal lua tikz
    {latex | tex | context}
    {color | monochrome}
    {dashed | solid}
    {nooriginreset | originreset}
    {nogparrows | gparrows}
    {nogppoints | gppoints}
    {picenvironment | nopicenvironment}
    {noclip | clip}
    {notightboundingbox | tightboundingbox}
    {background "<colorpec>"}
    {size <x>{unit},<y>{unit}}
    {scale <x>,<y>}
    {plotsize <x>{unit},<y>{unit}}
    {charsize <x>{unit},<y>{unit}}
    {font "<fontdesc>"}
    {{fontscale | textscale} <scale>}
    {nofulldoc | nostandalone | fulldoc | standalone}
    {{preamble | header} "<preamble_string>"}
    {tikzplot <ltn>,...}
    {notikzarrows | tikzarrows}
    {rgbimages | cmykimages}
    {noexternalimages|externalimages}
    {bitmap | nobitmap}
    {providevars <var name>,...}
    {createstyle}
    {help}
```

0z?tH7$FD9$5rI,MWH9k%*%W%7%g%sKD$$$F$O! "C10L$,;XDj5l$F$$$J1lP=$N%G%U%)%k%H$O'cm' HJj^$9!#$9YF$ND9$5KO! "0J2<$NC10L$r;HMQG-$^$9: 'cm', 'mm', 'in' $^$?$O'inch', 'pt', 'pc', 'bp', 'dd','cc' (LuaTeX in $O%$%s%A(1in=2.54cm), pt $O%]%$%s%H(72.27pt=1in), pc $O%Q%$%+(1pc=12pt), bp $O%S%C%0%]%$%s%H(72bp=1in), dd $ODidot %]%$%s%H(26.6dd=1cm), cc $OCicero (1cc=12dd))!#?tCM$HC10L$N4V$K6uGr$rF~lF$O$$$^$;$s!#

'monochrome' $O! "@~$N?'IU1rL58z$K$7! "EIjDY7$r3%?'3,D4$K@ZjBX($^$9!#

'solid' $O! "<B@~$N$_$r;HMQ7^$9!#

'originreset' $O! "TikZ 2h$N86E@$r! "IA2h$N:82<3Q$X0\F0$7$^$9!#3l$O$$/D+$NIA2h$r0lDN tikzpicture 4D6-Fb$K@0Ns$9kN$K;HMQ$G$-$^$9!#$3lO! "multiplot! "pm3d IA2hGO==J,KO%F%9%H5l$F$$$^$;$s!#

'gparrows' $O! "TikZ $,Ds6!$9$kLp(arrow) NBeojK! "gnuplot FbIt$NLp(arrow) $NIA2h4X?t$r;HMQ7^$9!#

'gppoints' $O! "TikZ $,Ds6!$9$kIA2h5-9f$NBeoj$K! "gnuplot FbIt$N5-9fIA2h4X?t$r;HMQ$7$^$9!#

'nopicenvironment' $O! "'tikzpicture' 4D6-$N@k8@$r<jF0$G9T$&$h$&$K9k?aK$=$l$r>JN,$7$^$9!#3lKh$j! "IA2h$NA08e$K! "$"$k PGF/TikZ %3!<%I$rD>@\F~lk3H$,$G$-$^$9!#

'clip' $O! "IA2h$rDj5A5l$?%-%c%s%P%9%5%:$G%/%j%C%T%s%0$7$^$9!#%G%U%)%k%H$O'noclip' $G! "$3lO%-%c%s%P%9%5%:$r4^$'>G>.$N6k7A3OOH$N$_$r@_Dj7^$9!#%*%W%7%g%s 'plotsize' $+'tightboundingbox' $r;HMQ$7?>19g$O6k7A3OOH$b%/%j%C%T%s%0$NH"$b$$:lb@_Dj7^$;$s!#

'tightboundingbox' $r@_Dj$9kH!"%*%W%7%g%s'clip' $OL5;k$5$l!":G=*E*$J6k7A3OOH$Otikz $,7W;;$9$k<+A3$J3OOHKJj^$9!#

'background' $O!"GX7J?'$r0z?t <colorspec> $G;XDj$7$?CM$K@_Dj7^$9!#<colorspec> $OM-8z$J?'L>$+!"'#' $N8e$K16?J?trCV/3%P%$%H$NRGB %3!<%I(Nc$($P'#ff0000' $O?@V) $N$$$:l+GJ1l$P$$1$^$;$s!#>JN,$7$?>l9g$OGX7J$OF)L@$KJj$^$9!#

%*%W%7%g%s'size' $O!"%-%c%s%P%9%5%$:$N2 DND9$5<x>, <y> rI,MWH7^$9!#%G%U%)%k%H$N%-%c%s%P%9%5%$:$O12.5cm x 8.75cm $G$9!#

%*%W%7%g%s'scale' $O!"%*%W%7%g%s'size' $HF1Ey$N5!G=G9$,!"$3$N<x>, <y> $OD9$5GOJ/!"3HBgN(KJj^$9!#

%*%W%7%g%s'plotsize' $O!"%-%c%s%P%9%5%$:NBeojKIA2hNN0h$N%5%$:$N@_Dj$r9T$$^9,!"$=$l$,DI>o$Ngnuplot $N5sF0$G$9!#$3$N%*%W%7%g%s$r;HMQ9k$H!"$o$:$+$KHsBP>N$J9o$_I}$r:nk+b7l^$;$s!#originreset' Nh$&$K!"3N%*%W%7%g%s$rmultiplot $dpm3d IA2h$G;HMQ9k$H!"ITET9g$J7k2L$r>7$/62l,$"$j$^$9!#$=$lKBeo$kJ}K!$H7F!"9YFNmargin $r0 $H@_Dj$7$?>e$G%*%W%7%g%s'noclip' $r;HMQ$9$k!"$H$$$&<jb"j^$9!#$3$N>l9g$O!"IA2hNN0h$OM?$($?%-%c%s%P%9%5%$:NBg-5KJj$^$9!#

%*%W%7%g%s'charsize' $O!";HMQ$9$k%U%)%s%H$N?eJ?5%$:$H?bD>5%$:$NJ?6QCMrI,MWH7^$9!#$"J?$NTeX J8=qFb$G3lrINh$&$K;HMQ9k$+$K$D$$F$O!"%5%s%W%k$H7F@8@.5l$k%9%?%$%k%U%!%$%k$r8+F/$@$5$$!#

%*%W%7%g%s'fontscale', 'textscale' KO!"L<\Hf%Q%i%a!<%?$,I,MW$G$9!#%0%i%UFb$N9YFNJ8;zNs$,$=$N=L<\Hf$G?-=L5l$^$9!#

%*%W%7%g%s'tex', 'latex', 'context' $O!"TeX =PNO7A<0$NA*Br$G$9!#%G%U%)%k%H$OLaTeX $G$9!#$=$N%9%?%$%k%U%!%$%krFI_9~$\'$K$O!"$"J?$NJ8=q%U%!%$%k$N@hF,$KBP1~9k9T$rF~$lF/$@$5$$:

```
\input gnuplot-lua-tikz.tex    % (plain TeX $N>l9g)
\usepackage{gnuplot-lua-tikz}  % (LaTeX $N>l9g)
\usemodule[gnuplot-lua-tikz]   % (ConTeXt $N>l9g)
```

'createstyle' $O!"$=$N%9%/%j%W%H$+$i TeX/LaTeX/ConTeXt %9%?%$%k%U%!%$%k$rF3$-=P$7!"$=li$rE,@Z$J%U%!%$%k$K=q$-=P$7$^$9!#

'fulldoc' $^$?$O'standalone' $O!"$=N^$^%3%s%Q%$%kG-kh$&$J40A4$JLaTeX J8=q$r@8@.7^$9!#

'preamble' $^$?$O'header' $O!"standalone %b!<%I$N%I%-%e%a%s%H$N%W%j%"%s%V%k$KDI2C LaTeX %3!<%I$r=PNO$9kN$K;H$$^$9!#

%*%W%7%g%s'tikzplot' GO!"%3%^%s%I'\path' NBeojK'\path plot' $r;HMQ$7$^$9!#$=$l$KB3$/@~<o(linetype)$N?tCM$N%j%9%H(<ltn>,...) O=lK1F6A5l$kIA2h@~$rDj5A7^$9!#$9YF$N@~<o$KBP$7!"0l$D$NIA2h%9%?%$%k,B8:_7^$9!#1 0J>e$N9YFN@~<oKBP7$F!"%G%U%)%k%H$NIA2h%9%?%$%k$O'smooth' $G$9!#

%*%W%7%g%s'tikzarrows' $r;HMQ$9kH!"%f!<%6$NDj5A$7$?gnuplot $NLp(arrow) $N%9%?%$%k$rTikZ NLpN%9%?%$%k$K3djEvF$^$9!#3l$O!"Lp$NDj5A$N3QNCMr'8mCF;HMQ$9k'3HGJ5lF$$$^$9!#Nc($P!"3Q'7' KhkLpN%9%?%$%k$OTikZ %9%?%$%k'gp arrow 7' $K3d$jEvFi$l!"B>$KM?$($il?CMO9YFL5;k5l$^$9!#%G%U%)%k%H$GTikZ =PNO7A<0$O9YFNLpKBP7$F%9%F%k%97A$NLp@h$r;HMQ$7$^$9!#%G%U%)%k%H$Ngnuplot Nh$&$K9kKO!"%*%W%7%g%s'gparrows' $r;HMQ$7F/$@$5$$!#

'cmykimages' GO!"%$%s%i%$%s2hA|$G!<%?$KBP7FRGB %+%i!<%b%G%kNBeojKCMYK %b%G%k$r;HMQ$7$^$9$,!"B>$N9YFN?'(@~$N?'$J$I) $O!"$=li$,!"Nc($Pxcolors %Q%C%1!<%8$G=hM}$5lkNG!"3N%*%W%7%g%s$NlF6A$r<u1^$;$s!#3N%*%W%7%g%s$O!"2hA|$,%$%s%i%$%s2hA|GJ$/30It%G!<%?$G"$k>l9g$OL5;k5l$^$9!#

%*%W%7%g%s'externalimages' $r;HMQ$9kH!"9YFN%S%C%^%C%W2hA|$r30It$NPNG 2hA|H7$F=q$-=P$7!"$=li$,J8=q$N%3%s%Q%$%k~$KFI$_9~$^lkh&KJj^$9!#ĐVI %U%!%$%k!"$*$hS=$N8e$NPostScript %U%!%$%k$r@8@.9kKO!"PNG %U%!%$%k$rEPS %U%!%$%k$K!"UL$KJQ49$9kI,MW,$"$j$^$9!#3l$ONc($PImageMagick $N**convert** $G9T$($^$9!#F)L@2=%S%C%H%^%C%W2hA|$O>o$K30It PNG 2hA|H7$F@8@.$7$^$9!#

%*%W%7%g%s'nobitmap' $O!"%M%$%F#%V$NPS, PDF %$%s%i%$%s2hA|7A<0$NBeoj$K!"2hA|$rEI$-jDY$5l?D9J}7AH7$F%l%s%@%j%s%0$7$^$9!#3N%*%W%7%g%s$O!"2hA|$,%$%s%i%$%s2hA|GJ$/30It%G!<%?$G"$k>l9g$OL5;k5l$^$9!#

%*%W%7%g%s 'providevars' $O!"gnuplot $NFbItJQ?t!"%f!<%6JQ?t$r!"TeX %9%/%j%W%HFbGb%3%^%s%I'\gpgetvar{<var name>}' $r;HMQ$9k3HGMxMQ2DG=K5$;$^$9!#MxMQ$G$-$kJQ?t$N0lMw$r8+kK$O!"'show variables all' %3%^%s%I$r;HMQ$7F/$@$5$$!#

J8;zNs<fontdesc> KO!"Nc$($P'\small' Nh$&$JTeX/LaTeX/ConTeXt $GM-8z$J%U%)%s%H%3%^%s%I$rF~$lk3HbG-!"$=$l$O!"'font=<fontdesc>" $N7A<0$N%N!<%I%Q%i%a!<%?H7$ED>@\E0$5l^$9!#$3lO!"$"$k%N!<%I$K%3!<%I$rD>C9kNKVo6$H4V0o$($F!W;H$($^$9!#Nc$($P'\small,yshift=1ex' $bM-8z$G9,!",yshift=1ex' $bM-8z$G!"3AiO8=:_$N%U%)%s%H@_Dj$rJQ9$7$^$;$s!#7+$7%j%9%H$NBh2 0z?t$ONc30$G$9!#$=l, <?tCM>{C10L} $N7A<0$N?tCM$N>19g!"$=lOB>$N=PNO7A<0$G$=$&G"kh$&$K%U%)%s%H%5%$%:$H2r<a5l!"Bh1 0z?t$KDI2C$5lF7^$$$^$9!#C10L$,>JN,5l$?CM$O'pt' C10L$H2r<a$5l^$9!#Nc$($P!"'\sffamily,12,fill=red' $O!"GX7J?'$,@V$G12pt $NLaTeX sans serif %U%)%s%H$r@_Dj$7$^$9!#F1$8$3H, ConTeXt Kb8@$($^$9!#Nc$($P!"'\switchtobodyfont[iwona],10' $O%U%)%s%H$r10pt %5%$%:$NIwona $KJQ9$7$^$9!#Plain TeX %f!<%6$O!"%U%)%s%H%5%$%:$NUQ9$O:G=i$N0z?t$GL@<(E*$K9T$oJ1lP$$1$^$;$s!#%F%-%9%H%\%C%/%9$N=L<\$r@5$7$/<hF@9kh&!"2 $DL\$bF1$8CM$K@_Dj9Y$-$G$9!#

J8;zNs$OC10l!"$"$k$$$Fs=E0zMQIdFb$KF~$lkI,MW,$"$j$^$9!#Fs=E0zMQIdG/$/$il?J8;zNsKO!"2~9T$N'\n' JI$NFCJL$JJ8;z$rF~$lk3H,G-$^$9!#

Mf

mf %I%i%$%P$OMETAFONT %W%m%0%i%'XNF~NO%U%!%$%k$r:nj^$9!#$hCF$=$N?^$OTeX $NJ8=qCf$G$OJ8;z$HF1$8$h$&$K;H$&$3H,G-$^$9!#

J8=qCf$G?^$r;H$&$K$O!"**gnuplot** $N=PNO$9$k%U%!%$%k$rF~NO$H7FMETAFONT %W%m%0%i%'$r<B9T$9kI,MW,$"$j$^$9!#hC$F!"%f!<%6$O%U%),:nil$k%W%m;%9$H?7$7$/:nC?%U%)%s%H$r%-%e%a%s%H$K<h$j9~$'$?$a$N4pACCN<1$,I,MWHJj^$9!#$7$+$7!";HMQ9k%5%$%H$GMETAFONT %W%m%0%i%'$,E,@Z$K@_Dj5l$F$$$l$P!"7P83$N$J$$%f!<%6Gb$=$&LdBjJ/A':nOG$-$kG7g$&!#

%0%i%UCf$NJ8;z$OMETAFONT $NJ8;z%;%C%H$K4p$E$$$F%5%]!<%H5l$^$9!#8=>uGOComputer Modern Roman %U%)%s%H%;%C%H,F~NOG9$,!"%f!<%6$OI,MW$J%U%)%s%H$r2?Gb<+M3$KA*$V3H$,$G$-$^$9!#$?$@$7$=$NA*s$@%U%)%s%H$NMETAFONT %=!<%9%U%!%$%k;H$($k>uBV$KJC$F$$kI,MW$,$"j^$9!#8D!9$NJ8;z$OMETAFONT NCfGJL!9$N%T%/%A%c!<JQ?t$KJ]B8$5$l!"U8;z$,I,MWKJC?H-$K3liNJQ?t$,A':n(2sE>!"?-=LEy) 5l$^$9!#7gE@$O!"METAFONT %W%m%0%i%'$,2r<aKMW9$k;~4V$G$9!#$"$k7W;;5!($D$^$jPC) GO!"%T%/%A%c!<JQ?tr?$/$5$s;HMQ$7$9$.k3HG!";H$($k%a%b%jNNLN8B3&$,LdBj$r5/$3$9$3$Hb"j^$9!#

mf %I%i%$%P$K$O%*%W%7%g%s$O"j^$;$s!#

METAFONT $N;H$J}

- =PNO7A<0(terminal) $rMETAFONT $K%;%C%H:

```
set terminal mf
```

- =PNO%U%!%$%kL>$r@_Dj!#Nc$($P:

```
set output "myfigures.mf"
```

- %0%i%U$NIA2h!#3F%0%i%U$OJL!9$NJ8;z$r@8@.$7!"$=$N%G%U%)%k%H$NBg$-$5$O5x3 %$%s%AG9$,!"$3NBg-5O**set size 0.5,0.5** Nh$&$K7FIs$J%5%$%:KG$b<+M3$KJQ9G-$^$9!#

- **gnuplot** $r=*N;

- **gnuplot** $N=PNO%U%!%$%kKBP7$FMETAFONT $r<B9T$7!"TFM %U%!%$%k$HGF %U%!%$%k$r:nj^$9!#%0%i%U$O3dHBg-$$($(5x3 %$%s%A) NG!"memmax NCM,>/J/Hb150000 G"$kMETAFONT $r;H$&I,MW$,$"$"$kG7g$&!#Unix GO!"$=lOL>o bigmf $H$$$&L>A0$G%$%s%9%H!<%k5l$F$$$kG7g$&!#0J2<$G$O!"virmf %3%^%s%I$, big HG$NMETAFONT G"kH2>Dj$7!"<B9TNc$r<(7^$9:

- METAFONT $NN)$A>e$2:

```
virmf '&plain'
```

- =PNOAuCV$NA*Br:METAFONT %W%m%s%W%H('*')>e$G<!$Nh&$&KBG$A$^$9:

```
\mode:=CanonCX;      % $"$J$?$N;HMQ$9$k%W%j%s%?$r;XDj
```

- 3HBgN((magnification) $NA*Br(%*%W%7%g%s):

```
mag:=1;              % $"$J$?$N9%$_$NCM$r;XDj
```

- **gnuplot** $G:n$C$?%U%!%$%k$rF~NO:

```
input myfigures.mf
```

E57ZE*$JUnix %^%7%s$G$O! "virmf '&plain' $r<B9T$9$k%9%/%j%W%H "mf" $,$"kN$G! "virmf &plain NBeojKmf $r;H$ ($^$9! #3lKh$jmfput.tfm $Hmfput.$$$gf ($$$ $O=PNOAuCV$N2rA|EY) $N2 DN%U%!%$%k$,:nil$^$9! #>e$N:n6H$O! "9YFr%3%^%s%I%i%$%s>e$G4JC1$K<B9T$9k3HbG-$^$9: virmf '&plain' '\mode:=CanonCX; mag:=1; input myfigures.mf' 3N>19g! ":nil$k%U%!%$%kL>$Omyfigures.tfm $Hmyfigures.300gf $H$$$&L>A0 KJj^$9! #

- gftopk $r;H$C$FGF %U%!%$%k$+$iPK %U%!%$%k$r@8@.:

```
gftopk myfigures.300gf myfigures.300pk
```

gftopk $,:n$k%U%!%$%k$NL>A0O"J?$,;HMQ$9$kDVI %I%i%$%P$K0MB8$7$^$9NG! "%5%$%H$NTeX $N4IM}<T$K %U%)%s%HL>$N5,B'$K$D$$$FJ9$$F$/$@$5$$! #<!$KTFM %U%!%$%k$HPK %U%!%$%krE,EvJ%G%#%l%/%H%j$K%$%s%9%H! <%k9k$+$^$?$O4D6-JQ?t$rE,@Z$JCM$K@_Dj$7$^$9! #DL>o$=$l$O! "TEXFONTS $K%+%l%s%H%G%#%l%/%H%j$r4^ak3H$H! "$"J?$,;HMQ$9$kDVI %I%i%$%P$,;HMQ$7$F$$$k4D6-JQ?t(I8='E*$JL>A0$O$"$j$^$;$s, ...) KBP7$FF1$8$3$HrdlP:Q$_$^$9! #$3lOTeX $,%U%)%s%H%a%H%j%C%/(TFM) %U%!%$%k$r8+$D$1! "DVI %I%i%$%P$, PK %U%!%$%k$r8+D1ilkh$&$K9k$?$aKI,MWJ:n6H$G$9! #

- J8=qK=$N%0%i%U$rF~lk$?$a$KTeX K=$N%U%)%s%HL>$r;X<(:

```
\font\gnufigs=myfigures
```

3F%0%i%U$O! ":G=i$N%0%i%U$,J8;z0! "2HVL\$N%0%i%U$,J8;z1 $H$$$&h&$K! "$=l>$l0l$D$NJ8;z$H7FJ]B8$5$l$F$$$^$9! #>e5-$N:n6H$r9T$J$&$H! "%0%i%UO=$NB>$NJ8;z$HF1$8h&$K;H$&3H$,$G$-! "Nc$ ($P%0%i%U1$H2 $rJ8=qCf$K%;%s%?%j%s%0$7$FCV$/$?aKplain TeX %U%!%$%kCf$G9Y$-$3HO:

```
\centerline{\gnufigs\char0}
\centerline{\gnufigs\char1}
```

$@$1$G$9! #bAmsLaTeX GOpicture 4D6-$r;H$C$F\makebox $H\put %^%/%m$GG$0U$N0LCV$K%0%i%U$rG[CV9k3H$,$G$-$^$9! #

3NdjJ}$O! "0lEY%U%)%s%H$r@8@.7F7^$($P! "BgI}$K;~4V$N@aLsKJj^$9: TeX $O%0%i%U$rJ8;zH7$F;H$$! "$=$l$rG[CV$9kK$O4$/>/J;;~4V7+;HMQ7^$;$s$7! "%0%i%U$hjbJ8=q$NJ}$,=$@5$9k3H,B?$$$G7g$&$+$i! #$=$7F$3lOTeX $N%a%b%j$N@aLsKbJj$^$9! #METAFONT %I%i%$%P$r;H$&$b$&:G8e$N0lDNMxE@$O! "@8@.$5lkDVI %U%!%$%k,K\Mh$N%G%P%$9Hs0MB8$J7AKJkH$$$&3H$G$9! #$=$l$Oeepic $dtpic %I%i%$%PNh$&$J\special %3%^%s%I$rA4$/;HoJ$$$+iG$9! #

Mif

Cm0U: 8E$$(legacy) =PNO7A<0$G$9! #**mif** %I%i%$%P$OFrame Maker MIF %U%)!<%^%C%H(version 3.00) $N=PNO$r@8@.7^$9! #$3lO15*10 cm $N%5%$%:$NMIF %U%l!<%'$r=PNO$7! "F1$8%Z%s$G=q$+lk%0%i%U$N4pK\MWAG$OF1$8MIF %0%k!<%W$K%0%k!<%W2=5l$^$9! #**gnuplot** $N1 %Z!<%8$K$*1$k%0%i%U$N4pK\MWAG$O0lDNMIF %U%l!<%'$KIA2h$5$l! "$$/D+$NMIF %U%l!<%'$O0lDNBg$-$JMIF %U%l!<%'Fb$K=8$ail$^$9! #J8;zNs$G;H$olkMIF %U%)%s%H$O"Times" $G$9! #

MIF 3.00 %I%i%$%P$G$O$$/D+$N%*%W%7%g%s$,@_DjG-$^$9! #

=q<0:

```
set terminal mif {color | colour | monochrome} {polyline | vectors}
                 {help | ?}
```

colour $O@~<o(line type) >= 0 $N@~$r%+%i!<(MIF separation 2–7) $G! "**monochrome** $OA4$F$N@~$r9u(MIF separation 0) $GIA2h$7$^$9! #**polyline** $O6J@~$rO"B36J@~H7$FIA2h$7! "**vectors** $O6J@~$r%Y%/%H%k$N=8$^jH7FIA2h7^$9! #**help** $H? $O%*%s%i%$%s%X%k%W$rI8='%(%i!<=PNO$KI=<(:7^$9! #N><T$O$=$N;HMQK!$NC;$$@bL@$r=PNO$7! "**help** $O99$K%*%W%7%g%s$bI=<(:$7$^$9! #

Nc:

```
set term mif colour polylines    # %G%U%)%k%H
set term mif                     # %G%U%)%k%H
set term mif vectors
set term mif help
```

Mp

mp %I%i%$%P$OMetapost %W%m%0%i% '$XF~NO$9k3Hr0U?^7?=PNO$r@8@.$7!"$=$N%U%!%$%k$KBP7FMetapost $r<B9T$9kH%0%i%U$r4^$'EPS %U%!%$%k$,:nil$^$9!#%G%U%)%k%HGOMetapost $OA4$F$NJ8;zNs$rTeX KDL7$^$9!#3l$O%?%$%H%k$d8+=P$7KG0U$NTeX $N5-9f$rK\<AE*$K;H$&3H$,$G$-$k!"$H$$$&MxE@$r;}$D3H$r0UL#$7$^$9!#

=q<0:

```
  set term mp {color | colour | monochrome}
              {solid | dashed}
              {notex | tex | latex}
              {magnification <magsize>}
              {psnfss | psnfss-version7 | nopsnfss}
              {prologues <value>}
              {a4paper}
              {amstex}
              {"<fontname> {,<fontsize>}"}
```

%*%W%7%g%s **color** $O@~$r%+%i!<$G=q$/3H$r0UL#$7($=$l$r%5%]!<%H$9$k%W%j%s%?$d%G%#%9%W%l%$>e$G)!"**monochrome**($^$?$O2?$b;XDj7J$>19g)$O9u$N@~$,A*Br5l$^$9!#%*%W%7%g%s**solid**$O@~$r<B@~GIA-!"**dashed**($^$?$OL5;XDj)$O@~$r0[$J$k%Q%?!<%s$NE@@~GIA-J,l^$9!#**solid**$,;XDj5lF+$D**color**$,;XDj5lJ+C?>19g!"$[$HsIA4FN@~$,F1$8bNKJj^9,!"3l$b2?$+$N>19g$K$OM-MQ$G7g$&$+iG'ail$F$$$^$9!#

%*%W%7%g%s **notex** $O40A4$KTeX $r1*2s$7$^$9NG!"3N%*%W%7%g%s$N85$G$O8+=P$7KOTeX $N%3!<%I$O;H$&$3H,G-$^$;$s!#$3lO!"8E$$%0%i%U%U%!%$%k!"$"$k$$$OTeX GOFC<15-9fH7$F2r<a$5lF7^$&**$**$d%** Nh$&$J0lHIE*$JJ8;zr?$/5s;H$&%U%!%$%kN?aKMQ0U5l$F$$$^$9!#

%*%W%7%g%s **tex** $O!"TeX $G=hM}$9$kJ8;zNs$r=PNO9kh&$K@_Dj$7$^$9!#

%*%W%7%g%s **latex** $O!"LaTeX $G=hM}$9$kJ8;zNs$r=PNO9kh&$K@_Dj$7$^$9!#3lKhCFTeX GO;H$($J$J$$1lI LaTeX GO;H$($kbN!"Nc$($PJ,?t$r\frac $G=q$$?j9k3H,G-$^$9!#3N%*%W%7%g%s$r;H$&>19g$O!"4D6-JQ?t TEX $K LaTeX $N<B9T%W%m%0%i%'L>(DI>o$O latex) $r@_Dj$9k+!"$"$k$$$O**mpost -tex=<LaTeX** $N<B9T%W%m%0%i%'L>> **...** H9k3HrK:lJ$$$G$/$@$5$$!#$=$&GJ$$Hmetapost $O%F%-%9%H$N=hM}$K TeX $r;H$*$&$H7F<:GT7F7^$&$G7g$&!#

TeX K*1k%U%)%s%H%5%$:$NUQ99$O?t<0$K$O8z2L$,J/!"$=$Nh&$JUQ99$r9TJ&HF$b4JC1$JJ}K!$O!"Bg0hE*$K3HBgN((magnification factor) $r@_Dj$9$k0J30$KO"j^$;$s!#$=$l$,%*%W%7%g%s**magnification** $N0UL#$G$9!#$=$N>19g$O3HBgN($r8e$m$K;XDj$9kI,MW,$"$j$^$9!#A4FNJ8;z(%0%i%U%GOJ$/)$O3NN($G3HBg$5l^$9!#?t<0$r%G%U%)%k%H$N10pt 0J30$NB>$N%5%$:$G=q$-$?$>19gO3$1$r;HMQ7F$/$@$5$$!#$?$@;DG0J3HKA4FN?t<0$,F1$8%5%$:$KJCF7$^$$$^9,!"7+$7!"0J2<$NMP=PNO$NJT=8$K4X9k@bL@$r;2>H$7F/$@$5$$!#**mag** $O**notex** $N85$GbF/$-$^9,!"$=$l$r9T$J$&0UL#$,$J$$$/$i$$(0J2<$K=R$Y$k)%U%)%s%H%5%$:$*%W%7%g%s$O&$^$/F/$-$^$9!#

%*%W%7%g%s **psnfss** $O postscript %U%)%s%H$r LaTeX HAH_9go;$F;HMQ$7$^$9!#3N%*%W%7%g%s$O LaTeX $,;H$olk>19gN_0UL#$r;}$A$^$9NG!"<+F0E*$K**latex** %*%W%7%g%s,A*Br5l$^$9!#3N%*%W%7%g%s$O0J2<$N LaTeX %Q%C%1!<%8$r;HMQ$7$^$9:inputenc(latin1), fontenc(T1), mathptmx, helvet(scaled=09.2), courier, latexsym, textcomp

%*%W%7%g%s **psnfss-version7** $bpostscript %U%)%s%H$r LaTeX HAH_9go;$F;HMQ$7$^$9(**latex** $,<+F0E*$KA*Br5l$^$9)$,!"0J2<$N LaTeX %Q%C%1!<%8$r;HMQ$7$^$9:inputenc(latin1), fontenc(T1), times, mathptmx, helvet, courier

%*%W%7%g%s **nopsnfss** $O%G%U%)%k%H$G!"I8='E*$J%U%)%s%H(2?$b;XDj5l$F$$$J$$1lPcmr10)$,;H$ol^$9!#

%*%W%7%g%s **prologues** $CDI2C$NCM$r0z?t$K;}$A!"metapost %U%!%$%k$K**prologues:=**<$=$NCM>$H$$&9T$rDI2C$7$^$9!#CMH7$F**2** $r;XDj$9kHmetapost $O eps %U%!%$%k$r:n$kh&$K postscript %U%)%s%H$r;HMQ$7!"$=lKhj$=$N7k2LONc(ghostscript JI$G;2>H$G$-$kh&KJj^$9!#I8='$G$O metapost $O TeX $N%U%)%s%H$r;HMQ7^9N$G!"$=lr;2>H9kKO(La)TeX $N%U%!%$%k<h$j9~$'I,MW,$"$j$^$9!#

%*%W%7%g%s **noprologues** $O%G%U%)%k%H$G!"prologue $G;XDj$7$?$$+Jk9T$bDI2C$5l^$;$s!#

%*%W%7%g%s **a4paper** $O[**a4paper**] $r documentclass $KDI2C$7$^$9!#I8='GO letter MQ;f(%G%U%)%k%H)$,;H$ol^$9!#$3$N%*%W%7%g%s$O LaTeX GN$_;H$ol^9N$G!"<+F0E*$K**latex** %*%W%7%g%s,A*Br5l$^$9!#

%*%W%7%g%s**amstex** $O!"K+F'OE*$K**latex** %*%W%7%g%s$rA*Br$7!"0J2<$NLaTeX %Q%C%1!<%8$r;HMQ7^$9: amsfonts, amsmath(intlimits)!#%G%U%)%k%HGO3liO;HMQ5l$^$;$s!#

0zMQId$G0O$^l?L>A0$O%U%)%s%HL>$rI=$7!"**set label** $d**set title** $GL@<(E*$K%U%)%s%H$,M?$(ilJ>19gO3$N%U%)%s%H$,;Hol$^$9!#%U%)%s%H$OTeX $,G'<1$G$-$k(TFM %U%!%$%k$,B8:_9k) bN$r;H$&I,MW$,$"j^$9!#%G%U%)%k%H$G$O**notex** $,A*Br$5lF$$J1l$P"cmr10" $,!"$=$&$GJ1lP"pcrr8r"(Courier) $,;H$ol^$9!#**notex** $N85$G$b!"Metapost KOTFM %U%!%$%kOI,MWG$9!#**pcrr8r.tfm** $OLaTeX psnfss %Q%C%1!<%8$NCourier %U%)%s%HL>H7$FM?$(il$F$$^$9!#**notex** $N%G%U%)%k%H$+$i%U%)%s%H$rJQ99$9$k>19g$O!"> /$J$/$H$b32-126 $N%3!<%IHO0O$OASCII %(%s%3!<%G%#%s%0$K0lCW$9kbNrA*sG$/$@$5$$!#**cmtt10** b[$\;H$($^$9$,!"$7$+$7$3$l$O%3!<%I32(%9%Z!<%9)$K%9%Z!<%9GOJJ8;z$,F~$C$F$$^$9!#

%5%$%:$O5.0 $+$i99.99 $N4V$NG$0U$N?t;z$r;XDj$G$-!"$JN,5l$?>19g$O10.0 $,;H$ol^$9!#$JkY$/**magstep** %5%$%:!"D^$j1.2 $N@0?t$+$^$?$O0.5 >h$N10 G\$r>.?t0J2<2 7eL$K~$r4]a?CM$r;HMQ$9k3Hr$*4+$a7^$9!#$=lO$=$l$,TeX $N%7%9%F%'$G:Gbh$/;H$olk%U%)%s%H$N%5%$%:$@$+iG$9!#

A4FN%*%W%7%g%s$O>JN,2DG=$G$9!#%U%)%s%H$r;XDj9k>19gO=lO(I,MWJi%5%$%:$bD1$F)0lHV:G8e$K;XDj9kI,MW$,$"j^$9!#%U%)%s%HL>$K$=$N%5%$%:pJs$,4^$^$l$F$$?H7Fb!"%5%$%:$rJQ$($kKO%U%)%s%H%5%$%:$r;XDj9kI,MW$,$"j^$9!#Nc$($P**set term mp "cmtt12"** $OcmtT12 $r%G%U%)%k%H$N%5%$%:$G$"$k10 $K=L$a$F;H$$$^$9!#$=lOB?J,K>$^$J$$3HG7g&$7cmtt10 $r;H$&J}$,NI$$G7g&!#

0J2<$Nascii J8;z$O!"TeX GOFCJL$K07$ol^$9:

```
$, &, #, %, _;  |, <, >;  ^, ~,  \, {, }
```

$, #, &, _, % $N5 DO!"Nc$($P\$ H9k3HGMF0WK=lr%(%9%1!<%WG-$^$9!#<, >, | $N3 DO!"Nc$(P<$ Nh$&$K?t<0%b!<%I$KF~$lFdlP$&$^$/$$$-$^$9!#;DjNbN$K4X$7FO>/$7TeX $N2sHr:v$,I,MWKJj^9,!"E,EvJh$$TeX $NK\$,$=$l$r;XF3$7F/lkG7g&!#

8+=P7rFs=E0zMQId$G0O$'>19g!"TeX %3!<%I$N%P%C%/%9%i%C%7%e$O%(%9%1!<%W9k(2 $D=g$/) I,MW$,$"j^$9!#C10l0zMQId$r;H$($P$=$lrHr1k3HOG-$^$9$,!":#EY$O2~9TH7$F\n $r;H$(J/Jj$^$9!#3l$r=g$$$F$$k8=:_!"gnuplot 3.7 $O**plot** %3%^%s%I$GM?$($il?%?%$%H%k$O!"JL$J>l=j$GM?$($il?>19gHO0[Jk=hM}r7$^$9$7!"0zMQId$N%9%?%$%k$K$+$+oi:TeX %3%^%s%I$N%P%C%/%9%i%C%7%e$OFs=E2=7?J}$,NI$5$=$&$G$9!#

MetapostA|$OTeX $NJ8=qFb$G0lHL$K;H$olF$$^$9!#Metapost $O%U%)%s%H$rTeX $,9T$J$&$N$HA4$/F1$8J}K!$G07$$!"$=$l$OB>$NBgDq$NJ8=q@07A%W%m%0%i%'$H$O0[$JCF$$^$9!#%0%i%U$,LaTeX $NJ8=q$Kgraphics %Q%C%1!<%8$G<h$j9~$^$l!"$"$k$$$O epsf.tex $r;H$C$FplainTeX $K<h$j9~$^$l!"$=$7$F dvips($^?$OB>$N dvi$+$i ps XNJQ49%=%U%H)$GPostScript $KJQ49$5lk>19g!"$=$N%0%i%UFb$NJ8;z$OBgDq$O@5$7$/07$olF$$k$G7$g$&!#$7$+$7!"Metapost =PNOr=N^$^PostScript %$%s%?%W%j%?KAwCFb!"%0%i%UFb$NJ8;z$O=PNO5l$J$$$G7g&!#

Metapost $N;H$$J}

- $^$:terminal %I%i%$%P$rMetapost $K@_Dj!"Nc$($P:

```
set terminal mp mono "cmtt12" 12
```

- =PNO%U%!%$%k$rA*Br!"Nc$($P:

```
set output "figure.mp"
```

- %0%i%U$r:n@.!#3Fplot($^?$Omultiplot $N3F%0%k!<%W) O=l>lJLJMetapost beginfig...endfig %0%k!<%W$KJ,$1il$^$9!#$=$N%G%U%)%k%H$N%5%$%:$O5x3 %$%s%AG9$,!"$=lO**set size 0.5,0.5** H+!"$=$&7?$$H;W$&E,Ev$J3d9gr=Nh$&$K;XDj9k3H$GJQ99$G$-$^$9!#

- gnuplot $r=*N;!#

- gnuplot $N=PNO%U%!%$%kKBP7$FMetapost $r<B9T$7$FEPS %U%!%$%k$r:n@.:

```
mpost figure.mp  OR  mp figure.mp
```

Metapost %W%m%0%i%'L>$O%7%9%F%'$K0MB8$7!"Unix GODL>o**mpost** $G!"B>$NB?$/$N%7%9%F%'GO**mp** $G$9!#Metapost $O3F%0%i%U$KBP7F1 D:DNEPS %U%!%$%k$r@8@.7^$9!#

- $=$N%0%i%U$rJ8=q$K<h$j9~$'KOLaTeX graphics %Q%C%1!<%8$d!"plainTeX GOepsf.tex $r;HMQ:

```
\usepackage{graphics} % LaTeX
\input epsf.tex       % plainTeX
```

TeX DVI =PNO$r PS $KJQ49$9kN$K!"dvips 0J30$N DVI %I%i%$%P$r;H$&>l9g$O!"LaTeX %U%!%$%k$K0J2<$N9T$rF~lkI,MW$,$"k+bCNl$^$;$s:

```
\DeclareGraphicsRule{*}{eps}{*}{}
```

:nil$?3F%0%i%U$OJ,N%7?%U%!%$%k$KJC$F$$$F!":G=i$N%0%i%U$N%U%!%$%k$O!"Nc$($P figure.0, 2 $DL\$CNc$($P figure.1 Nh$&$JL>A0KJj^$9!#$hCF!"3 $DL\$N%0%i%U$rJ8=q$K<h$j9~$`$?$aK"J?$,$7JllP$$$1$J$$3HO0J2<N_$G$9:

```
\includegraphics{figure.2} % LaTeX
\epsfbox{figure.2}         % plainTeX
```

mp %I%i%$%P$N postscript %I%i%$%P$KBeokMxE@$O!"$b7"kH9l$P!"$=lOJT=82DG=$J=PNO$G$"$k$H$$$&3HG7g&!#3N=PNO$r2DG=$J8B$je:No$K9k$?$a$N!"$+Jj$NEXNO$,J'ol$^$7$?!#Metapost 8@8l$K4X9k$=$&$$C$?CN<1$N$*$+2G!"%G%U%)%k%H$N@<o$d?'$OG[Ns **lt**[] $d**col**[] $rJT=8$9k3HGJQ9G-kh$&$KJj$^$7$?!#<B@~/E@@~!"%+%i!</Gr9u$H$$C$?A*Br$b!"?25 6CMH7$FDj5A$5lF$$k **dashedlines** $d**colorlines** $rJQ9$9k3HG9TJ($^$9!#%G%U%)%k%H$N **tex** %*%W%7%g%s$,M-8z$J>l9g!"%V%m%C/ **vebatimtex...etex** $rJT=8$9k3HG!"%i%Y%kJ8;z%U%)%s%HKBP9$kBg0hE*$JJQ99$,9T$J$($^$9!#FC$K!"b7K>$`$J$i LaTeX $N%W%j%"%s%V%k$rDI2C9k3HbG$-!"$=$N>l9g LaTeX $N;}$D%5%$%:JQ99%3%^%s%I$r;H$($kNG:GBg$N=@Fp@-$rH/4xG-kG7g&!#$?$@$7!"Metapost $K plainTeX GJ$/LaTeX $r<B9T$5$;$kh&!"E,@Z$JMP @_DjJQ?t$r@_Dj9k3H$rK:$l$J$$G$/$@$5$$!#

Pbm

Cm0U: gnuplot $, –with-bitmap-terminals $G:n$il?>l9gN_;H$($^$9!#=q<0:

```
set terminal pbm {<fontsize>} {<mode>} {size <x>,<y>}
```

<fontsize> $O **small** $+ **medium** $+ **large** $G!"<mode> $O **monochrome** $+ **gray** $+ **color** $G$9!#%G%U%)%k%H$NIA2h%5%$:$O640 %T%/%;%k$NI}$G480 %T%/%;%k$N9b5G$9!#=PNO%5%$:$O!"x $Hy $NN>J}$r8 %T%/%;%kG\$7$?$bNK:G$b6a$/Jkh&$K6uGr$,DI2C5l$^$9!#I,MWG"lP!"3N6uGrItJ,$O8e$G<h$j=|$/3H$,$G$-$^$9!#

pbm %I%i%$%P$N=PNO$O <mode> Khj^$9: **monochrome** $O portable bitmap (PBM; 1 %T%/%;%k1 %S%C%H) $r!"**gray** $O portable graymap (PGM; 1 %T%/%;%k3 bit) $r!"**color** $O portable pixmap (PPM; 1 %T%/%;%k4 %S%C%H) $r=PNO$7$^$9!#

3N%I%i%$%P$N=PNO$O!"NETPBM KhCFDs6!5l$kMM!9$J2hA|JQ49!"2hA|=hM}%D!<%k$G;H$&3H$,$G$-$^$9!# Jef Poskanzer $N PBMPLUS %Q%C%1!<%8$K4pE/NETPBM $O!">e5-$N PBM 7A<0$+$i GIF, TIFF, MacPaint, Macintosh PICT, PCX, X11 %S%C%H%^%C%W!"$=$NB>B?$/$N7A<0$KJQ49$9$k%W%m%0%i%`$rDs6!7^$9!#40A4$J>pJs$O http://netpbm.sourceforge.net/ K"j^$9!#

Nc:

```
set terminal pbm small monochrome                # %G%U%)%k%H
set terminal pbm color medium size 800,600
set output '| pnmrotate 45 | pnmtopng > tilted.png'  # NETPBM $rMxMQ
```

Pdf

3N%I%i%$%P$O Adobe PDF (Portable Document Format) =PNO$r@8@.$7!"$=$l$O Acrobat Reader Nh$&$J%D!<%k$GI=<(!"0u:~$,G-$^$9!#[Hs?d>)] 3N=PNO7A<0$O!"Portable Document Format 7A<0$N%U%!%$%k%r@8@.9kNK!"%U%j!<GO$J$$%i%$%V%i%jPDFlib (GmbH Munchen) $r;HMQ$7$^$9!#$"$J$?,!"PDFlib $N>&MQ%i%$%;%s%9$r}$C$F$$$kNGJ1lP!"$=$7F=l,Ds6!9kFCJL$J5!G=$rI,MWH9kNGJ1l$P!"$3lNBeoj$KcairopdfPNO7A<0$r;HMQ9kJ}$,$$$$G7g$&!#gnuplot GO!"wxt $d qt Nh$&$JBPOC7?=PNO7A<0GN:n6HCf$KPDF %U%!%$%k$r@8@.5;$k3HbG$-$^$9!#

=q<0:

```
set terminal pdf {monochrome|color|colour}
                 {{no}enhanced}
                 {fname "<font>"} {fsize <fontsize>}
                 {font "<fontname>{,<fontsize>}"} {fontscale <scale>}
```

```
                    {linewidth <lw>} {rounded|butt}
                    {dl <dashlength>}
                    {size <XX>{unit},<YY>{unit}}
```

%G%U%)%k%HGO!"8D!9$N@~<o$KBP7F0[Jk?'$rMQ$$$^$9!#**monochrome** $rA*Br$9kHA4FN@~<o$r9u$GIA$-$^9,!"%b%N%/%m%b!<%IGbEIjDV7NN0h$d%i%$%s%9%?%$%k$G$OL@<(E*$K?'$r;HMQ$9k3H,G-$^$9!#

<font> $O%G%U%)%k%H$G;Hol$k%U%)%s%HL>(%G%U%)%k%H$G$O Helvetica) $G<fontsize> $O%]%$%s%HC10LGN%U%)%s%H%5%$%:(%G%U%)%k%H$G$O 12) $G$9!#INh&$J%U%)%s%H$,;H$($F!"?7$7$$%U%)%s%H$r%$%s%9%H!<%k9kKO!"$H$$$C$?$3HK4X7F$O!"%m!<%+%k$K%$%s%9%H!<%k$5lF$$$k pdflib $N%I%-%e%a%s%H$r;2>H7F$/$@$5$$!#

%*%W%7%g%s **enhanced** $O!"3HD%J8;zNs=hM}5!G=(2<IU$-J8;z!">eIU$-J8;z!"$*$h$SJ#?t$N%U%)%s%H$NMxMQ) $rM-8z$K7^$9!#0J2<;2>H: **enhanced (p. 27)**!#

IA2hK*1kA4FN@~$NI}$O **linewidth** $G;XDj$9$k0x;R<n> $GA}2C$9k3H,G-$^$9!#F1MM$K!"**dashlength** $O%G%U%)%k%H$NE@@~$N6uGrItJ,$KBP9k@Q0x;R$G$9!#

rounded $O!"@~$NC<$d@\9gIt$r4]$/$7!"%G%U%)%k%H$N **butt** $O@m$C$?C<$H3QD%C?@\9gIt$r;HMQ$7$^$9!#

PDF =PNO$N%G%U%)%k%H$N%5%$%:$O!"5inch x 3inch $G$9!#%*%W%7%g%s **size** $O!"$3lr%f!<%6$N;XDj$9kbNXJQ99$7$^$9!#%G%U%)%k%H$N X, Y %5%$%:$NC10L$O%$%s%AG9$,!"B>$NC10L$b;HMQ2DG=$G$9(8=:_$O cm N_)!#

Pdfcairo

=PNO7A<0 **pdfcairo** $O!"PDF =PNO$r@8@.7^$9!#<B:]$NIA2h$O!"2D %0%i%U%#C%/%i%$%V%i%jG"$k cairo $H!"J8;zNs$NG[CV$H%l%s%@%j%s%0MQ$N%i%$%V%i%j pango $r7PM3$7$F9T$ol^$9!#

=q<0:

```
      set term pdfcairo
                  {{no}enhanced} {mono|color}
                  {font <font>} {fontscale <scale>}
                  {linewidth <lw>} {rounded|butt|square} {dashlength <dl>}
                  {background <rgbcolor>
                  {size <XX>{unit},<YY>{unit}}
```

3N=PNO7A<0$O!"3HD%J8;zNs=hM}%b!<%I (enhanced text mode) $r%5%]!<%H$7$F$$$F!"%U%)%s%H$d=q<0%3%^%s%I(>eIU!"2<IU$J$I) $r%i%Y%k$dB>$NJ8;zNs$KKd$a9~$`3H$,$G$-$^$9!#3HD%J8;zNs=hM}%b!<%I$N=q<0$OB>$N gnuplot $N=PNO7A<0$H6&DL$G$9!#>\:Y$O!"0J2<;2>H: **enhanced (p. 27)**!#

IA2hK*1kA4FN@~$NI}$O!"**linewidth** $G;XDj$9$k0x;R<lw> $GJQ99$G$-$^$9!#%G%U%)%k%H$N@~I}$O 0.5 %]%$%s%H$G$9!#(1 "PostScript" %]%$%s%H= 1/72 %$%s%A= 0.353 mm)

rounded $O!"@~$NC<$d@\9gIt$r4]$/$7$^$9!#%G%U%)%k%H$N **butt** $O@m$C$?C<$H3QD%C?@\9gIt$r;HMQ$7$^$9!#

PDF =PNO$N%G%U%)%k%H$N%5%$%:$O!"5inch x 3inch $G$9!#%*%W%7%g%s **size** $O!"$3lr%f!<%6$N;XDj$9kbNXJQ99$7$^$9!#%G%U%)%k%H$N X, Y %5%$%:$NC10L$O%$%s%AG9$,!"B>$NC10L$b;HMQ2DG=$G$9(8=:_$O cm N_)!# **size** %*%W%7%g%s$G;XDj$5l?3HKh$kIA2h$NC<$+$iC<$^$G$NNN0h$O!">o$K%9%/%j!<%s:BI8$N 0.0 $+$i 1.0 $KBP1~$7$^$9!#

<font> $O!""FontFace,FontSize" $N=q<0!"$D$^$j%U%)%s%HL>$H%5%$%:$r%+%s%^$G6h@ZC?0lDNJ8;zNsH7$FI=5-$7$^$9!#FontFace $O!"'Arial' Nh$&$JDL>o$N%U%)%s%HL>$G$9!#%U%)%s%HL>$rM?$($J$$>l9g!"pdfcairo =PNO7A<0GO'Sans' $,;HMQ$5l^$9!#FontSize $O%]%$%s%HC10LGN%U%)%s%H%5%$%:$G$9!#;XDj$7$J$$>l9g$O!"pdfcairo =PNO7A<0$G$O 12 %]%$%s%H%5%$%:$NI8=`%U%)%s%H$,;HMQ$5l^$9!#$7$+$7!"3N=PNO7A<0$N%Q%i%a!<%?fontscale $N%G%U%)%k%H$O 0.5 JN$G!"8+$+1N%U%)%s%H%5%$%:$O!"PDF =PNO$r%U%k%5%$%:$G8+$?>l9ghj$b>.$5$/$JkG7g$&!#

```
  Nc :
     set term pdfcairo font "Arial,12"
     set term pdfcairo font "Arial" # %U%)%s%HL>$N$_JQ99
     set term pdfcairo font ",12" # %U%)%s%H%5%$%:$N$_JQ99
     set term pdfcairo font "" # %U%)%s%HL>$H%5%$%:$r%j%;%C%H
```

%U%)%s%H$O!"DL>o$N%U%)%s%H=hM}5!9=Kh$j<hF@$5l^$9!#Windows GO!"%U%)%s%H$O%3%s%H%m!<%k%Q%M%k$N"%U%)%s%H" $N9`L\$G9=@.5l8+D1ilkbNG!"UNIX GO!"%U%)%s%H$O "fontconfig" $G=hM}$5l^$9!#

J8; zNs$N%l%$%"%&%H$K; HMQ$5lk%i%$%V%i%j Pango $O!"utf-8 $K4p$E$$$F$$^9N$G!"pdfcairo =PNO7A<0$G $O!"J8; z%3!<%I$r utf-8 $KJQ49$9kI,MW,$"$j$^$9!#%G%U%)%k%H$NF~NOJ8; z%3!<%I$O!"$"$J$?$,; HMQ7F$$k 'locale' $K4p$E$-$^$9!#B>$NJ8; z%3!<%IK7$?$>19g$O!"$"J?$,$I$NJ8; z%3!<%I$r; HCF$$kN+$r3N<B$K gnuplot $,$o$+$kh&K7F/$@$5$!#>\:Y$K$D$$$F$O!"0J2<; 2>H: **encoding (p. 127)**!#

pango $O!"unicode %^%C%T%s%0$G$J$$%U%)%s%HKBP7FOM=4|$;$L7k2L$rM?$(k+b7l^$;$s!#Nc$($P Symbol %U%)%s%HKBP7FO!"pdfcairo =PNO7A<0$O!"U8; z%3!<%I$r unicode $KJQ49$9k?aK http://www.unicode.org/ $GDs6!$5lk%^%C%T%s%0$rMxMQ$7$^$9!#J*!"'the Symbol font" $O!"Acrobat Reader $H0l=o$K"SY____.PFB" H7$FG[I[$5lF$$$k Adobe Symbol %U%)%s%HG"kH2r<a5lk3HKCm0U7F$/$@$5$$!#3NBeoj$K!" OpenOffice.org $H0l=o$K"opens___.ttf" H7$FG[I[$5lk OpenSymbol %U%)%s%H$,F1$8J8; z$rDs6!$7$F$$^$9!#Microsoft $b Symbol %U%)%s%H("symbol.ttf") $rG[I[$7$F$$^9,!"3l$O0[$J$kJ8; z%;%C%H$KJC$F$$$F!"$$$/D+$O7g$1$F$$^$9$7!"$$/D+$O?t<05-9f$KJQoCF7$^$C$F$$^$9!#$"J?$N%G%U%)%k%H$N@_Dj GJsi$+$NLdBj$,5/$-$?>19g(Nc$($P%G%b%9%/%j%W%H enhancedtext.dem $,$Acs$HI=<($5lJ$$H$$C$?>19g) $O!"Adobe $+ OpenOffice $N Symbol %U%)%s%H$r%$%s%9%H!<%k$7$F!"Microsoft $N Symbol %U%)%s%H$r:o=|7J$$H$$1$J$$+b7l^;$s!#'windings" Nh$&$JB>$NHsI8='$N%U%)%s%HGbF0:n9k3H$,Js9p$5lF$$^$9!#

IA2h$N%l%s%@%j%s%0$O!":#NH3mJQ99G-$^;$s!#=PNOrh$jN1$/9k?aK3N%l%s%@%j%s%0$O!"%"%s%A%(%$%j%"%9!"%*!<%P!<%5%s%W%j%s%0$N2 DN5!9=$r; }CF$$^$9!#%"%s%A%(%$%j%"%9$O!"?eJ?$d?bD>GJ$@~$r3ji+$KI=<($7$^$9!#%*!<%P!<%5%s%W%j%s%0$O!"%"%s%A%(%$%j%"%9HAH$G%T%/%;%k$hjb>.$5$$%5%$:$G$N@:EY$rDs6!$7!"gnuplot $,Hs@0?t:BI8$ND>@~$r=q$1kh$&$KJj$^$9!#$3$1$O!"BP3QJ}8~$ND>@~(Nc$($P 'plot x') $,:81&$KMIlkNrHr1^$9!#

Pm

pm %I%i%$%P$O!"%0%i%U$,IA2h$5lkOS/2 %W%1%<%s%F!<%7%g%s^%M!<%8%c&&#%s%I%&$rDs6!$7$^$9!#$=$N%&#%s%I%&$O:G=i$N%0%i%U$,IA2h$5l?H-$K3+$+l^$9!#$3$N%&#%s%I%&$OOu:~!"%/%j%C%W\!<%IXN%3%T!<!"$$/D+$N@<o$d?'$ND4@0$N$?a$N5!G=!"$=$7F=$l<+?H$N%*%s%i%$%s%X%k%W$r; }CF$$^$9!#**multiplot** %*%W%7%g%s$b%5%]!<%H$5lF$$^$9!#

=q<0:

```
set terminal pm {server {n}} {persist} {widelines} {enhanced} {"title"}
```

persist $r; XDj$9kH!"3F%0%i%UO=l>$l<+?H$N&&#%s%I%&$r; }$A!"$=$N9YFN&&#%s%I%&$O **gnuplot** $,=*N;$7$?8e$b3+$$$?$^^{K}J$j$^$9!#**server** $r; XDj$9kH!"A4FN%0%i%U$OF1$8&&#%s%I%&Fb$K8=$o$l!"$=lO **gnuplot** =*N;8e$b3+$$$?$^^{K}J$j$^$9!#3N%*%W%7%g%s$O!"$5iKDI2C$N?t0z?t$r<h$j!"$=$N?t; z$O%5!<%P%W%m%;%9$N%$%s%9%?%s%9KJj^$9!#$hCFF1; ~$KJ#?t$N%5!<%P%&&#%s%I%&$r; H$&3H$,$G$-$^$9!#

widelines $r; XDj$9kH!"A4FN%0%i%U$OI}$N9-$$@~GIA+l^$9!#**enhanced** $r; XDj$9kH!">eIU$-J8; z$d2<IU$-J8; z!"U#?t$N%U%)%s%H$r; H$&3H$,$G$-$^$9(>\:Y$O!"0J2<; 2>H: **enhanced text (p. 27)**)!#%3%"PostScript %U%)%s%H$N%U%)%s%HL>$O1J8; z$K>JN,$G$-$^$9(T/H/C/S O=l>$l Times/Helvetica/Courier/Symbol $r0UL#$7$^$9)!#

title $r; XDj$9kH!"$=$l$OIA2h&&#%s%I%&$N%?%$%H%k$H7F; Hol$^$9!#$=$l$O%5!<%P%$%s%?%s%9L>H7Fb; Hol!"$=$l$ODI2C$N?t0z?t$r>e=q$-7^$9!#

@~$NI}$O **set linestyle** $GJQ99$G$-$^$9!#

Png

=q<0:

```
set terminal png
       {{no}enhanced}
       {{no}transparent} {{no}interlace}
       {{no}truecolor} {rounded|butt}
       {linewidth <lw>} {dashlength <dl>}
       {tiny | small | medium | large | giant}
       {font "<face> {,<pointsize>}"} {fontscale <scale>}
       {size <x>,<y>} {{no}crop}
       {background <rgb_color>}
```

PNG, JPEG, GIF 2hA|$O!"30It%i%$%V%i%jlibgd $r;H$C$F@8@.$5l^$9!#PNG $NIA2h$O!"ImageMagick %Q%C %1!<%8$N%=%U%H'display' K=$N=PNO$r0J2<Nh$&$K%Q%$%WGEO9$3HGBPOCE*$KI=<(5;$k3H$,G-$^$9:

```
set term png
set output '| display png:-'
```

<!$NIA2h%3%^%s%I$+iN=PNO$O!"display %&%#%s%I%&>e$GBPOCE*$K<space> rBGD3H$G8+$k3H$,G-$^$9!#8=:_$NIA2h$r%U%!%$%k$KJ]B8$9kK$O!"display %&%#%s%I%&$G:8%/%j%C%/$7!"**save** $rA*Br$7F/$@$5$$!#

transparent $O!"%I%i%$%P$KGX7J?'$NF)L@2=(transparent) $r9T$&h&;X<(7^$9!#%G%U%)%k%H$O **notransparent** $G$9!#

interlace $O!"%I%i%$%P$K%$%s%?!<%l!<%9GIF $r@8@.$9kh$&;X<($7$^$9!#%G%U%)%k%H$O **nointerlace** $G$9!#

%*%W%7%g%s **linewidth** $H **dashlength** $O3HBgN($G!"IA2h5lk9YF$N@~$K1F6A$rM?$($^$9!#9JoA!"3l$iCMM!9$JIA2h%3%^%s%I$GMW5a$5lkCMK+$1;$5l^$9!#

%G%U%)%k%HGO!"=PNO5l$k PNG 2hA|$O256 8D$KHV9fIU$1il$??'$r;HMQ7^$9!#Be$ojK%*%W%7%g%s **truecolor** $r;H$($P!"24 %S%C%H/%T%/%;%k$N?'>pJs$r;}$D TrueColor 2hA|$,@8@.$5l^$9!#F)L@2=EI$jDV$7(transparent fill) $r;HMQ$9kH$-$O!"%3%N%*%W%7%g%s **truecolor** $,I,MW$KJj$^$9!#0J2<;2>H **fillstyle (p. 171)**!#GX7J$NF)L@2=$O!"HV9fIU$12hA|$+TrueColor 2hA|$G2DG=$G$9!#

butt $O@~J,$NIA2h$G!"$=$NC<$NE@GNO_$@$7$r5/$3$5$J$$IA2h%a%=%C%I$r;H$&h&%I%i%$%P$K;X<(7^$9!#%3$N@_Dj$O!"@~I}$, 1 hjBg$-$$$>l9gKN$_8z$G$9!#$3$N@_Dj$O!"?eJ?@~!"?bD>@~NIA2h$N>l9g$KM-MQG7g&!#%G%U%)%k%H$O **rounded** (4]$a) $G$9!#

%U%)%s%H$NA*Br$N>\:Y$O!"$d$dJ#;($G$9!#0J2<$KF1$80UL#$r;}$D4JC1$JNc$r<($7$^$9:

```
set term png font arial 11
set term png font "arial,11"
```

hj>\$7$$>pJsKD$$$F$O!"**fonts** $N2<$N3:Ev9k%;%/%7g%s$r;2>H$7F/$@$5$$!#

=PNOIA2h%5%$:<x,y> $O%T%/%;%kC10I$GM?$($^$9!#%G%U%)%k%H$O640x480 $G$9!#0J2<$b;2>H **canvas (p. 25)**, **set size (p. 168)**!#IA2h=*N;8e$NC<$NM>Gr$O!"%*%W%7%g%s **crop** $G<h$j=|$/$3H,G-!"$=$N7k2LH7$F=$N2hA|$5%$:$O>.$5$/$Jj^$9!#%G%U%)%k%H$O **nocrop** $G$9!#

```
Nc
     set terminal png medium size 640,480 background '#ffffff'
```

3NNc$O medium %5%$:$N!"Bg$-$5JQ99ITG=$G2sE>G-$J$$$AH$_9~$_%U%)%s%H$r;HMQ$7!"F)L@2=5l$J$$GX7J?'H7$FGr(16 ?J?t$N24bit RGB) $r;HMQ$7$^$9!#

```
     set terminal png font arial 14 size 800,600
```

3l$O!"'arial' $H$$$&%U%'!<%9L>$N%9%1!<%i%k%s%H$r8!:w$7!"%U%)%s%H%5%$:$r14pt $K@_Dj$7$^$9!#%U%)%s%H$N8!:w$,INh&$K9T$olk$+$K$D$$$F<0J2<;2>H **fonts (p. 37)**!#

```
     set terminal png transparent truecolor enhanced
```

$3$1$O!"24 %S%C%H/%T%/%;%k$N?'>pJs$r;HMQ$7!"GX7J$rF)L@2=$7$^$9!#$=$7$FI=<($5lkJ8;zNs$NG[CV@)8f$H7F **enhanced text** %b!<%I$r;HMQ$7$^$9!#

Pngcairo

=PNO7A<0 **pngcairo** $O!"PNG =PNO$r@8@.7^$9!#<B:]$NIA2h$O!"2D%0%i%U%#%C%/%i%$%V%i%jG"$kcairo $H!"J8;zNs$NG[CV$H%l%s%@%j%s0MQ$N%i%$%V%i%jpango $r7PM3$7$F9T$ol^$9!#

=q<0:

```
set term pngcairo
            {{no}enhanced} {mono|color}
            {{no}transparent} {{no}crop} {background <rgbcolor>
            {font <font>} {fontscale <scale>}
            {linewidth <lw>} {rounded|butt|square} {dashlength <dl>}
            {pointscale <ps>}
            {size <XX>{unit},<YY>{unit}}
```

3N=PNO7A<0$O!"3HD%J8;zNs=hM}%b!<%I (enhanced text mode) $r%5%]!<%H$7$F$$F!"%U%)%s%H$d=q<0%3%^%s %I (>eIU!"2<IUJI) $r%i%Y%k$dB>$NJ8;zNs$KKd$a9~$'3H$,$G$-$^$9!#3HD%J8;zNs=hM}%b!<%I$N=q<0$OB>$N gnuplot $N=PNO7A<0$H6&DI$G$9!#>\:Y$O!"0J2<;2>H: **enhanced (p. 27)**!#

IA2hK*1kA4FN@~$NI}$O!"0x;R<lw> $GJQ99$G$-$^$9!#

rounded $O!"@~$NC<$d@\9gIt$r4]$/$7$^$9!#%G%U%)%k%H$N **butt** $O@m$C$?C<$H3QD%C?@\9gIt$r;HMQ$7$^$9!#

PNG =PNO$N%G%U%)%k%H$N%5%$%:$O!"640 x 480 %T%/%;%k$G$9!#%*%W%7%g%s **size** $O!"$3lr%f!<%6$N;XDj$9$k bN$XJQ99$7$^$9!#%G%U%)%k%H$N X, Y %5%$%:$NC10L$O%T%/%;%kG9$,!"B>$NC10L$b;HMQ2DG=$G$9 (8=:_$O cm $H%$%s%A)!#%5%$%:$r cm $+%$%s%A$GM?$(kH$=$l$O!"2rA|EY 72 dpi GN%T%/%;%k?t$KJQ4 9$5l^$9!#**size** %* %W%7%g%s$G;XDj5l$?$3HKhkIA2h$NC<$+$iC<$^GNNN0h$O!">o$K%9%/%j!<%s:BI8$N0.0 $+$i1.0 $KBP1~$7 $^$9!#

<font> $O!"'FontFace,FontSize" $N=q<0!"$D$^$j%U%)%s%HL>$H%5%$%:$r%+%s%^$G6h@ZC?0lDNJ8;zNs$H$7 $FI=5-$7$^$9!#FontFace $O!"'Arial' Nh$&$JDL>o$N%U%)%s%HL>$G$9!#%U%)%s%HL>$rM?$(J>19g!"pngcairo =PNO7A<0GO'Sans' $,;HMQ$5l^$9!#FontSize $O%]%$%s%HC10LGN%U%)%s%H%5%$%:$G$9!#;XDj$7J>19g$O!" pngcairo =PNO7A<0$G$O12 %]%$%s%H$N%5%$%:$,;HMQ$5l^$9!#

```
Nc :
    set term pngcairo font "Arial,12"
    set term pngcairo font "Arial" # %U%)%s%HL>$N$_JQ99
    set term pngcairo font ",12" # %U%)%s%H%5%$%:$N$_JQ99
    set term pngcairo font "" # %U%)%s%HL>$H%5%$%:$r%j%;%C%H
```

%U%)%s%H$O!"DL>o$N%U%)%s%H=hM}5!9=Kh$j<hF@$5l^$9!#Windows GO!"%U%)%s%H$O%3%s%H%m!<%k%Q%M%k$N "%U%)%s%H" $N9'L\$G9=@.5l8+D1ilkbNG!"UNIX GO!"%U%)%s%H$O "fontconfig" $G=hM}$5l^$9!#

J8;zNs$N%l%$%"%&%H$K;HMQ$5lk%i%$%V%i%j Pango $O!"utf-8 $K4p$E$$$F$$^9N$G!"pngcairo =PNO7A<0$G $O!"J8;z%3!<%I$r utf-8 $KJQ4 9$9kI,MW,$"$j$^$9!#%G%U%)%k%H$NF~NOJ8;z%3!<%I$O!"$"$J$?$,;HMQ7F$$k 'locale' $K4p$E$-$^$9!#B>$NJ8;z%3!<%IK7$?$>19g$O!"$"J?$,$I$NJ8;z%3!<%I$r;HCF$$$kN+$r3N<B$K gnuplot $,$o$+$kh&K7F/$@$5$$!#>\:YKD$$$F$O!"0J2<;2>H: **encoding (p. 127)**!#

pango $O!"unicode %^%C%T%s%0$G$J$$%U%)%s%HKBP7FOM=4|$;$L7k2L$rM?$(k+b7l^;$s!#Nc$ ($P Symbol %U%)%s%H$KBP7F$O!"pngcairo =PNO7A<0$O!"U8;z%3!<%I$r unicode $KJQ4 9$9k?aK http://www.unicode.org/ $GD s6!$5lk%^%C%T%s%0$rMxMQ$7$^$9!#J*!"'the Symbol font" $O!"Acrobat Reader $H0l=o$K"SY____.PFB" H7$FG[I[$5lF$$$k Adobe Symbol %U%)%s%HG"kH2r<a5lk3HKCm0U7F$/$@$5$$!#3NBeoj$K!" OpenOffice.org $H0l=o$K"opens___.ttf" H7$FG[I[$5lk OpenSymbol %U%)%s%H$,F1$8J8;z$rD s6!$7$F$$^ $9!#Microsoft $b Symbol %U%)%s%H("symbol.ttf") $rG[I[$7$F$$^9,!"3l$OO[$J$kJ8;z%C%H$KJJ$F$$$F!"$$$/D+$O7g$1$F$$^$9$7!"$$$/D+$O?t<05-9f$KJQoCF7$^$C$F$$^$9!#$"J?$N%G%U%)%k%H$N@_Dj GJsi$+$NLdBj$,5/$-$?>19g (Nc$ ($P%G%b%/%j%W%H enhancedtext.dem $,$Acs$HI=<($5lJ$$H$$C$?>19g) $O!"Adobe $+ OpenOffice $N Symbol %U%)%s%H$r%$%s%9H!<%k$7$F!"Microsoft $N Symbol %U%)%s%H$r:o=|7J$$H$$1$J$$+b7l^;$s!#

%l%s%@%j%s%0$O!"cairo $H pango %i%$%V%i%j$,%5%]!<%H$9$kHC0CF'b$G!"%*!<%P!<%5%s%W%j%s%0$H%"%s%A% (%$%j %"%9!"%U%)%s%H$N%R%s%F%#%s%0$r9T$$^$9!#

Postscript

postscript %I%i%$%P$G$O$$/D+$N%*%W%7%g%s$,@_DjG-$^$9!#

=q<0:

```
     set terminal postscript {default}
     set terminal postscript {landscape | portrait | eps}
                             {enhanced | noenhanced}
                             {defaultplex | simplex | duplex}
                             {fontfile [add | delete] "<filename>"
                              | nofontfiles} {{no}adobeglyphnames}
                             {level1 | leveldefault | level3}
                             {color | colour | monochrome}
                             {background <rgbcolor> | nobackground}
                             {dashlength | dl <DL>}
                             {linewidth | lw <LW>} {pointscale | ps <PS>}
```

```
                                {rounded | butt}
                                {clip | noclip}
                                {palfuncparam <samples>{,<maxdeviation>}}
                                {size <XX>{unit},<YY>{unit}}
                                {blacktext | colortext | colourtext}
                                {{font} "fontname{,fontsize}" {<fontsize>}}
                                {fontscale <scale>}
```

```
    "Can't find PostScript prologue file ... "
```

postscript prologue (p. 243)

landscape **portrait** **eps** EPS (Encapsulated PostScript) PostScript PostScript Level 2 PostScript Level 2 PostScript Level 1 PostScript Level 1 **level1** PostScript Level 1 ON/OFF level 2 PostScript **level3** PNG

rounded **butt**

clip PostScript BoundingBox (PostScript **noclip**

palfuncparam **set palette functions** (**set palatte functions** postscript <samples> <maxdeviation>

PostScript EPS x 3.5 **size**

%:$NC10L$O%$%s%A$H$_$J5l$^$9$,!"B>$NC10L(8=:_$Ocm N_) $b;H$&3HOG$-$^$9!#IA2h$NBoundingBox (PostScript %U%!%$%k$N3OOH) $O!"%5%$%:$,JQ99$5l?2hA|$rCzEY4^$lh&$K@5$7$/@_Dj$5l^$9!#%9%/%j!<%s:BI8$O!"%*%W%7%g%s **size** $G;XDj$5l?IA2hOH$NA4BN$, 0.0 $+$i 1.0 KJj^$9!#Cm0U: 3l$O!"0JA0$O!"=PNO7A<0GN@_Djhj$b!"%3%^%s%I **set size** $G@_Dj$7$?J}$,$$$!"$H8@$C$F$$$?3H$NJQ99$r0UL#7^$9!#0JA0$NJ}K!GOBoundingBox $OJQ99$5l:$K;D$CF7$^$$!"%9%/%j!<%s:BI8$,<B:]$NIA2h$N8B3&$KBP1~7F$$^$;$sG7$?!#

fontfile $d **fontfile add** $G;XDj$5l?%U%)%s%H$O!"$=$N%U%)%s%H$N%U%)%s%HDj5A$rD>@l\postscript Type 1, TrueType %U%)%s%H$+$i gnuplot $Npostscript =PNO$NCf$K%+%W%;%k2=$7$^$9!#hC$F!"$=NKda9~$^$l$?%U%)%s%H$O8+=P$7!"%?%$%H%kJI$K;H$&3H$,$G$-$^$9!#▶\:Y$O!"0J2<;2>H: **postscript fontfile (p. 241)**!#**fontfile delete** KhCF%U%)%s%H%U%!%$%k$rKd$a9~$^lk%U%!%$%k$N0lMw$+$i<h$j=|$/3H$,$G$-$^$9!#**nofontfiles** OKda9~$_%U%)%s%H$N%j%9%H$r%/%j%"$7$^$9!#

Nc:

```
     set terminal postscript default       # 0JA0$N postscript
     set terminal postscript enhanced      # 0JA0$N enhpost
     set terminal postscript landscape 22  # 0JA0$N psbig
     set terminal postscript eps 14        # 0JA0$N epsf1
     set terminal postscript eps 22        # 0JA0$N epsf2
     set size 0.7,1.4; set term post portrait color "Times-Roman" 14
     set term post "VAGRoundedBT_Regular" 14 fontfile "bvrr8a.pfa"
```

@~$NI}$HE@NBg-5O **set style line** $GJQ99$G$-$^$9!#

postscript %I%i%$%P$OLs 70 <oN`$N0[$J$kE@<o$r%5%]!<%H7F$$$F!"3l$O **plot** $d **set style line** $N **pointtype** %*%W%7%g%s$GA*Br$G$-$^$9!#

gnuplot $H Postscript $K4X$9$kB?J,M-MQ$H;Wol$k%U%!%$%k$, **gnuplot** $NG[I[J*!"$^$?$O$=$NG[I[%5%$%H$N/docs/psdos %5%V%G%#%l%/%H%jFb$K$$$/D+4^$^$l$F$$$^$9!#$=3K$O"ps_symbols.gpi" (<B9T$9kH **postscript** %I%i%$%P$G;H$($kA4FN5-9f$r>R2p$9$k"ps_symbols.ps" $H$$&%U%!%$%k$r@8@.9k **gnuplot** $N%3%^%s%I%U%!%$%k)!""ps_guide.ps" (3HD%5l$?=q<0$K4X9kMWLs$H!"U8;zNsFb$G8?J%3!<%I$G@8@.$5lk$bN!"symbol %U%)%s%HEy$r4^$`PostScript %U%!%$%k)!""ps_file.doc" (**gnuplot** $G:n$i$l$kPostScript %U%!%$%k$N9=B$$N@bL@$r4^$`%F%-%9%H%U%!%$%k)!""ps_fontfile_doc.tex" (?t<0%U%)%s%H$NJ8;z$N0lMw$HLaTeX $N%U%)%s%H$NKd$a9~$_$K4X$9$kC;$$@bL@$r4^$`LaTeX %U%!%$%k) $,$"j^$9!#

PostScript %U%!%$%k$OJT=82DG=$G!"0lEY **gnuplot** G=lr:nlP!"$=$l$rK>$`h&$K=$@5$9$k3H$O<+M3$K9TJ($^$9!#$=$N$?$a$N%R%s%H$rF@kK$O!"0J2<;2>H: **editing postscript (p. 241)** $N@a!#

PostScript $NJT=8 (editing postscript)

PostScript 8@81OHFbJ#;($J8@81$G!"$3$3$G>\:Y$r5-=R9k3HOHFbG-$^$;$s!#$=lG$b!"**gnuplot** $G:n$ilk PostScript %U%!%$%k$K$O!"CWL?E*J%(%i!<$r$=$N%U%!%$%k$KF3F~7F7^$&4m81@-$N$J$$JQ99$r9T$J$&$3H,2DG=$JItJ,$,$"$j$^$9!#

Nc$($P!"PostScript $NJ8"/Color true def" (**set terminal postscript color** %3%^%s%IKEz($F%U%!%$%k$K=q$-9~$^$l$^$9) $rJQ99$7$F!"$=$NIA2h$rGr9uNbNK9$kJ}K!$O$*$o$+$jG7g&!#F1MM$K!"@~$N?'!"J8;zN?'!"@~$NB@$5(weight)!"5-9f$N%5%$%:$b!"K\Ev$K4JC1$K=q$-4$($ilkG7g&!#%?%$%H%k$d8+=P7JINJ8;zNs$N8m?"$d!"%U%)%s%H$NJQ99$bJT=82DG=G7g&!#G$0U$NbN$NG[CV$bJQ99G-$^$9$7!"$bAm$s!"G$0UNbNrDI2C7?$j!":o=|$7$?$jbG$-$^9,!"$=$liN=$@5$OPostScript 8@81$N?<$CN<1$,I,MW$G7g$&!#

gnuplot KhCF:nil$kPostScript %U%!%$%k$N9=@.$K4X7F$O!"gnuplot $N%=!<%9G[I[J*Fb$Ndocs/ps %G%#%l%/%H%j$N%F%-%9%H%U%!%$%k"ps_file.doc" $K=R$Yil$F$$$^$9!#

Postscript fontfile

%*%W%7%g%s **fontfile** $^$?$O **fontfile add** $O1 DN%U%!%$%kL>$r0z?tH7$F;}$A!"$=$N%U%!%$%k$rpostscript =PNOFb$K%+%W%;%k2=$7FKda9~$_!"$=lKhC$FMM!9$JJ8;zNsMWAG(%i%Y%k!"L\@9$j8+=P$7!"%?%$%H%kEy) r=$N%U%)%s%H$G=PNO9k3H$r2DG=$K7^$9!#%*%W%7%g%s **fontfile delete** $b1 DN%U%!%$%kL>$r0z?t$K;}$A!"$=$N%U%!%$%kL>$r%+%W%;%k2=5l$k%U%!%$%k$N%j%9%H$+$i:o=|7^$9!#

postscript =PNO%I%i%$%P$O$$/D$+$N%U%)%s%H%U%!%$%k7A<0$rG'<1$7$^$9: ASCII 7A<0$NType 1 %U%)%s%H(3HD%;R ".pfa")!"%P%$%J%j7A<0$N Type 1 %U%)%s%H(3HD%;R ".pfb")!"TrueType %U%)%s%H(3HD%;R ".ttf")!#pfa

%U%!%$%k$CD>@\G'<1$5$l$^$9$,!"pfb $Httf %U%!%$%k$Ognuplot $N<B9TCf$KJB9T7FJQ49$5$l!"$=$N$?$a$KE,@Z$JUQ49%D!<%k(2<5-;2>H)$,%$%s%9%H!<%k5l$F$$kI,MW$,$"j^$9!#%U%!%$%kL>$O3HD%;R$b4^aF40A4$J7A$G;XDj9kI,MW$,$"j^$9!#3F **fontfile** %*%W%7%g%sOAg&$I01$D$N%U%)%s%H%U%!%$%kL>$KBP1~$7$^$9NG!"J#?t$N%U%)%s%H%U%!%$%krKda9~$'$?aKO3$N%*%W%7%g%s$rJ#?t2s;HCF2<$5$$!#

%U%)%s%H%U%!%$%k$O!":n6H%G%#%l%/%H%j!"$=$7$F **set fontpath** $GM?$(il$k%U%)%s%H%Q%90lMw$NA4FN%G%#%l%/%H%j$,8!:w$5l^$9!#$5iK!"4D6-JQ?tGNUPLOT_FONTPATH $G%U%)%s%H%Q%9$r@_Dj9k3HbG$-$^$9!#$=l,@_Dj5l$F$$$J$>19g$O%G%U%)%k%H$N8!:w%j%9%H$,;Hol$^$9$,!"$3lO%7%9%F%'$K0MB8$7$^$9!#>\:Y$O!"0J2<;2>H: **set fontpath (p. 129)**!#

Kd$a9~$^l?%U%)%s%H%U%!%$%k$r;H$&$K$O!"%U%)%s%HL>(DL>o%U%!%$%kL>$HF1$8GO$"$j$^$;$s)$r;XDj9kI,MW$,$"j^$9!#BPOC%b!<%IG **fontfile** %*%W%7%g%s$r;H$C$F%U%)%s%H$rKd$a9~$s$@>19g!"%U%)%s%HL>$O%9%/%j!<%s$KI=<($5l^$9!#Nc:

```
Font file 'p0520041.pfb' contains the font 'URWPalladioL-Bold'. Location:
/usr/lib/X11/fonts/URW/p0520041.pfb
```

pfa $dpfb %U%)%s%H$G$O!"%U%)%s%HL>$O%U%)%s%H%U%!%$%kFb$K8+D1k3H,G-$^$9!#%U%)%s%H%U%!%$%kCf$K"/FontName /URWPalladioL-Bold def"Nh$&$J9T$,$"j^9,!"3N?Cf$NJ*$+$i/$r=|$$$?bN$,%U%)%s%HL>$G$9!#$3NNcN>19g$O"URWPalladioL-Bold"$HJj$^$9!#TrueType %U%)%s%HGO!"%U%)%s%HL>$O%P%$%J%j7A<0$GJ]B8$5lF$$kNG8+D1kN$OMF0W$GO"j^$;$s!#5i$K!"$=$NL>A0$OB?$/$N>19g!"Type 1 %U%)%s%H(<B9TCf$K TrueType $,JQ49$5lk7A<0G"$k)$G$O%5%]!<%H$5lF$$$J$!"%9%Z!<%9$r4^s@7A<0KJCF$$$^$9!#$=N?$a!"%U%)%s%HL>$O$=$3$+$i%9%Z!<%9$r<h$j=|$$$?7A$KJQ49$5l^$9!#gnuplot $G;H$&$?$a$K@8@.$5l?%U%)%s%HL>$,2?$G$"$k$+$rCN$k:G$b4JC1$JJ}K!$O!"gnuplot $rBPOC%b!<%I$G5/F0$7$F!"0J2<Nh$&$KF~NO9k3H$G$9:"set terminal postscript fontfile '<filename.ttf>'".

%U%)%s%H%U%!%$%k(ttf, pfb)$rpfa 7A<0$KJQ49$9k?aK!"%U%)%s%H%U%!%$%k$rFIsG!"$=$7$FJQ497k2L$rI8=\PNO$KEG$-=P$9JQ49%D!<%k$,I,MWKJj^$9!#$=$N=PNO$rI8=\PNO$K=q$-=P$9$3H,G-J>19g!"<B9TCf$NJQ49$OG-$^;$s!#

pfb %U%!%$%k$KBP7F$O!"Nc$($P "pfbtops" $,;H$($^$9!#$=$l$,%7%9%F%'$K%$%s%9%H!<%k$5lF$$$l$P!"<B9TCf$NJQ49O&$^$/9T$/$O$:$G$9!#pfb %U%!%$%k$N%+%W%;%k2=$rAgCHdCF_$^$7g&!#b7%W%m%0%i%'$NJQ49;~$K@5$7$/%D!<%k$r8F$S=P7F$$$J$>19g$O!"INh&$K%D!<%k$r8F$S=P$7$?$iNI$$$+$r4D6-JQ?tGNUPLOT_PFBTOPFA $K!"Nc$($P "pfbtops %s" Nh$&$KDj5A7F2<$5$$!#**%s** $O%U%)%s%H%U%!%$%kL>KCV-49$($il^9N$G!"$3lO$=$NJ8;zNs$KI,$:I,MW$G$9!#

<B9TCf$NJQ49$r7?$/J$/F!"1lIbpfa 7A<0$N%U%!%$%kI,MWG"$k>19g!""pfb2pfa" $H$$$&C $G=q$+l?4JC1$J%D!<%k$r;H$($PNI$$G7g$&!#$3lOBgDq$NC %3%s%Q%$%i%C%3%s%Q%$%k$G$-!"$?$/$5sNftp %5!<%P$KCV$$F$"$j$^$9!#Nc$($Pftp://ftp.dante.de/tex-archive/fonts/utilities/ps2mf/

<B:]$K"pfbtopfa" $H"pfb2ps" $CF1$8:n6H$r9T$$^$9!#"pfbtops" $O7k2L$Npfa %3!<%I$rI8=\PNO$K=PNO7^9,!""pfbtopfa" $O%U%!%$%k$K=PNO$7$^$9!#

TrueType %U%)%s%H$O!"Nc$($P "ttf2pt1" $H$$$&%D!<%k$r;H$C$F Type 1 pfa %U%)!<%^%C%H$KJQ49$G$-$^$9!#$3lO0J2<$K"$j$^$9:http://ttf2pt1.sourceforge.net/

b7 gnuplot KAH_9~$^$l$F$$$kJQ49<j=g$,$&$^$/9T$+$J$$>19g!"JQ49%3%^%s%I$O4D6-JQ?tGNUPLOT_TTFTOPFA $GJQ99$G$-$^$9!#ttf2pt1 $r;H$&>19g$O!"$=lr "ttf2pt1 -a -e -W 0 %s - " Nh$&$K@_Dj7F2<$5$$!#$3$3Gb**%s** $O%U%!%$%kL>$r0UL#$7$^$9!#

FC<l$JMQES$N$?$a$K!"%Q%$%W$b;H$(kh$&$KJC$F$$$^$9(%Q%$%W$r%5%]!<%H$7$F$$$kOS >e$G)!#%U%!%$%kL>$r"<" $G;O$a!"$=$N8e$K%W%m%0%i%'8F$S=P7rDI2C7^$9!#$=$N%W%m%0%i%\PNO$OI8=\PNO$X$Npfa %G!<%?GJ1l$P$$$1$^$;$s!#7k2L$H7Fpfa %U%!%$%k$r!"Nc$($P0J2<Nh$&$K7F"%/%;%9G-k3HKJj$^$9:**set fontfile "< cat garamond.pfa"**!#

Type 1 %U%)%s%H$r<h$j9~$'$3HO!"Nc$($PLaTeX J8=qCf$Kpostscript %U%!%$%k$r<h$j9~$'>19g$K;H$($^$9!#pfb 7A<0$N"european computer modern" %U%)%s%H("computer modern" %U%)%s%H$N01<o)$,3FC0$NCTAN %5!<%P$KCV$+$l$F$$$^$9!#ftp://ftp.dante.de/tex-archive/fonts/ps-type1/cm-super/

Nc$($P!"%U%!%$%k "sfrm1000.pfb" $O!"CfB@!"%;%j%UIU$-!"N)BN$N 10 %]%$%s%H$N%U%)%s%H(%U%)%s%HL>"SFRM1000")$G$9!#computer modern %U%)%s%H$O:#$G$b?t<0$r=q$/$NKI,MWG9,!"$=$l$O0J2<$K"j^$9:ftp://ftp.dante.de/tex-archive/fonts/cm/ps-type1/bluesky

3liKhC$F!"TeX MQ$NG$0U$NJ8;z$b;H$($^$9!#7+$7!"computer modern %U%)%s%H$O>/$7%(%s%3!<%G%#%s%0$,$*$+$7$/$JCF$$$^$9($3$N?$a!"J8;zNsKO cmr10.pfb NBeojK sfrm1000.pfb $r;H$&Y$-$G$9)!#TeX %U%)%s%H$N;HMQK!$O$$/D+$N%G%b$N01DGCNk3H,G-$^$9!#**gnuplot** $N%=!<%9[I[J*$N/docs/psdoc $K

4^$^$l$k%U% !%$%k"ps_fontfile_doc.tex" $K TeX ?t3X%U%)%s%H$NJ8; z$N0lMwI=$,4^$^$l$F$$^$9!#

%U%)%s%H "CMEX10" (%U% !%$%k "cmex10.pfb") rKda9~$ '$H! "gnuplot $CDI2C%U%)%s%H "CMEX10-Baseline" $bDj5A$7$^$9!#$=$l$O! "B>$NJ8; zK"$&$h$&$K?hD>J}8~K:i5l?bN$G$9 (CMEX10 $O! "5-9f$NE7JU$K %Y! <%9%i%s%s$,$"$j$^$9)!#

PostScript prologue %U% !%$%k

3F PostScript =PNC%U% !%$%k$O%%Prolog %;%/%7%g%s$r4^$_$^$9$7! "Nc$ ($PJ8; z% (%s%3! <%G%#%s%0$JIr4^$ 'DI2C%f! <%6Dj5A%;%/%7%g%s$r4^$ '$+$b7l$^$;$;$s! #3liN%;%/%7%g%s$O! "gnuplot $N<B9T%U% !%$%kCf$K%3%s%Q %$%k5l$F$$k! "$"$k$$O$"$J$?$N%3%s%T%e! <%?NULNH3mKJ]B8$5$l$F$$kPostScript prologue %U% !%$%k 72$+$i%3%T! <$5l^$9! #$3li$N%U% !%$%k$,CV$+lk%G%U%)%k%H$N%G%#%l%/%H%j$O! "gnuplot $N%$%s%9%H! <%k;~ $K@_Dj$5l^9,! "3N%G%U%)%k%H$O gnuplot %3%^%s%I$N **set psdir** $r;H$&$+! "4D6-JQ?t GNUPLOT_PS_DIR $rDj5A$9k3HGJQ9 9G-$^$9! #0J2<;2>H: **set psdir (p. 166)**!#

Postscript adobeglyphnames

3N@_Dj$O! "UTF-8 %(%s%3! <%G%#%s%0GN PostScript =PNCKN$_4X78$7$^$9! #3l$O! "0x00FF hjBg$-$$$ Unicode %(%s%H%j%]%$%s%H($D$^$j Latin1 =89g30N9YF) $NJ8; z$r5-=R9kNK; Hol$kL>A0$r@)8f7^$9! #0lHI$K! "unicode J8; z$O0l0U$NL>A0$r; }$?$:! "$=lO unicode <1JIHV9f7+; }A^$;$s! #7+$7! "Adobe $O! "$" $kH0O0$NJ8; z(3HD%%i%F%sJ8; z! "%.%j%7%cJ8; zEy) $KL>A0$r3djEvF$k?d>)5,B'$r; }CF$$$^$9! #%U%)%s%H$KhC FO3N5,B'$rMxMQ$7$F$$$kbN$"$j$^$9$7! "$=$&$G$J$$$bNb$"$j$^$9! #gnuplot $O%G%U%)%k%H$G$O Adobe %0%j%UL>$r; HMQ7^$9! #Nc$ ($P! "%.%j%7%cJ8; z$N>.J8; z$N%"%k%U% !$O/alpha HJj^$9! #**noadobeglyphnames** $r;XDj$7$?>19g! "$3$NJ8; z$KBP7F gnuplot OBeojK/uni03B1 $r;H$*$&$H7^$9! #$3$N@_Dj$G$*$+7/JC $?$H9l$P! "$=lO$=$NJ8; z$,%U%)%s%HF'b$K$"$kKb$+$+oi$:$=l,8+D+iJ$>19g$G$9! #Adobe %U%)%s%H$KBP7F$O! "%G%U%)%k%H$r; H$&$N$,>o$K@5$7$$$+b7l^$;$s$,! "B>$N%U%)%s%HGON>J}$N@_Dj$r; n7F$_ $J$$$H$$1$J$$+b7l^$;$s! #0J2<$b;2>H: **fontfile (p. 241)**!#

Pslatex and pstex

pslatex %I%i%PO LaTeX $G8e=hM}$5lk=PNC$r@8@.$7! "**pstex** %I%i%PO TeX $G8e=hM}$5lk=PNC$r@8@.$7$^$9! #**pslatex** $O dvips $H xdvi $GG'<12DG=$J\special L?Na$r; HMQ$7$^$9! #**pstex** $G@8@.$5lk?^$O! "G$0U$N plain-TeX %Y! <%9$N TeX (LaTeX b=$&$G$9) $G<h$j9~$ '3H$,$G$-$^$9! #

=q<0:

```
     set terminal [pslatex | pstex] {default}
     set terminal [pslatex | pstex]
                              {rotate | norotate}
                              {oldstyle | newstyle}
                              {auxfile | noauxfile}
                              {level1 | leveldefault | level3}
                              {color | colour | monochrome}
                              {background <rgbcolor> | nobackground}
                              {dashlength | dl <DL>}
                              {linewidth | lw <LW>} {pointscale | ps <PS>}
                              {rounded | butt}
                              {clip | noclip}
                              {palfuncparam <samples>{,<maxdeviation>}}
                              {size <XX>{unit},<YY>{unit}}
                              {<font_size>}
```

0J2<Nh$&$J%(%i! <%a%C%;! <%8$,=P$?>19g:

```
     "Can't find PostScript prologue file ... "
```

0J2<;2>H: **postscript prologue (p. 243)**!#$=$7F=$N;X<($K=>CF$/$@$5$$! #

%*%W%7%g%s **color** $O%+%i! <$rM-8z$K$7! "**monochrome** $O3EMWAG$r9u$HGrIA2h$7$^$9! #5i$K! "**monochrome** $O3%?'$N **palette** $b;HMQ$7$^$9$,! "$3lO! "L@<(E*$K **colorspec** $G;XDj$5l?ItIJ$N?'$rJQ9 9$7$^$;$s! #

dashlength $^$?$O **dl** $CE@@~$N@~J,$ND9$5$r<DL> (0 hjBg$-$$<B?t) $K@_Dj$7! "**linewidth** $^$?$O **lw** $OA4$F$N@~$NI}$r<LW> $K@_Dj$7$^$9! #

%G%U%)%k%HGO! "@8@.$5$1$k PostScript %3!<%I$O! "FC$K%U%#%k%?%j%s%0$dfilledcurves Nh$&$JG3$\$3$JNN 0h$N%Q%?!<%sEIjDV7K*$$F! "PostScript Level 2 H7$F>R2p$5$1$F$$$k8@815!G=$r;H$$^$9! #PostScript Level 2 $N5!G=$O>r7cE*$KJ]8n$5$1$F$$$F! "PostScript Level 1 $N%$%s%?!<%W%j%?$,%(%i!<$r=P5:!"$`$7$m %a&C%;!<%8$+PostScript Level 1 Kh$k6a;w$G$"$k3H$rI=<($9kh$&$KJC$F$$$^$9! **#level1** %*%W%7%g%s$O! " $3$1iN5!G=$r6a;w$9$k PostScript Level1 $GBeMQ$7! "PostScript Level 2 %3!<%I$r0l@Z;HMQ$7$^$;$s! #$3$1$O 8E$$%W%j%s%?$d! "Adobe Illustrator $N8E$$%P!<%8%g%sJIGI,MWKJk$+$b$7$1$^$;$s! #$3$N%U%i%0 **level1** $O=PNO$5$1$? PostScript %U%!%$%k$N$"$k0l9T$r<j$GJT=8$9$k3H$G! "8e$+$i6/@)E*$K PostScript Level 1 5!G=$r ON/OFF K9k3HbG-$^$9! #level 2 $N%3!<%I$,4^$^$1$F$$$k>19g! ">e$N5!G=$O8=o1$J$$+! "3N%U %i%0$,%;%C%H$5$1$?>19g!"$"$k$$$O PostScript %$%s%?%W%j%?%W%m%0%i%`$, level 2 0J>e$N PostScript $r2r<a 9kHO8@oJ$+C?>19g$K7Y9pJ8KCV-4$9$oj^$9! **#level3** %*%W%7%g%s$O! "%S%C%H%^%C%W2hA|$N PNG 2=$N 5!G=$rM-8zK7$^$9! #$=$1Kh$j=PNO%5%$%:r+Jj:o8:G-$^$9! #

rounded $O! "@~$NC<$d@\9gIt$r4]$/$7! "%G%U%)%k%H$N **butt** $O@m$C$?C<$H3QD%C?@\9gIt$r;HMQ$7$^$9! #

clip $O! "PostScript K9YF$N=PNO$r BoundingBox (PostScript $N3OOH) $G%/%j%C%W$9k3Hr;X<(7^$9; %G%U%)%k%H$O **noclip** $G$9! #

palfuncparam $O **set palette functions** $+$i=PNO$N79$-rINh$&$K%3!<%I2=9k$+$r@)8f7^$9! #2r@O E*$J?'$N@.J,4X?t (**set palatte functions** $G@_Dj$5$1$k) $O! "postscript =PNO$G$O79$-$N@~7AJd40$rMQ$$$F %3!<%I2=$5$1$^$9: $^$:?'$N@.J,4X?t$, <samples> 8D$NE@$GI8K\2=$5$1! "$=$7F=1i$NE@$O! "7k2LH7$F @~7AJd40$H$NJP:9$, <maxdeviation> 0JF'b$K<}$^kh$&$K:o=|$5$1$^$9! #$[$HsIA4FNM-8z$J%Q%l%C%H$G! " %G%U%)%k%H$N<samples> =2000 $H<maxdeviation>=0.003 NCMr$=$N$^$^;H$&$N$,NI$$G7g$&! #

PostScript =PNO$N%G%U%)%k%H$NBg$-$5$O10 %$%s%Ax 7 %$%s%A$G$9! #EPS =PNO$N%G%U%)%k%HNBg-5O5 x 3.5 %$%s%A$G$9! #%*%W%7%g%s **size** O3$1$irf!<%6$,;XDj$7$?$bNKJQ9$7$^$9! #%G%U%)%k%H$G$O X $H Y $N%5%$ %:$NC10L$O%$%s%A$H$_$J$5$1$^$9$,! "B>$NC10L(8=:_$Ocm N_) $b;H$&3HOG$-$^$9! #IA2h$N BoundingBox (PostScript %U%!%$%k$N3OOH) $O! "%5%$%:$,JQ9$5$1$?2hA|$rCzEY4^$'h&$K@5$7$/@_Dj$5$1$^$9! #%9%/%j!<%s :BI8$O! "%*%W%7%g%s **size** $G;XDj$5$1$?IA2hOH$NA4BN$, 0.0 $+$i1.0 KJj^$9! #Cm0U: $3$1$O! "0JA0$O! "=PNO 7A<0GN@_Djhj$b! "%3%^%s%I **set size** $G@_Dj$7$?J}$,$$$$! "$H8@$C$F$$$?3HNJQ9$r0UL#$7$^$9! #0JA0 $NJ}K!$G$O BoundingBox $OJQ9$5$1$:$K;D$CF7$^$$! "%9%/%j!<%s:BI8$,<B:]$NIA2h$N8B3&$KBP1~7F$$^ $;$sG7$?! #

rotate $,;XDj$5$1$k$Hy <4$N8+=P7,2sE>$5$1$^$9! #<font_size> $O4uK>$9$k%U%)%s%H$N(%]%$%s%HC10L$G$N) Bg$-5G$9! #

auxfile $,;XDj$5$1$k$H! "%I%i%$%P$O PostScript %3%^%s%I$r! "LaTeX %U%!%$%k$KD>@\=PNO9kBeoj$K! "Jd =u%U%!%$%k$K=q$-=P9h$&$KJj$^$9! #$3$1$O! "dvips $,$=1r07$($J$$/$i$$Bg$-$$%0%i%UG"$k>19g$KM- MQ$G$9! #Jd=u PostScript %U%!%$%k$NL>A0$O! "**set output** %3%^%s%I$GM?$(i1$k TeX %U%!%$%k$NL>A0$+$iF3 $+$1kbNG! "$=$1O=$N:G8e$N **.tex** $NItJ,(<B:]$N%U%!%$%kL>$N:G8e$N3HD%;R$NItJ,) $r **.ps** GCV-4$9$($? bN! "$^$?$O! "TeX %U%!%$%k$K3HD%;R$,$J$$$JiP **.ps** $r:G8e$KIU$1B-$7$?$bNKJj$^$9! #**ps** %U%!%$%k$O \special{psfile=...} $H$$&L?Na$G **.tex** %U%!%$%k$K<h$j9~$^$1$^$9! #**multiplot** %b!<%I0J30GO! "<!$NIA2h$r 9TJ&A0K=$N=PNO%U%!%$%k%/%m!<%:9kNrK:lJ$$$G$/$5$$! #

version 4.2 hjA0$N gnuplot $O ps(la)tex =PNO7A<0$G$O5 x 3 %$%s%A$N=PNO$G7?$,!"8=:_$G$O5 x 3.5 %$%s %AKJCF$$^$9! #$3$1$O postscript eps =PNO7A<0$K9g$o$;$?JQ9$G$9! #2C$($F! "J8;zI}$O! "0JA0$N epslatex =PNO7A<0$O%U%)%s%H%5%$%:$N50% $H8+$J7^7?$,!"8=:_$O60% $HI>2A$7$F$$^$9! #=>Mh$N7A<0KLa9KO! " %*%W%7%g%s **oldstyle** $r;XDj$7F/$@$5$$! #

pslatex %I%i%$%P$OJ8;zNs$NG[CV$N@)8f$KFCJL$JJ}K!$rDs6!$7$^$9: (a) '{' $G;O$^$kJ8;zNs$O! "'}' GJD8kI, MW,$"$j$^$9$,! "$=$NJ8;zNsA4BN$, LaTeX KhCF?eJ?J}8~Kb?hD>J}8~Kb%;%s%?%j%s%0$5$1$^$9! #(b) '[' $G;O$^$kJ8;zNs$N>19g$O! "0LCV$N;XDj$r9$kJ8;zNs (t,b,l,r N&$A2 D^$G) $,B3$-!"<!$K'](' ! "J8;zNs$K\BN! " $G:G8e$K']' H7$^$9$,! "$3$NJ8;zNs$O LaTeX $, LR-box H7$F@07A7^$9! #\rule{}{} $r;H$(P5iKNI$$ 0LCV9go;$,2DG=$G7g$&! #

$3$3$K5-=R$5$1$F$$$J$%*%W%7%g%s$O **Postscript terminal** NbNHF10lG9NG! "$=$1i,2?$r9T$J$&$N $+$rCNj?1lP=Ai$r;2>H$7F/$@$5$$! #

Nc:

```
set term pslatex monochrome rotate       # %G%U%)%k%H$K@_Dj
```

PostScript %3%^%s%I$r"foo.ps" $K=q$-=P$9:

```
set term pslatex auxfile
```

```
set output "foo.tex"; plot ...; set output
```

```
set title '\LaTeX\ -- $ \gamma $'
```

```
set label '{\LaTeX\ -- $ \gamma $}' at 0,0
```

```
set xlabel '[t]{\LaTeX\ -- $ \gamma $}'
```

```
set ylabel '[r]{\LaTeX\ -- $ \gamma $\rule{7mm}{0pt}}'
```

set style line

Pstricks

pstricks LaTeX "pstricks.sty" **epeic** **latex** "pstricks.sty" PostScript Ghostscript

PSTricks anonymous ftp Princeton.EDU /pub PSTricks

```
set terminal pstricks {hacktext | nohacktext} {unit | nounit}
```

hacktext **nounit**

Qms

qms QMS/QUIC Talaris 1200

Qt

qt

```
set term qt {<n>}
            {size <width>,<height>}
            {position <x>,<y>}
            {title "title"}
            {font <font>} {{no}enhanced}
            {linewidth <lw>} {dashlength <dl>}
            {{no}persist} {{no}raise} {{no}ctrl}
            {close}
            {widget <id>}
```

set terminal qt <**n**>

"title"

gnuplot

close **set term qt** <**n**> **close**

IA2hNN0h$N%5%$%:$O%T%/%;%kC10L$GM?$($^$9!"%G%U%)%k%H$O 640x480 $G$9!#$=$l$K2C$($F!"%&%#%s%I%&$N<B:]$N%5%$%:KO!"%D!<%k%P!<%d%9%F!<%?%9%P!<MQ$N%9%Z!<%9%hDI2C$5l^$9!#%&%#%s%I%&$N%5%$%:$rJQ99$9$k$H!"IA2h%0%i%U$b%&%#%s%I%&$N?7$7$$%5%$%:$KTC$?$j9g$&$h$&$K$9$0$K?-=L$5l^$9!#**qt** =PNO7A<0$O%U%)%s%H!"@~I}$b4^$a$FIA2hA4BN$r?-=L7^9,!"A4BN$N%"%9%Z/%HHf$C0lDj$KJ]$A$^$9!#$=$N8e **replot** $H%?%$%W9k$+!"%?!<%_J%k%D!<%k%P!<$N **replot** %"%$%3%s$r%/%j%C%/9k$+!"?7$?$K **plot** %3%^%s%I$rF~NO9k$H!"$=$N?7$7$IA2h$G$O40A4$K$=$N%&%#%s%I%&$K9g$o$;$il^9,!"%U%)%s%H%5%$%:$d@~I}O=l>lN%G%U%)%k%H$K%j%;%C%H$5l^$9!#

position %*%W%7%g%s$OIA2h%&%#%s%I%&$N0LCV$r@_Dj$9kN$K;H$($^$9!#3l$O%3%^%s%I **set term** 8e$N:G=i$NIA2hKN$_E,MQ$5l^$9!#

8=:_$NIA2h%&%#%s%I%&(**set term qt <n>** $GA*Br$5l?bN) $OBPOC7?$G!"$=$N5sF0$O!"B>$N=PNO7A<0$H6&DL$G$9!#**>\:Y$O!"0J2<;2>H: mouse (p. 147)**!#$=$lKOCDI2C$N%"%$%3%s$b$$$/D+$D$$F$$$^9,!"$=$liO$=$l<+BN$,@hL@E*$JbNKJCF$$kO:$G$9!#

3N=PNO7A<0$O!"3HD%J8;zNs=hM}%b!<%I(enhanced text mode) $r%5%]!<%H$7$F$$F!"%U%)%s%H$d=q<0%3%^%s%I(>eIU!"2<IU$J$I) $r%i%Y%k$dB>$NJ8;zNs$KKd$a9~$`3H$,$G$-$^$9!#3HD%J8;zNs=hM}%b!<%I$N=q<0$O!"gnuplot $NB>$N=PNO7A<0$H6&DL$G$9!#**>\:Y$O!"0J2<;2>H: enhanced (p. 27)**!#

<font> $O"FontFace,FontSize" $N7A<0$G!"FontFace $HFontSize Hr%3%s%^$GJ,N%7F0lDNJ8;zNs$H7F=q$-$^$9!#FontFace $O!"'Arial' Nh$&$JDL>o$N%U%)%s%HL>$G$9!#FontFace $rM?$(J>19g$O!"qt =PNO7A<0$O'Sans' $r;HMQ$7$^$9!#FontSize $O%]%$%s%HC10L$N%U%)%s%H%5%$%:$G$9!#FontSize $rM?$(J>19g$O!"qt =PNO7A<0$O9 %]%$%s%H$r;HMQ7^$9!#

```
Nc :
   set term qt font "Arial,12"
   set term qt font "Arial" # %U%)%s%HL>$N$_JQ99
   set term qt font ",12" # %U%)%s%H%5%$%:$N$_JQ99
   set term qt font "" # %U%)%s%HL>!"%U%)%s%H%5%$%:$r%j%;%C%H
```

dashlength $O!"E@@~/GK@~%Q%?!<%s$N%f!<%6Dj5AKN$_1F6A$rM?$(!"Qt $,FbIt$K;}CF$$k%Q%?!<%sKO1F6A$rM?$($^$;$s!#

2DG=$J8B$j:G$hNI$$=PNO$r@8@.$9k?aK!"3N%l%s%@%j%s%0$O%"%s%A%"%j%"%9!"%*!<%P!<%5%s%W%j%s%0!"%R%s%A%s%0$N3 DN5!9=$r;}CF$$^$9!#%*!<%P!<%5%s%W%j%s%0$O!"%"%s%A%(%$%j%"%9HA$G%T%/%;%khj$b>.$5$$%5%$%:$G$N@:EY$rDs6!$7!"gnuplot $,Hs@0?t:BI8$ND>@~$r=q$1kh$&$KJC$F$$^$9!#$3lO!"BP3QJ}8~$ND>@~(Nc$ ($P 'plot x') $,:81&$KMIlkNrHr1^$9!#%R%s%F%#%s%0$O!"*!<%P!<%5%s%W%j%s%0KhCF0z$-5/$3$5$l$k?eJ?!"?hD>J}8~$N@~J,$N\$+7rHr1^$9!#$3$N=PNO7A<0$O!"3liND>@~$r@0?t:BI8$KB7$(!"$=lKhj!"1 %T%/%;%kI}$ND>@~$CK\Ev$K1 $D(1 Dh$jB?$/$b>/J/$bJ)$N%T%/%;%k$GIA2h7^$9!#

%G%U%)%k%H$O!"IA2h$,9Tol$?$H$-$K%&%#%s%I%&$O%G%9%/%H%C%W$N0lHV>e(:GA0LL) $KI=<($5l^$9!#$3lO!"%-!<%o!<%I "raise" $G()8f$G$-$^$9!#%-!<%o!<%I "persist" $O!"$9YF$NIA2h%&%$%s%I%&$rL@<(E*$KJD8J$$4V$O!"gnuplot $,=*N;$7$J$$$h$&$K7^$9!#:G8e$K!"%G%U%)%k%HGO <space> %-!<$O gnuplot %3%s%=!<%k%&%#%s%I%&$r>e$K>e$2(MS Windows N_)!"'q' $OIA2h%&%#%s%I%&$rJD8^9,!"%-!<%o!<%I"ctrl" $O!"$=li$N%-!<3d$jEvFr<ctrl>+<space> $H<ctrl>+'q' $KJQ99$7$^$9!#

%W%m%0%i%'$N%3%s%Q%$%k;~$KA*Br$7?>l=j$K!"gnuplot $N30It%I%i%$%Pgnuplot_qt $,%$%s%9%H!<%k5l$^$9$,!"4D6-JQ?t GNUPLOT_DRIVER_DIR $r@_Dj$9k3HGCV$->l=j$rJQ99$9$k3HbG$-$^$9!#

Regis

Cm0U: 8E$$(legacy) =PNO7A<0$G$9!#**regis** %I%i%$%P$OREGIS %0%i%U%#C%/8@8lGN=PNO$r@8@.$7$^$9!#3N%I%i%$%P$K$O?'$r4 ?';H$&$+(%G%U%)%k%H) 16 ?';H$&$+$N%*%W7%g%s$,$"$j$^$9!#

=q<0:

```
   set terminal regis {4 | 16}
```

Sixelgd

=q<0:

```
   set terminal sixelgd
```

```
{{no}enhanced}
{{no}transparent} {rounded|butt}
{linewidth <lw>} {dashlength <dl>}
{tiny | small | medium | large | giant}
{font "<face> {,<pointsize>}"} {fontscale <scale>}
{size <x>,<y>} {{no}crop} {animate}
{background <rgb_color>}
```

sixel =PNC%U%)!<%^%C%H$O!"85!9DEC $N%?!<%_%J%k!"%W%j%s%?$G;Hol$F$$$?bN$G$9!#3N%I%i%$%P$O!"gd %i%$%V%i%j$rFbItE*$K;HMQ$7$F:n@.$7$?PNG 2hA|$rJQ49$7$Fsixel =PNCNs$r@8@.$7$^$9!#sixel =PNCNs$O!"$= lr:n@.7?H-$K%?!<%_%J%k>e$KI=<(5;k3$H,$G$-$^9,!"$^$?O=$N=PNCNs$r%U%!%$%k$K=q$-$@7F $*$$$F!"8e$+$i$=$N%U%!%$%k$r%?!<%_%J%kKEG-=P$9$3HGI=<(KCV-49$($k3HbG$-$^$9!#

%*%W%7%g%s **animate** $O!"O"B3$9$k plot L?Na$GA0$N%0%i%U$,>e$K%9%/%m!<%k$7$F>C$(kBeojK!"3F plot $,%9%/%j!<%s$NF1$8NNOh$r>e=q$-$9kh$&$K3F plot $N3+;O;~$K%+!<%=%k0LCV$r%?!<%_%J%k$N:8>e$K%j%;%C%H$7 $^$9!#3l$O>l=j8GDj<0%"%K%a!<%7%g%s (in-place animation) $N@8@.MQ$N;EAH$_$G$9!#

transparent $O!"%I%i%$%P$KGX7J?'$NF)L@2=(transparent) $r9T$&h&;X<(7^$9!#%G%U%)%k%H$O **notransparent** $G$9!#

%*%W%7%g%s **linewidth** $H **dashlength** $O3HBgN($G!"IA2h5lk9YF$N@~$K1F6A$rM?$($^$9!#9JoA!"$3 li$OMM!9$JIA2h%3%^%s%I$GMW5a$5lkCMK+$1;;$5l^$9!#

%G%U%)%k%HGO!"sixel =PNC$O!"HV9fIU$-$N16 ?'$r;HMQ7^$9!#%*%W%7%g%s **truecolor** GO!"TrueColor PNG 2hA|$r:n@.$7!"$=$l$r256 ?'$Nsixel 2hA|=PNC$K8:?'$7$^$9!#F)2a7?EIjDY7%9%?%s%kKO!"%*%W%7%g%s **truecolor** $,I,MW$G$9!#0J2<;2>H: **fillstyle (p. 171)**!#**transparent** $NGX7J$O!"HV9fIU$-$N?'2hA|!"TrueColor 2hA|NI AiGb2DG=$G$9!#

butt $O@~J,$NIA2h$G!"$=$NC<$NE@GNO_$@$7$r5/$3$5$J$$IA2h%a%=%C%I$r;H$&h&%I%i%$%P$K;X<(7^$9!# 3N@_Dj$O!"@~I}$, 1 hjBg$-$$$>19gKN$_8z$G$9!#$3$N@_Dj$O!"?eJ?@~!"?bD>@~$NIA2h$N>19g$KM-MQ$G 7g$&!#%G%U%)%k%H$O **rounded** (4]$a) $G$9!#

%U%)%s%H$NA*Br$N>\:Y$O!"$d$dJ#;($G$9!#>\:Y$O!"0J2<;2>H: **fonts (p. 37)**!#

=PNCIA2h%5%$:<x,y> $O%T%/%;%kC10L$GM?$($^$9!#%G%U%)%k%H$O640x480 $G$9!#0J2<b;2>H: **canvas (p. 25)**, **set size (p. 168)**!#IA2h=*N;8e$NC<$NM>Gr$O!"%*%W%7%g%s **crop** $G<h$j=|$/$3H,G-!"$=$N7k2LH7F=$N 2hA|%5%$:$O>.$5$/$Jj^$9!#%G%U%)%k%H$O **nocrop** $G$9!#

3N=PNO7A<0$O!"xterm, mlterm, mintty %?!<%_%J%kGO%F%9%H5l!"F0:n3NG'5l$F$$$^$9!#:G8e$N2 DG $O!"256 ?'$Nsixel %+%i!<$r4]!9;HMQ$9$k **truecolor** %b!<%I$b%5%]!<%H%7$^$9$,!"G[I[$5lF$$$k xterm $O!" sixel %0%i%U%#C%/%9$H256 ?'$r%5%]!<%H$9kbNG$"$k$+$b7l$^$;s7!"$=$&GJ$$$+b7l^$;$s!#

Svg

3N%I%i%$%P$OW3C SVG (Scalable Vector Graphics) %U%)!<%^%C%H$r@8@.$7$^$9!#

=q<O:

```
set terminal svg {size <x>,<y> {|fixed|dynamic}}
                 {mouse} {standalone | jsdir <dirname>}
                 {name <plotname>}
                 {font "<fontname>{,<fontsize>}"} {{no}enhanced}
                 {fontscale <multiplier>}
                 {rounded|butt|square} {solid|dashed} {linewidth <lw>}
                 {background <rgb_color>}
```

$3$3$G<x> $H<y> $O@8@.$5lk SVG %O%i%U$N%5%$:G9$,!"**dynamic** $Osvg %S%e!<%o$KIA2h$N%j%5%$:$r5v$7!"**fixed** $O@dBP%5%$:$rMW5a$7$^$9(%G%U%)%k%H)!#

linewidth <w> $O?^$NCf$G;HMQ$5lkA4FN@~$NI}$r0x;R<w> $@$1A}2C5;$^$9!#

<font> $O%G%U%)%k%H$H7F;Hol$k%U%)%s%HL>(%G%U%)%k%H$G$OArial)!"<fontsize> $O%]%$%s%HC10LGN%U%) %s%H%5%$:(%G%U%)%k%H$O12) $G$9!#svg %S%e!<%o%=%U%H$O!"$=$N%U%!%$%k$NI=<($N:]KOJL$NBeMQ%U%)%s%H $r;H$&3HKJkG7g$&!#

3HD%J8; zNs=hM} (enhanced) %b! <%I$N=q<0; XDj$O! "B>$N=ENO7A<0$N>19g$HF1$8$G$9! #▶\:Y$O! "0J2<; 2>H: **enhanced (p. 27)**! #

%*%W%7%g%s **mouse** $O! "%^%&%9%H%i%C%-%s%05 !G=$H! "BP1~$9$k key >e$G%/%j%C%/9k3HG=1>1N%0%i %U$NIA2h$rOn/Off K9$k5 !G=$r%5%]! <%H$rDI2C$9k3Hrgnuplot $K; X<($7$^$9! #%G%U%)%k%HGO%m! <%+%k %G%#%1%/%H%j! "DL>o$O /usr/local/share/gnuplot/<version>/js FbN"$k%9%/%j%W%H$r; X$9%j%s%/$r<h$j9~$`$3$H$G9T$o$1$^$9$,! "%*%W%7%g%s **jsdir** $KJL$N%m! <%+%k%G%#%1%/%H%j$+! "DL>o$NURL $r; XDj$9$k$3$H$G$3$1$OJQ9$G$-$^$9! #SVG 2hA|$rWeb %Z! <%8$KF~$1$k$N$G$"$1$P! "IaDL$O8e<T$NURL $NJ}$r; XDj$7$^$9! #0lJ} $G%*%W%7%g%s **standalone** $O! "%^%&%9A`:n%W%m%0%i%`$rSVG J8=q<+BN$KKd$a9~$_! "30It%j%=! <%9XN%j%s%/$O9T$$$^$;$s! #

SVG %U%!%$%k$r2?$+$N30It%U%!%$%k$HAH$_9g$o$;$EMxMQ7?$>19g! "Nc$(P=1,$"$k Web %Z! <%8$d?FJ8=q $Njavascript %3! <%I$+$i; 2>H$5$1$F$$$kh&$J>19g! "B>$NSVG %0%i%U%X$N; 2>H$H$N>WFM$rHr1k$?$a$K0l0U E*$JL>A0$,I,MW$KJj$^$9! #$=$N>19g$O%*%W%7%g%s **name** $r; H$C$F8GM-$NL>A0$r3NJ]$7F/$@$5$$! #

Svga

8E$$(legacy) =ENO7A<0$G$9! #**svga** %I%i%$%P$OSVGA %0%i%U%#%C%/$NPC $r%5%]! <%H$7$^$9! #$3$1$ODJGPP $G%3%s%Q%$%k$5$1$?>19g$N$_; H$&3H$,$G$-$^$9! #

=q<0:

```
set terminal svga {"<fontname>"}
```

Tek40

3N%I%i%$%P72$OVT-%i%$%/$JC<Kv$N$$/D+$r%5%]! <%H$7$^$9! #**tek40xx** $OTektronix 4010 H=$NB>$[HsINTEK %(%_%e%l! <%?$r%5%]! <%H7^$9! #**vttek** $OVT-%i%$%/$Jtek40xx C<Kv%(%_%e%l! <%?$r%5%]! <%H$7$^$9! #0J2<NbNO! "gnuplot $N%3%s%Q%$%k; ~$KA*Br$5$1$?bNN_$,MxMQ$G$-$^$9.**kc-tek40xx** $O%+%i! <$NMS-DOS Kermit Tek4010 %?! <%_%J%k%(%_%e%l! <%?$r! "**km-tek40xx** O=$NGr9uHG$r%5%]! <%H7^$9! # **selanar** $OSelanar %0%i%U%#%C%/C<Kv$r%5%]! <%H$7$^$9! #**bitgraph** $OBBN Bitgraph C<Kv$r%5%]! <%H7^$9! # $$$:1b%*%W%7%g%sO"j^$;$s! #

Tek410x

tek410x %I%i%$%P$OTektronix 410x, 420x %U%!%_%j! <$r%5%]! <%H$7$F$$$^$9! #%*%W%7%g%s$O$"$j$^$;$s! #

Texdraw

texdraw %I%i%$%P$OLaTeX texdraw 4D6-$r%5%]! <%H$7$^$9! #$=$1$Otexdraw %Q%C%1! <%8$N"texdraw.sty" $H"texdraw.tex" $H6&$K; HMQ$5$1k3Hr2>Dj7F$$$^$9! #

?t$"$kCf$G! "E@(point) $O! "LaTeX $N%3%^%s%I"\Diamond", "\Box" JI$r; H$CFIA+1^$9! #$3$1$i$N%3%^%s%I$O8=:_$OLaTeX2e $N%3%"$K$OB8:_$;$:latexsym %Q%C%1! <%8$K4^$^$1$F$$$^9,! "3N%Q%C%1! <%84pK\G[I[$N0lIt$G$"$j! "hC$FB?$/$NLaTeX $N%7%9%F%`$N0lItKJCF$$$^$9! #$3$N%Q%C%1! <%8$r; H$&$3HrK:1J$$$G$/$@$5$$! #

%*%W%7%g%sO"j^$;$s! #

Tgif

Tgif $OX11 %Y! <%9$N%I%m! <%D! <%k$G$9— $?$@$7! "$3$1$OGIF $K4X$7$F2?$+9ko1GO$"$j$^$;$s! #

tgif %I%i%$%P$O! "%U%)%s%H; XDj! "%U%)%s%H%5%$%:; XDj! "1 %Z! <%8Fb$NU#?t$N%0%i%UIA2h$r%5%]! <%H7F$$$^$9! # <4$NHfN($OJQ9$5$1$^$;$s! #

=q<0:

```
set terminal tgif {portrait | landscape | default} {<[x,y]>}
                  {monochrome | color}
```

```
{{linewidth | lw} <LW>}
{solid | dashed}
{font "<fontname>{,<fontsize>}"}
```

<[x,y]> KO$=$N%Z!<%8Fb$Nx J}8~$!"y J}8~$N%0%i%U$N?t$r;XDj$7!"**color** $O%+%i!<5!G=$rM-8z$K$7!"**linewidth** $OA4$F$N@~I}$r<LW> G\$7!"""<fontname>" KOM-8z$JPostScript %U%)%s%HL>!"<fontsize> O=$NPostScript %U%)%s%H$NBg$-$5$r;XDj$7$^$9!#**defaults** $OA4$F$N%*%W%7%g%s$NCM$r%G%U%)%k%H$NCM$K%;%C%H$7$^$9!#%G%U%)%k%H$O**portrait**, **[1,1]**, **color**, **linewidth 1.0**, **dashed**, "**Helvetica,18**" $G$9!#

solid %*%W%7%g%s$O!"UT=8:n6HCf$K$=$&G"kh$&$K!"@~$,%+%i!<$G$"$k>19g$KIaDL;H$ol^$9!#%O!<%I%3%T!<$OGr9uKJ$k3$H$,B?$$N$G!"$=$N>19g$O**dashed** $rA*Br$9Y-G7g&!#

B?=EIA2h (multiplot) $O2 <dN'$NJ}K!$G<BAu$5lF$$^$9!#

$=$N01DO!"I8='E*$J gnuplot $NB?=EIA2h$NdjJ}$G$9:

```
set terminal tgif
set output "file.obj"
set multiplot
set origin x01,y01
set size  xs,ys
plot ...
     ...
set origin x02,y02
plot ...
unset multiplot
```

hj>\$7$$>pJsKD$$$F$O!"0J2<;2>H: **set multiplot (p. 149)**!#

b&01DNJ}K!$O%I%i%$%P$N[x,y] %*%W%7%g%s$G$9!#$3$NJ}K!$ND9=j$O!"86E@ (origin) dBg-$5 (size) $N@_Dj$r;7J/FbA4FN%0%i%U$,<+F'OE*$K=L<\$5$lG[CV$5lk3H$G$9!#%0%i%U$NHf x/y $O!"<+A3$JHf 3/2 ($^$?$O**set size** $G@_Dj$5l?bN) $,J];}$5l^$9!#

N>J}$NB?=EIA2h$N<BAu$,A*Br$5l?>19g!"I8='E*Jd$jJ}$NJ},A*Br5l!"7Y9p$N%a%C;!<%8$,I=<(5l$^$9!#

C10lIA2h ($^$?$OI8='E*$JB?=EIA2h) $NNc:

```
set terminal tgif                    # %G%U%)%k%H
set terminal tgif "Times-Roman,24"
set terminal tgif landscape
set terminal tgif landscape solid
```

%I%i%$%P$N;}$DB?=EIA2h$N;EAH$_$rMxMQ9kNc:

```
set terminal tgif portrait [2,4]  # =DCV!"x-J}8~$K 2 $D!"y-J}8~
                                  # $K 4 $D$N%0%i%UIA2h
set terminal tgif [1,2]           # =DCV!"x-J}8~$K 1 $D!"y-J}8~
                                  # $K 2 $D$N%0%i%UIA2h
set terminal tgif landscape [3,3] # 2#CV!"N>J}$NJ}8~$K 3 $D$N%0
                                  # %i%UIA2h
```

Tikz

3N%I%i%$%P$O!"TeX $N%0%i%U%#C%/%^%/%m$N TikZ %Q%C%1!<%8HHbK;HMQ9k=PNO$r@8@.$7$^$9!#8=:_$O!"30It lua script KhCF<BAu5l$F$$$F!"**set term tikz** $O**set term lua tikz** $N>JN,7A$G$9!#>\:Y$OJ2<;2>H**term lua (p. 228)**!#=PNO7A<0$N%*%W%7%g%s$rI=<(5;kK$O!"**set term tikz help** $r;HMQ$7F/$@$5$$!#

Tkcanvas

3N%I%i%$%P$O!"0J2<$N%/%j%W%H8@l$N$&A$N01DN Tk canvas widget %3%^%s%I$r@8@.$7$^$9: Tcl (%G%U%)%k%H), Perl, Python, Ruby, REXX!#

=q<0:

```
set terminal tkcanvas {tcl | perl | perltkx | python | ruby | rexx}
                      {standalone | input}
                      {interactive}
                      {rounded | butt}
                      {nobackground | background <rgb color>}
                      {{no}rottext}
                      {size <width>,<height>}
                      {{no}enhanced}
                      {externalimages | pixels}
```

7k2L$rI=< ($9kK$O!"0J2<$N Tcl/Tk %3%^%s%INs$r<B9T$7$^$9:

```
package require Tk
# 0J2<$N 2 9T$O!"30It2hA|$r;HMQ$9$k>l9g$K$N$_I,MW
package require img::png
source resize.tcl
source plot.tcl
canvas .c -width 800 -height 600
pack .c
gnuplot .c
```

Perl/Tk $N>l9g$O!"0J2<Nh$&$K7^$9:

```
use Tk;
my $top = MainWindow->new;
my $c = $top->Canvas(-width => 800, -height => 600)->pack;
my $gnuplot = do "plot.pl";
$gnuplot->($c);
MainLoop;
```

Perl/Tkx $N>l9g$O!"0J2<Nh$&$K7^$9:

```
use Tkx;
my $top = Tkx::widget->new(".");
my $c = $top->new_tk__canvas(-width => 800, -height => 600);
$c->g_pack;
my $gnuplot = do "plot.pl";
$gnuplot->($c);
Tkx::MainLoop();
```

Python/Tkinter $N>l9g$O!"0J2<Nh$&$K7^$9:

```
from tkinter import *
from tkinter import font
root = Tk()
c = Canvas(root, width=800, height=600)
c.pack()
exec(open('plot.py').read())
gnuplot(c)
root.mainloop()
```

Ruby/Tk $N>l9g$O!"0J2<Nh$&$K7^$9:

```
require 'tk'
root = TkRoot.new { title 'Ruby/Tk' }
c = TkCanvas.new(root, 'width'=>800, 'height'=>600) { pack  { } }
load('plot.rb')
gnuplot(c)
Tk.mainloop
```

Rexx/Tk $N>l9g$O!"0J2<Nh$&$K7^$9:

```
/**/
call RxFuncAdd 'TkLoadFuncs', 'rexxtk', 'TkLoadFuncs'
call TkLoadFuncs
cv = TkCanvas('.c', '-width', 800, '-height', 600)
call TkPack cv
call 'plot.rex' cv
do forever
    cmd = TkWait()
    if cmd = 'AWinClose' then leave
    interpret 'call' cmd
end
```

gnuplot $,@8@.$9$k%3!<%I(>e$NNcGO!"'plot.<ext>" H7$F=q$-=P5l$F$$$kbN$G$9) $O!"0J2<$Nh&$J<jB3$-4X?t$r4^$s$G$$$^$9:

gnuplot(canvas)

0z?tH7$F **canvas** $NL>A0$r<hj^$9!#
3l$r8F$S=P9H!"$=$N **canvas** $r%/%j%"$7!"**canvas** $N%5%$%:$rC5$7!"$=
NCfK%0%i%UrIA-!"$=$l$K9g$&h&$K?-=L$7$^$9!#

gnuplot_plotarea()

canvas %9%/%j!<%s:BI8GNIA2hNN0h$N6-3& **(xleft, xright, ytop, ybot)**
$r4^$'%j%9%HrJV7$^$9!#
2<!85%0%i%UIA2h(**'plot'**) KBP7FN$_F0:n$7$^$9!#

gnuplot_axisranges()

%0%i%U:BI8GN **2** DN<4$NHC0O **(x1min, x1max, y1min, y1max, x2min, x2max, y2min, y2max)** rJV7$^$9!#
2<!85%0%i%UIA2h(**'plot'**) KBP7FN$_F0:n$7$^$9!#

%*%W%7%g%s **standalone** $r;H$($P!"<+8J407k$7$?:G>.%9%/%j%W%H$r@8@.G-$^$9!#%G%U%)%k%H$O **input** $G!"$3lO<h$j9~$^lkY-%9%/%j%W%H$r:n$j$^$9(9JoA!"**load** 5lk+**call** 5lk+!"$^$?$OA*Br$7$?8@8lMQ$NJsi+$NE,@Z$JJ}K!$G)!#

%*%W%7%g%s **interactive** $r;XDj$9kH!"0lDN@~J,>e$G%^%&%9%/%j%C%/$7$?H$-K=$NCfE@$N:BI8$,I8=`$PNO$K=PNO$5lkh&KJj^$9!#$3$NF0:n$O!"user_gnuplot_coordinates $H$$&<jB3$-4X?t$rDj5A9k3H$G!"UL$JbNKCV-4$($k3H$b2DG=$G$9!#$=$N<jB3$-4X?tKO0J2<$N0z?t$,EO5l$^$9:

```
win id x1s y1s x2s y2s x1e y1e x2e y2e x1m y1m x2m y2m,
```

3liO!"canvas $NL>A0!"@~J,$Nid!"2 DN:BI87OGN$=$N@~J,$N3+;OE@$N:BI8!"=*N;E@$N:BI8!"CfE@$N:BI8$G$9!#CfE@$N:BI8$O!"BP?t<4KBP7FN$_M?$(il$^$9

%G%U%)%k%HGO!"canvas $O **transparent** G9$,!"%*%W%7%g%s **background** $G!"L@<(E*$KGX7J?'$r@_Dj$9k3HbG-$^$9!#

rounded $O!"@~$NC<$d@\9gIt$r4]$/$7$^$9!#%G%U%)%k%H$N **butt** $O!"@m@C$?C<$H3QD%$C$?@\9gIt$r;HMQ7^$9!#

%*%W%7%g%s **rottext** $G!"U8;zNs$NG$0U3Q$G$N2sE>$rM-8zKG$-$^9,!"$=$lKO Tcl/Tk 8.6 0J9_$,I,MW$G$9!#%G%U%)%k%H$O **norottext** $G$9!#

%*%W%7%g%s **size** $O!"L\@9$j$N9o$_$H%U%)%s%H%5%$%:$r!";XDj$5l?canvas %5%$%:$KBP7F:GE,2=JbNK7h$&$H7^$9!#%G%U%)%k%H$G$O!"=PNO%5%$%:$O800 x 600 %T%/%;%k$H7F$$$^$9!#

enhanced $O!"3HD%J8;zNs=hM}$rA*Br7^$9(%G%U%)%k%H) $,!"$3lO:#NH3m Tcl GN$_MxMQ2DG=$G$9!#

%*%W%7%g%s **pixels** (%G%U%)%k%H) $O!"%U%'!<%k%;!<%U$J%T%/%;%kKh$N2hA|=hM}%k!<%A%s$rA*Br7^$9!#0J2<;2>H **image pixels (p. 63)**!#%*%W%7%g%s **externalimages** $O!"2hA|$r30It PNG 2hA|H7$FJ]B8$7!"$=$lr"HG tkcanvas %3!<%I$,FI$_9~sG?-=L7^$9!#$3$N%*%W%7%g%s$O!"Tcl GN$_M-8z$G!"7+$b Tk $N2hA|=hM}%k!<%A%s$,G$0U$N?-=L$rDs6!$7$F$$J$$?a$K!"$"$k>u67$GOCY/Jj$^$9!#3N>19g!"%9%/%j%W%H$G!"Ds6!$5$l$krescale.tcl $r<h$j9~$^$J1l$P$$1$^;$s!#

BPOC7?%b!<%I$O!"Python/Tk, Rexx/Tk GO$^$@<BAu5l$F$$$^;$s!#Ryby/Tk $NBPOC7?%b!<%I$O!"$^$@user_gnuplot_coordinates $r%5%]!<%H$7$F$$$^;$s!#

Tpic

tpic %I%i%$%P$Otpic \special GNLaTeX picture 4D6-$NIA2h$r%5%]!<%H7^$9!#$3lO **latex** $d **eepic** %I%i%$%PKBeokJIJA*Br;h$G$9!#E@NBg-$5 (pointsize)!"@~$NI} (linewidth)!"E@@~$NE@$N4V3V (interval) $K4X$9$k%*%W%7%g%s$,$"$j$^$9!#

```
=q<O:
     set terminal tpic <pointsize> <linewidth> <interval>
```

pointsize $H **linewidth** $O@0?t$G%_%j%$%s%AC10L!"**interval** $O<B?t$GC10L$O%$%s%A$G$9!#@5GJ$$CM$r;XDj$9kH%G%U%)%k%HNCM,;Hol$^$9!#%G%U%)%k%HGO pointsize = 40, linewidth = 6, interval = 0.1 $G$9!#

LaTeX $K4X$9$kA4$F$N%I%i%$%P$OJ8;zNs$NG[CV$N@)8f$KFCJL$JJ}K!$rDs6!7^$9:'{' $G;O$^$kJ8;zNs$O!"'}' GJD8kI,MW,$"$j$^$9$,!"$=$NJ8;zNsA4BN$, LaTeX KhCF?eJ?J}8~Kb?hD>J}8~Kb%;%s%?%j%s%0$5$l$^$9!#'[' $G;O$^$kJ8;zNs$N>19g$O!"0LCV$N;XDjr9$kJ8;zNs (t,b,l,r N&$A2 D^$G) $,B3$-!"<!$K']{'!"J8;zNsK\BN!"$G:G8e$K'}' H7$^9,!"3NJ8;zNs$OLaTeX $, LR-box H7$F@07A7^$9!#\rule{}{} $r;H$(P5iKNI$$0LCV9go;$,2DG=$G7g$&!#

```
Nc:8+=P$7$N0LCV9g$o$;$K4X$7$F: gnuplot $N%G%U%)%k%H (BgDo$=$l$J$j$K$J$k$,!"$=$&$G$J$$$3$H$b$"$k):
      set title '\LaTeX\ -- $ \gamma $'

?eJ?J}8~$K$b?hD>J}8~$K$b%;%s%?%j%s%0:
      set label '{\LaTeX\ -- $ \gamma $}' at 0,0

0LCV$rL@<(E*$K;XDj(>e$K9g$o$;$k):
      set xlabel '[t]{\LaTeX\ -- $ \gamma $}'

B>$N8+=P$7-L\@9$j$ND9$$8+=P$7$KBP$9$k8+@Q$j:
      set ylabel '[r]{\LaTeX\ -- $ \gamma $\rule{7mm}{0pt}}'
```

Vgagl

%I%i%$%P **vgagl** $O%^%&%9$Hpm3d $r40A4$K%5%]!<%H7?!"linux $N9bB.$J%3%s%=!<%k%I%i%$%P$G$9!#%G%U%)%k%H%b!<%I$N@_DjKO4D6-JQ?t SVGALIB_DEFAULT_MODE $r;2>H$7$^$9$,!"@_Dj$5lF$$$J$>19g$O256?'%b!<%I$GM-8z$J2rA|EYN&$A:G$b9b$$$bNrA*Br7^$9!#

```
=q<O:
  set terminal vgagl \
               background [red] [[green] [blue]] \
               [uniform | interpolate] \
               [mode]
```

%+%i!<%b!<%I$Omode %*%W%7%g%s$GM?$($k3HbG$-$^$9!#G1024x768x256 Nh$&$J5-9fE*L>>N$d@0?t$GM?$($k3H$,G-$^$9!#%*%W%7%g%s **background** $O[0, 255] $NHCOC$N@0?t1 $D!"$^$?$O3 DNAH$r<h$j$^$9!#@0?t1 DN>19gO=lOGX7J$N3%?'$NCM$H8+$J5l!"3 DNAH$N>19g$O$=$l$KBP1~$7$??'$,GX7J$K<h$il^$9!#Aj8_$KGSB>E*$J%*%W%7%g%s **interpolate** $H **uniform** $O!";03Q7A$NEIjDV7$N:]$K?'$NUd4V$,9T$&$+I&$+(%G%U%)%k%H$G$OON) $r@)8f$7$^$9!#

9b2rA|EY%b!<%I$rF'@$kKO!"B?J,libvga $N@_Dj%U%!%$%k (DL>o/etc/vga/libvga.conf) $r=$@5$9$kI,MW$,$"kG7g$&!#VESA fb $r;H$&NONI$$A*BrG9$,!"$=lO%+!<%M%k$N%3%s%Q%$%k,I,MW$G$9!#

vgagl %I%i%$%P$O!"0J2<$N%j%9%H$N$&$A$N*M-8z$J* vga %b!<%I$N:G=i$NbN$r;HMQ$7$^$9!#

- vgagl $N@_Dj;~$KM?$($ilk%b!<%I!"Nc$($P 'set term vgagl G1024x768x256' $O:G=i$K G1024x768x256 %b!<%I$,M-8z$+I&$+%A%'%C%/$7$^$9!#
- 4D6-JQ?t SVGALIB_DEFAULT_MODE
- G1024x768x256
- G800x600x256
- G640x480x256
- G320x200x256
- G1280x1024x256
- G1152x864x256
- G1360x768x256
- G1600x1200x256

VWS

Cm0U: 8E$$ (legacy) =PNO7A<0$G$9!#**VWS** %I%i%$%P$O VAX %&%#%s%I%&%7%9%F% '$r%5%]!<%H$7$^$9!#%*%W%7%g %sO"j^$;$s!#3N%I%i%$%P$O%G%#%9%W%l%$$N>uBV(Gr9u$+!"%0%l%$%9%1!<%k$+%+%i!<$+) $r<+F08!CN$7$^ $9!#A4$F$N@~<o$O<B@~$GIA2h$5l^$9!#

Windows

=PNO7A<0 **windows** $O!"%0%i%UIA2h$HJ8;zNsIA2h$K Windows GDI $r;HMQ$9$k9bB.$JBPOC7?=PNO%I%i%$%P$G $9!#Windows GO!"J#?t$N4D6-$GF0:n9k **wxt** =PNO7A<0!"**qt** =PNO7A<0$b%5%]!<%H$5lF$$$^$9!#

=q<0:

```
set terminal windows {<n>}
                     {color | monochrome}
                     {solid | dashed}
                     {rounded | butt}
                     {enhanced | noenhanced}
                     {font <fontspec>}
                     {fontscale <scale>}
                     {linewdith <scale>}
                     {pointscale <scale>}
                     {background <rgb color>}
                     {title "Plot Window Title"}
                     {size <width>,<height>}
                     {position <x>,<y>}
                     {docked {layout <rows>,<cols>} | standalone}
                     {close}
```

J#?t$N%&%#%s%I%&IA2h$,%5%]!<%H5l$F$$$^$9: **set terminal win** <**n**> $G=PNO$,HV9fn $NIA2h%&%#%s%I%& KAwil^$9!#

color, **monochrome** $O!"%+%i!<=PNO$+Gr9u=PNO$+$NA*Br$G!"**dashed** $H **solid** $O!"E@@~$H<B@~$NA*Br$G$9!# **color** GO **solid** $,%G%U%)%k%H$G!"**monochrome** GO **dashed** $,%G%U%)%k%H$G$9!#**rounded** $O!"@~$NC<d@\ 9gIt$r4]$/$7!"%G%U%)%k%H$N **butt** $O@m$C$?C<$H3QD%C?@\9gIt$r;HMQ$7$^$9!#**enhanced** $O3HD%J8;zNs=hM} (enhanced text mode) $N5!G=(>eIU!"2<IUJ8;z$d%U%)%s%H$N:.:_) $rM-8z$K7^$9!#\: Y$O0J2<;2>H: **enhanced text (p. 27)**!#<**fontspec**> $O"<fontface>,<fontsize>" $N7A<0$G!"'"<fontface>" $OM-8z$J Windows $N %U%)%s%HL>$G!"<**fontsize**> $O%]%$%s%HC10LGN%U%)%s%HNBg-5G$9!#$3$NN>MWAG$O$$:lb>JN,2DG=$G$9!# 0JA0NHGN gnuplot GO!"**font** %-!<%o!<%I$O>JN,2DG=$G!"<fontsize> $O0zMQI<d$J7N?tCM$GM?$(k3H,G- $^$7$?$,!"8=:_O=$N7A<0$O%5%]!<%H5l$F$$$^$;$sNGCm0U7F$/$@$5$$!#**linewidth**, **fontscale**, **pointscale** $G!"@~$NI}!"J8;z%5%$:!"E@5-9f$NBg$-$5$r?-=L$G$-$^$9!#**title** $O!"%0%i%U%&%#%s%I%&$N%?%$%H%k$rJQ99$7 $^$9!#**size** $O%&%#%s%I%&Fb$NIA2hNN0h$N%I%/%;%kC10L$G$NI}$H9b5r!"**wsize** $O%&%#%s%I%&<+?H$N<B:]$N%5$ %:$r!"**position** $O%&%#%s%I%&$N86E@!"9JoA:8>e3Q$N%9%/%j!<%s>e$N%T%/%;%kC10LGN0LCV$rDj5A$7$^$9!# 3liN%*%W%7%g%s$O!"%U%!%$%k **wgnuplot.ini** $N%G%U%)%k%H$N@_Dj$r>e=q$-7^$9!#

docked $O!"%0%i%U%&%#%s%I%&$r!"wgnuplot $N%F%-%9%H%&%#%s%I%&$NCfKKda9~$_!"**size** $H **position** $N%* %W%7%g%s$rL5;k7^$9!#**docked** $O!"%3%s%=!<%kHG$N gnuplot GOMxMQG-$J$$$3HKCm0U7F$/$@$5$$!#$3 $N%*%W%7%g%s$r@_Dj9k$H!"?75,$N%&%#%s%I%&KBP7$F%G%U%)%k%H$NCM$rJQ99$7$^$9!#:G=i$N%G%U%)%k%H$O!" **standalone** $G$9!#%I%C%-%s%0%b!<%IGO!"%0%i%U$N:G>.Ns?t!"9T?t$OI2C%*%W%7%g%s **layout** $GJ];}$G$-$^ $9!#;XDj$5l?%l%$%"%&%H0J>e$K%0%i%U$,$"$k>l9g$O!"9T$rDI2C$7$^$9!#J#?t$N%0%i%U$O!"?tCM ID $G%=!<%H $7!"9TJ}8~$KKdaF$$$-$^$9!#

B>$N%*%W%7%g%s$b%0%i%U%a%K%e!<$d=i4|2=%U%!%$%k **wgnuplot.ini** $GJQ99$G$-$^$9!#

Windows HG$O!"HsBPOC7?%b!<%I$G$ODL>o!"%3%^%s%I%i%$%s$+$iM?$($?%U%!%$%k$N:G8e$KC#$9kHD>AK=*N; 7^9,!"%3%^%s%I%i%$%s$N:G8e$K- $r;XDj$7$?>l9g$OJL$G$9!#$^$?!"3N%b!<%I$F%-%9%H%&%#%s%I%&$O I=<($;$:!"%0%i%UN_$NI=<($HJj$^$9$,!"%*%W%7%g%s$H7F **-persist** (x11 HG$N gnuplot $HF1$8%*%W%7%g%s =>Mh$N Windows N_$N%*%W%7%g%s **/noend** $d**-noend** $r;H$&3HbG$-$^$9) $r;XDj$9kH gnuplot $O=*N; 7J$/$Jj^$9!#3N>l9gB>$N OS GN gnuplot $N5sF0$H$O0[$J$j!"-persist %*%W%7%g%s8e$b gnuplot $NBPOC 7?%3%^%s%I%i%$%s$r<u$1IU1^$9!#

%3%^%s%I **set term** $G gnuplot $N=PNO7A<0$rJQ99$7$?>19g!"IA2h%&%#%s%I%&O=N^$^;D$j$^$9$,!"**set term windows close** $GIA2h%&%#%s%I%&$rJD8k3H$,$G$-$^$9!#

gnuplot $O!"Windows >e$G$N=PNO$N@8@.N?aN$$/D+$NJ}K!$r%5%]!<%H7F$$$^$9!#0J2<;2>H: **windows printing (p. 254)**!#windows =PNO7A<0$O!"%/%j%C%W%\!<%I$dEMF %U%!%$%k$rDL7FB>$N%W%m%0%i%`$H$N%G!<%?$N8r49$r%5%]!<%H$7$F$$$^$9!#0J2<;2>H: **graph-menu (p. 254)**!#EMF %U%!%$%k$r@8@.9kKO!"**emf** =PNO7A<0$r;H$&3HbG$-$^$9!#

%0%i%U%a%K%e!<**(graph-menu)**

gnuplot graph %&%#%s%I%&$G%^%&%9$N1&%\%?%s(*) $r2!$9$+!"%7%9%F%`%a%K%e!<$d%D!<%k%P!<$+$i **Options** $rA*Br$9kH0J2<$N%*%W%7%g%s$r;}$D%]%C%W%"%C%W%a%K%e!<$,8=ol$^$9:

Copy to Clipboard %/%j%C%W%\!<%I$K%S%C%H%^%C%W$dEMF 2hA|$r%3%T!<

Save as EMF... 8=:_$N%0%i%U%&%#%s%I%&$r%a%?%U%!%$%k(EMF $+EMF+) H7$FJ]B8

Save as Bitmap... 8=:_$N%0%i%U$r%S%C%H%^%C%W%U%!%$%k$H7FJ]B8

Print... %0%i%U%#C%/%&%#%s%I%&$r Windows %W%j%s%?%I%i%$%P$G%W%j%s%H%"%&%H!#%W%j%s%?$H3HBgN($NA*Br$,2DG=!#0J2<$b;2>H: **windows printing (p. 254)**!#

Bring to Top %A%"%C%/$rF~$lkH%0%i%U%&%#%s%I%&$rB>$NA4FNIA2h%&%#%s%I%&$N<jA0$KI=<(

Color %A%"%C%/$rF~$lkH%+%i!<=PNO$,M-8z!"%A%"%C%/L5$7$@$H9Y$F3%?'3,D4I=<(!#$3lCNc$($PGr9u$N%W%j%s%H%"%&%H$N8+$?L\$N3NG'$KM-MQ$G$9!#

GDI backend Windows GDI $r;H$&%9%/%j!<%sIA2h!#3l$O8EE5E*$J windows =PNO7A<0$NJ}K!$G!"9bB.G9$,!"%"%s%A%(%$%j%"%9!"%*!<%P!<%5%s%W%j%s%0!"40A4$JF)2a5!G=$JINB?$/$N5!G=$r;}$C$F$$$^$;$s!#8=:_$CHs?d>)$G$9!#

GDI+ backend GDI+ Windows API $r;H$&%9%/%j!<%sIA2h!#3l$O!"%"%s%A%(%$%j%"%9!"%*!<%P!<%5%s%W%j%s%0!"F)2a!"E@@~/GK@~%Q%?!<%s$N%+%9%?^%$%:N9YF$r40A4$K%5%]!<%H7^$9!#8=:_$O3l$,0lHVK>$^$7$$G$9!#

Direct2D backend Direct2D $HDirectWrite API $r;HMQ$9$kIA2h!#$3lO!"%0%i%U%#C%/%+!<%I2CB.5!G=$r;HMQ$7!"hC$FDI>c$O:G$b9bB.$G$9!#0u:~$dJ]B8!"%/%j%C%W%\!<%IXN%3%T!<KO GDI+ $r;HMQ$7$^$9!#3l$O!"$=N&AK%G%U%)%k%H$N%P%C%/(%s%I$HJkG7g&$,!"8=:_$O$^$@;n83CJ3,$G$9!#

Oversampling 3lKh$j!"BP3Q@~$CHs@0?t$N%T%/%;%k0lCV$KIA2h5l!":81&KUiD$/$3H,Hr1il^$9!#$7$+$71tD>@~!"?eJ?@~$O!"$\$d1?@~KJiJ$$h$&@0?t$N%T%/%;%k0lCVKCV+l^$9!#

Antialiasing @^$l@~$d@~$NC<$NJ?3j2=$r2DG=$K7^$9!#$3lOIA2h$rn/$/9k3H$KCm0U$7F/$@$5$$!#**Antialiasing of polygons** B?3Q7AIA2h$N%"%s%A%(%$%j%"%9$O!"%G%U%)%k%H$G$OM-8z$G9,!"GDI+ $N%P%C%/(%s%I$G$OIA2h$rCY$/$9$k2DG=@~$,$"$j$^$9!#

Fast rotation %0%i%U%&%#%s%I%&$r%^%&%9$G2sE>7F$$k:]$K%"%s%A%(%$%j%"%9$r0l;~E*$K%*%UK7$^$9!#3l$O!"%^%&%9%\%?%s$rN%7?8e$KDI2C$N:FIA2h$,9T$ol^9,!"AjEv$KIA2h$rAa$/$7F/l^$9!#

Background... %&%#%s%I%&GX7J?'$N@_Dj

Choose Font... %0%i%U%#C%/%&%#%s%I%&$G;H$&%)%s%H$NA*Br

Update wgnuplot.ini 8=:_$N%&%#%s%I%&$N0lCV!"%&%#%s%I%&NBg-$5!"%F%-%9%H%&%#%s%I%&$N%U%)%s%HH=$N%U%)%s%H%5%$%:!"%0%i%U%&%#%s%I%&$N%U%)%s%H$H$=$N%U%)%s%H%5%$%:!"GX7J?'$r=i4|2=%U%!%$%k **wgnuplot.ini** $KJ]B8

(*) 3N%a%K%e!<$O!"**unset mouse** KhCF1&%^%&%9%\%?%s2!$7$7$+;H$(J/JkNGCm0U!#

0u:~ **(printing)**

9%$_$Khj!"%0%i%U$C0J2<$Nh&$&JJ}K!$G0u:~G-$^$9!#

1. gnuplot $N%3%^%s%I **set terminal** $G%W%j%s%?$rA*Br$7!"**set output** $G=PNO$r%U%!%$%k$K%j%@%$%l%/%H

2. gnuplot graph %&%#%s%I%&$+$i **Print...** %3%^%s%I$rA*Br!#F%-%9%H%&%#%s%I%&$+i3lr9TJ&FCJL$J%3%^%s%I **screendump** b"$k!#

3. set output "PRN" H9kH=PNO$O0l;~%U%!%$%k$K=PNO$5$l!"**gnuplot** $r=*N;$9k+$^$?$O **set output** %3%^%s%I$G=PNO$rB>NbNXJQ99$9$k$H!"%@%$%"%m%0(BPOC) %\%C%/%9$,8=$o$l!"$=3G%W%j%s%?%]!<%H$rA*Br!#$=3GOK $rA*Br$9kH!"=PNO$O%W%j%s%H%^%M!<%8%c$G$O2C9)$5l:K=N^$^A*Br$5l?%]!<%H$G%W%j%s%H%"%&%H$5lk!#3l$O6vA3($^$?$O8N0U)$K!"$"$k%W%j%s%?MQ$N=PNO$r!"$=lKBP1~7F$$$J$%W%j%s%?$KAw$jF@$k3H$r0UL#$9$k!#

%F%-%9%H%a%K%e!<**(text-menu)**

gnuplot text %&%#%s%I%&$G%^%&%9$N1&%\%?%s$r2!$9$+!"%7%9%F%'%a%K%e!<$+$i **Options** $rA*Br$9kH0J2<$N%*%W%7%g%s$r;}$D%]%C%W%"%C%W%a%K%e!<$,8=ol$^$9:

Copy to Clipboard %^!<%/7?%F%-%9%H$r%/%j%C%W%\!<%I$K%3%T!<

Paste BG$A9~$s$@$N$HF1$8h&$K%/%j%C%W%\!<%I$+$i%F%-%9%H$r%3%T!<

Choose Font... %F%-%9%H%&%#%s%I%&$G;H$&%U%)%s%H$NA*Br

System Colors A*Br9k$H%3%s%H%m!<%k%Q%M%k$G@_Dj7?%7%9%F%'%+%i!<$r%F%-%9%H%&%#%s%I%&$KM?$($k!#A*Br7J1l$PGrGX7J$GJ8;z$O9u$+@D!#

Wrap long lines A*Br9k$H8=:_$N%&%#%s%I%&I}hj$hD9$$9T$r@^$jJV$9

Update wgnuplot.ini 8=:_$N@_Dj$r!"%f!<%6$N%"%W%j%1!<%7%g%s%G!<%?%G%#%l%/%H%jK"$k=i4|2=%U%!%$%k **wgnuplot.ini** $KJ]B8

%a%K%e!<%U%!%$%k **wgnuplot.mnu**

%a%K%e!<%U%!%$%k **wgnuplot.mnu** $,**gnuplot** $HF1$8%G%#%l%/%H%jK"$k>19g!"**wgnuplot.mnu** $K=q$+lF$$$k%a%K%e!<$,FI$_9~$^$l$^$9!#%a%K%e!<%3%^%s%I$O0J2<$NDL$j:

```
[Menu]      <!$N9T$NL>A0$G?7$7$%a%K%e!<$r3+;O
[EndMenu]   8=:_$N%a%K%e!<$r=*N;
[--]        ?eJ?$J%a%K%e!<$N;E@Z$j$rF~$l$k
[|]         ?hD>$J%a%K%e!<$N;E@Z$j$rF~$l$k
[Button]    %a%K%e!<$K2!$7%\%?%s$rF~$l!"$=$l$K<!$N%^%/%m$r3d$jEv$F$k
```

%^%/%m$O2 9T$G=q$-!":G=i$N9T$O%^%/%mL>(%a%K%e!<$N8+=P$7)!"2 9TL\$,%^%/%mK\BN$G$9!#@hF,$N6uGrNs$OL5;k5l$^$9!#%^%/%m%3%^%s%I$O0J2<$NDL$j:

[INPUT] [EOS] $+ {ENTER} $^$G$r%W%m%s%W%H$H7F=PNO$7J8;zNs$rF~NO [EOS] J8;zNs$N=*$j (End Of String)!#2?$b=PNO$7J[OPEN] 3+$/%U%!%$%kL>$r<hF@!#:G=i$N [EOS] $^$G$,BPOC%&%#%s%I%&$N%?

```
%$%H%k!"$=$3$+$i<!$N [EOS] $+ {ENTER} $^$G$,%G%U%)%k%H$N%U
%!%$%kL>
```

[SAVE] %;!<%V%U%!%$%kL>$r<hF@([OPEN] F1MM) [DIRECTORY] %G%#%l%/%H%jL>$r<hF@!#[EOS] $+ {ENTER} $^$G$,BPOC%&%#%s%I%&

```
$N%?%$%H%k
```

%^%/%mJ8;zNCV-49$($O0J2<NDLj:

```
{ENTER}     I|5" '\r'
{TAB}       %?%V '\011'
{ESC}       %(%9%1!<%W '\033'
{^A}        '\001'
...
{^_}        '\031'
```

%^%/%m$OE83+8e$NJ8;z?t$,:GBg256 J8;z$K@)8B5l$F$$$^$9!#

Wgnuplot.ini

Windows %F%-%9%H%&%#%s%I%&$H **windows** =PNO7A<0$O!"%*%W%7%g%s$N$$/D+**wgnuplot.ini** $N [**WGNUPLOT**] %;%/%7%g%s$+$iFI$_9~$_$^$9!#3N%U%!%$%k$O!"%f!<%6%1!<%7%g%sG!<%?%G%#%l%/%H%jKCV-$^$9!#**wgnuplot.ini** %U%!%$%k$N%5%s%W%k:

```
[WGNUPLOT]
TextOrigin=0 0
TextSize=640 150
TextFont=Consolas,9
TextWrap=1
TextLines=400
TextMaximized=0
SysColors=0
GraphOrigin=0 150
GraphSize=640 330
GraphFont=Tahoma,10
GraphColor=1
GraphToTop=1
GraphGDI+=1
GraphD2D=0
GraphGDI+Oversampling=1
GraphAntialiasing=1
GraphPolygonAA=1
GraphFastRotation=1
GraphBackground=255 255 255
DockVerticalTextFrac=350
DockHorizontalTextFrac=400
```

0J2<$N@_Dj$O wgnuplot $N%F%-%9%H%&%#%s%I%&$N$_$KE,MQ5l$^$9!#

TextOrigin $H **TextSize** $O!"%F%-%9%H%&%#%s%I%&$N0LCV$H%5%$:$N;XDj$G$9!#**TextMaximized** $,0 GJ $$>19g!"%&%#%s%I%&$O:GBg2=$5l^$9!#

TextFont $O!"%F%-%9%H%&%#%s%I%&$N%U%)%s%H$H%5%$:$N;XDj$G$9!#

TextWrap $O!"D9$$%F%-%9%H9T$N@^$jJV7rA*Br7^$9!#

TextLines $O!"%F%-%9%H%&%#%s%I%&$NFbIt%P%C%U%!$K2?9T(@^$jJV7J$7)J];}$9k+$r;XDj$7$^$9!#8=:_$O!"$3NCMr wgnuplot Fb$+$i$QJQ9$G$-$^$;$s!#

0J2<;2>H: **text-menu (p. 255)**!#

DockVerticalTextFrac $H **DockHorizontalTextFrac** $O!"$=l>$l@iJ,N(C10L$G$N!"%F%-%9%H%&%#%s%I%&Fb$K?bD>J}8~!"?eJ?J}8~$K3NJ]$5lk3d9g$G$9!#

GraphFont $O!"%U%)%s%HL>$H%]%$%s%HC10L$N%U%)%s%H%5%$:$N;XDj$G$9!#

0J2<;2>H: **graph-menu (p. 254)**!#

Wxt

wxt =PNO7A<0$O!"8D!9$N%&%#%s%I%&XN=PNO$r@8@.$7$^$9!#%&%#%s%I%&$OwxWidgets %i%$%V%i%j$G@8@.$5l^$9($3l, **wxt** $NL>A0$NM3Mh$G$9)!#<B:]$NIA2h$O!"2D %0%i%U%#C%/%i%$%V%i%j cairo $H!"J8;zNsG[CV/%l%s%@%j%s%0%i%$%V%i%j pango $,=hM}$7$^$9!#

=q<0:

```
set term wxt {<n>}
             {size <width>,<height>} {position <x>,<y>}
             {background <rgb_color>}
             {{no}enhanced}
             {font <font>} {fontscale <scale>}
             {title "title"}
             {linewidth <lw>}
             {dashlength <dl>}
             {{no}persist}
             {{no}raise}
             {{no}ctrl}
```

```
                {close}
```

J#?t$NIA2h%&%#%s%I%&$b%5%]!<%H7F$$F! **set terminal wxt <n>** H9lPHV9fn $NIA2h%&%#%s%I%&$X=PNO7^$9!#

%G%U%)%k%H$N%&%#%s%I%&?%$%H%k$O! "$3$N%&%#%s%I%&HV9f$K4p$E$$$F$$$^$9!#$=$N%?%$%H%k$O "title" %-!<%o!<%I$G$b;XDj$G$-$^$9!#

IA2h%&%#%s%I%&$O! **gnuplot** $N=PNO7A<0$rJLJbNKJQ99$7$F$b;D$C$?$^$^$KJj$^$9!#$=$lrJD8kK$O! "$=$N%&%#%s%I%&$KF~NO%U%)!<%+%9$,$"$k>uBV$G'q' $rF~NO$9k+! "%&%#%s%I%&^%M!<%8%c$N%a%K%e!<$G **close** $rA*Br$9k+! **"set term wxt <n> close** H7F/$@$5$$!#

IA2hNN0h$N%5%$:$O%T%/%;%kC10L$GM?$($^$9!#%G%U%)%k%H$O 640x384 $G$9!#$=$l$K2C$($F! "%&%#%s%I%&$N<B:]$N%5%$:KO! "%D!<%k%P!<$<%d%9%F!<%?%9%P!<MQ$N%9%Z!<%9$bDI2C$5l^$9!#%&%#%s%I%&$N%5%$:$rJQ99$9$k$H! "IA2h%0i%U$b%&%#%s%I%&$N?7$7$$%5%$:$KTC$?$j9g$&$h$&$K$9$0$K?-=L$5l^$9!#B>$NBPOC7?=PNO7A<0$H0c$$! **"wxt** =PNO7A<0$O%U%)%s%H! "@~I}$b4^aFIA2hA4BN$r?-=L$7$^$9$,! "A4BN$N%"%9%Z%/%HHf$O0lDj$KJ]CF! "6u$$?%9%Z!<%9$O3%?'$GEIjDY7$^$9!#$=$N8e **replot** $H%?%$%W9k$+%?!<%_%J%k%D!<%k%P!<$N **replot** %"%$%3%s%r%/%j%C%/$9k+?7$?$K **plot** %3%^%s%I$rF~NO$9kH! "$=$N?7$7$IA2hGO40A4K=$N%&%#%s%I%&$K9go;il$^$9$,! "%U%)%s%H%5%$:$d@~I}$O$=$l$>$l$N%G%U%)%k%H$K%j;%C%H5l$^$9!#

position %*%W%7%g%s$OIA2h%&%#%s%I%&$N0LCV$r@_Dj$9kN$K;H$($^$9!#3l$O%3^%s%I **set term** 8e$N:G=i$NIA2h$KN_E,MQ5l$^$9!#

8=:_$NIA2h%&%#%s%I%&(**set term wxt <n>** $GA*Br$5l?bN) $OBPOCE*$G$=$N5sF0$O! "B>$N=PNO7A<0$H6&DL$G$9!#>\:Y$O! "0J2<;2>H: **mouse (p. 147)**!#$=$lKODI2C$N%"%$%3%s$b$$/D+$D$$F$$^$9,! "$=liO=$l<+BN$,@bL@E*JbNKJC$F$$kO:$G$9!#

3N=PNO7A<0$O! "3HD%J8;zNs=hM}%b!<%I(enhanced text mode) $r%5%]!<%H$7$F$$F! "%U%)%s%H$d=q<0%3^%s%I(>eIU! "2<IU$J$I) $r%i%Y%k$dB>$NJ8;zNs$KKd$a9~$'3H$,$G$-$^$9!#3HD%J8;zNs=hM}%b!<%I$N=PNO7A<0$OB>$N gnuplot $N=PNO7A<0$H6&DL$G$9!#>\:Y$O! "0J2<;2>H: **enhanced (p. 27)**!#

<font> $O "FontFace,FontSize" $N7A<0$G! "FontFace $H FontSize Hr%3%s%^$GJ,N%7F0lDNJ8;zNs$H7F=q$-$^$9!#FontFace $O! "'Arial' Nh$&$JDL>o$N%U%)%s%HL>$G$9!#FontFace $rM?$(J>19g$O! "wxt =PNO7A<0$O'Sans' $r;HMQ$7$^$9!#FontSize $O! "%]%$%s%HC10L$N%U%)%s%H%5%$:$G$9!#FontSize $rM?$(J>19g$O! "wxt =PNO7A<0$O10 %]%$%s%H$r;HMQ7^$9!#

```
Nc:
    set term wxt font "Arial,12"
    set term wxt font "Arial" # %U%)%s%HL>$N$_JQ99
    set term wxt font ",12" # %U%)%s%H%5%$:$N$_JQ99
    set term wxt font "" # %U%)%s%HL>!"%U%)%s%H%5%$:$r%j;%C%H
```

%U%)%s%H$CDL>o$N%U%)%s%H%5%V%7%9%F%'$+$i<hF@7^$9!#MS-Windows >e$G$O%3%s%H%m!<%k%Q%M%k$N "Fonts" %(%s%H%j$G8!:w$5lkNG! "$=$3$K@_Dj$7$^$9!#Unix >eGO! "%U%)%s%H$O "fontconfig" $,=hM}$7$^$9!#

J8;zNs$N%l%$%"%&%H$K;HMQ$5lk pango %i%$%V%i%j$O utf-8 $r4pK\$H7F$$$^9N$G! "wxt =PNO7A<0$G$O%(%s%3!<%G%#%s0$r utf-8 K9kI,MW,$"$j$^$9!#%G%U%)%k%H$NF~NO%(%s%3!<%G%#%s0$O! "%7%9%F%'$N'locale' Khj^$9!#B>$N%(%s%3!<%G%#%s0$r;HMQ7?$>19g$O! "$=lr gnuplot KCNi$;kI,MW,$"j^$9!#>\:Y$O! "0J2<;2>H: **encoding (p. 127)**!#

pango $O! "unicode %^%C%T%s0$GJ%U%)%s%HKBP7FOM=4|$;$L7k2L$rM?$(k+b7l^$;$s! #Nc$ ($P Symbol %U%)%s%H$KBP7F$O! "wxt =PNO7A<0$O! "U8;z%3!<%I$r unicode $KJQ49$9$k?$a$K http://www.unicode.org/ $GDs6!$5lk%^%C%T%s0$rMxMQ$7$^$9!#pango $O! "$=$NJ8;z$r4^$'%U%)%s%H$r8+D1$k?$aK"J?$N Symbol %U%)%s%H$r8!:w$7! "$=7F DejaVu %U%)%s%H$N%h&$K! "I}9-$/unicode $r%+%P!<$9$kB>$N%U%)%s%H$rC5$9! "$H$$$C$?:GA1$N:n6H$r9T$*$&$H7^$9!#$J$*! "'the Symbol font" $O! "Acrobat Reader $H0l=o$K"SY_____.PFB" H7$FG[I[$5lF$$k Adobe Symbol %U%)%s%HG"kH2r<a5lk3HKCm0U7F$/$@$5$$! #3NBeoj$K! "OpenOffice.org $H0l=o$K"opens___.ttf" H7$FG[I[$5lk OpenSymbol %U%)%s%H$,F1$8J8;z$rDs6!$7$F$$^$9!#Microsoft $b Symbol %U%)%s%H("symbol.ttf") $rG[I[$7$F$$^$9,! "$3lO0[JkJ8;z%;%C%HKJCF$$$F! "$$/D+$O7g$l$F$$^$9$7! "$$/D+$O?t<05-9f$KJQoCF7$^$C$F$$^$9!#$"J?$N%G%U%)%k%H$N@_DjGJsi$+$NLdBj$,5/$-$?>19g(Nc$ ($P%G%b%9%/%j%W%Henhancedtext.dem $,$Acs$HI=<($5lJ$$$H$$C$?>19g) $O! "Adobe $+ OpenOffice $N Symbol %U%)%s%H$r%$%s%9%H! <%k%7F! "Microsoft $N Symbol %U%)%s%H$r:o=|7J$$H$$1$J$$+b7l^$;$s! #'windings" Nh$&$JB>$NHsI8=`%U%)%s%H$G$bF0:n$9k3H,Js9p5l$F$$^$9!#

IA2h$N%l%s%@%j%s%0$O! "%D!<%k%P!<$GBPOCE*$KJQ99G-$^$9!#2DG=$J8B$j:G$bNI$$=PNO$r@8@.$9k?aK3$N
```
```

X11

```
  set terminal x11 {<n> | window "<string>"}
                   {title "<string>"}
                   {{no}enhanced} {font <fontspec>}
                   {linewidth LW}
                   {{no}persist} {{no}raise} {{no}ctrlq}
                   {{no}replotonresize}
                   {close}
                   {size XX,YY} {position XX,YY}
  set terminal x11 {reset}
```

set terminal x11 <**n**> **Gnuplot** <**n**> **x11** **window** **enhanced (p. 27)**) **close** **reset** **persist** **close** **close** gnuplot_x11 GNUPLOT_DRIVER_DIR

```
  set term x11 window "220001e"
```

```
  set term x11 enhanced font "arial,15"
  set title '{/=20 Big} Medium {/=5 Small}'

  set term x11 enhanced font "terminal-14"
  set title '{/=20 Big} Medium {/=5 Small}'
```

IA2h%&%#%s%I%&$O **-persisit** %*%W%7%g%s$,M?$ (il$F$$$J1l$P! "BPOC$N=*N;; ~$K<+F'0E*$KJD8il^$9! #

%*%W%7%g%s **persist** $H **raise** $O%G%U%)%k%H$G$O@_Dj$5lF$$^$;$s$,! "$=lO! "%G%U%)%k%H$NCM (persist == no $G raise == yes) $+! "%3%^%s%I%i%$%s*%W%7%g%s -persist / -raise $N;XDj$+! "$^$?$OX $N%j%=! <%9CM$,;Hol$k! "$H$$&3H$r0UL#$7$^$9! #[no]persist $+[no]raise $,;XDj$5lkH=lO%3%^%s%I%i%$%s*%W%7%g%s$dX %j%=! <%9$N@_Dj$hjbM%@h5l$^$9! #3liN%*%W%7%g%s$N@_Dj$OD>AK8zNO$r;}$A$^$9NG! "4{$K5/F0$7$F$$$k%I%i%$%P$N5sF0$OJQ99$5l^$9! #%&%#%s%I%&$rA0LL$K=P$;J>19g$O! "0J2<;2>H: **raise (p. 109)**! #

%*%W%7%g%s **replotonresize** (%G%U%)%k%H$GM-8z) $O! "IA2h%&%#%s%I%&$N%j%5%$%:;~$K%G! <%?$r:FIA2h$7$^$9! #3N%*%W%7%g%sJ7$@$H! "%"%9%Z%/%HHfNJQoiJ$3HBg$G$"$CFb! "%j%5%$%:8e$K%&%#%s%I%&$N0lItJ,$K7+IA2h5lJ2DG=@-$,$"j^$9! #$3$N%*%W%7%g%s$r;H$ ($P! "gnuplot $O3F%j%5%$%:%$%Y%s%HKh$K40A4$J:FIA2h$r9I$$^9N$G! "OHFb$r$h$je:No$K;H$CF/l^$9! #%j%5%$%:$N4V$N:FIA2hKh$k@x:_E*$JCPU XNIi2Y$,?4G[$GJ>19g! "3N%*%W%7%g%s$OIaDL$OK>$^$7$$bNG$9! #:FIA2h$O! "%[%C%H%-!<'e' $d'replot' %3%^%s%I%G<jF0$G<B9T$9%k$3Hb2DG=$G$9! #

%*%W%7%g%s **title** "<**title name**>" $O8=:_$NIA2h%&%#%s%I%&$K! "$^$?$OHV9f$r;XDj$9lP$=$NHV9f$NIA2h%&%#%s%I%&$KBP9k%&%#%s%I%&?%$%H%kL>$rDl$^$9! #$=$N%?%$%H%k$,I=< (5l$k>l=j! "$^$?$OI=< (5lk+$I%&$+$O! ";H$C$F$$$kX $N%&%#%s%I%&^M! <%8%c$K0MB8$7$^$9! #

%*%W%7%g%s size $O! "IA2h%&%#%s%I%&$N%5%$%:$r@_Dj9kNK;HMQG-$^$9! #3N%*%W%7%g%s$O! "$=$N8e$K@8@.9k%&%#%s%I%&N_KE,MQ5l^$9! #

%*%W%7%g%s position $O! "IA2h%&%#%s%I%&$N0LCV$r@_Dj$9kN$K;H$ ($^$9! #3N%*%W%7%g%s$O! "$=$N8e$K@8@.9k%&%#%s%I%&N_KE,MQ5l^$9! #

IA2h%5%$%:$H%"%9%Z%/%HHf$O! **gnuplot** $N%&%#%s%I%&$r%j%5%$%:$9k3HG$bJQ99$G$-$^$9! #

@~$NI}$HE@$N%5%$%:$O **gnuplot** $N **set linestyle** $GJQ992DG=$G$9! #

=PNC%I%i%$%P **x11** $K4X$7FO! "**gnuplot** $O(5/F0;~$K)! "%3%^%s%I%i%$%s! "$^$?$O@_Dj%U%!%$%k$+$i! "geometry $d font, name JI$NDL>c$N X Toolkit %*%W%7%g%s$d%j%=! <%9$N;XDj$r<u$1IU1^$9! #$=li$N%*%W%7%g%sKD$$$F$OX(1) %^%K%e%"%k%Z! <%8($d$=$l$HF1Ey$NbN) $r;2>H$7F/$@$5$$! #

B>Kb **x11** =PNO7A<OMQ$NB?$/$N **gnuplot** $N%*%W%7%g%s,$"j^$9! #$3li$O **gnuplot** $r8F$VH-$K%3%^%s%I%i%$%s%*%W%7%g%sH7$F;XDj$9$k+! "$^$?$O@_Dj%U%!%$%k ".Xdefaults" $N%j%=! <%9$H7F;XDjG-$^$9! #3liO5/F0;~$K@_Dj$5lkNG! "**gnuplot** <B9T;~KOJQ99G-$^$;$s(**persist** $H **raise** 0J30$O)! #

X11 $N%U%)%s%H (x11_fonts)

=i4|5/F0;~$O! "%7%9%F%`$N@_Dj$+! "%f! <%6$N.Xdefaults %U%!%$%k$N@_Dj$+! "%3%^%s%I%i%$%s;XDj$+! "$N$$$:l+Kh$kX11 %j%=! <%9$KhC$F%G%U%)%k%H$N%U%)%s%H$,A*Br$5l^$9! #

Nc:

```
gnuplot*font: lucidasans-bold-12
```

?7$7$$%G%U%)%k%H$N%U%)%s%H$r! "gnuplot FbIt$+$iX11 %I%i%$%P$K0J2<Nh$&$K7F;X<(9k3HbG$-$^$9:

```
'set term x11 font "<fontspec>"'
```

$^$:X11 %I%i%$%P$O! "M?$($il?%U%)%s%H$N@5<OL>$rX %5! <%P$K?R$M$^$9! #3NLd$$9go;$,<:GT$7$?>19g! "<fontspec> $r"<font>,<size>,<slant>,<weight>" $H2r<a$7! "0J2<$N7A$N40A4$JX11 %U%)%s%HL>$r@8@.7h$&$H7^$9:

```
-*-<font>-<weight>-<s>-*-*-<size>-*-*-*-*-*-<encoding>
```

```
<font> $O%U%)%s%H$N4pK\L> (base name) (Nc: Times, Symbol)
<size> $O%]%$%s%H%5%$%: (;XDj$,$J$1$l$P%G%U%)%k%H$O 12)
<s> $O <slant>=="italic" $J$i 'i', <slant>=="oblique" $J$i 'o', $=$NB>$O 'r'
<weight> $OL@<(E*$K;XDj$5$l$l$P 'medium' $+ 'bold'! "$=$NB>$O '*'
<encoding> $O8=:_$NJ8;z=89g$K4p$E$$$F@_Dj (0J2<;2>H: 'set encoding')
```

hC$F **set term x11 font "arial,15,italic"** $O(%G%U%)%k%H$Nencoding $@$H9l$P) -*-arial-*-i-*-*-15-*-*-*-*-*-iso8859-1 $KJQ49$5l^$9! #<size>, <slant>, <weight> ;XDj$O$$$:lbI,?\$GO"j^$;$s! #<slant>$d<weight> $r;XDj$7J+C?>19g$O! "%U%)%s%H%5! <%P$,:G=i$K8+$D1?! "UQ<o$N%U%)%s%H$r<hF@9k$+$b7l$^$;$s! #%G%U%)%k%H$N% (%s%3! <%G%#%s%0$O! "BP1~$9$kX11 %j%=! <%9$r;HCF@_Dj9k3HbG$-$^$9! #Nc:

```
gnuplot*encoding: iso8859-15
```

x11 %I%i%$%P$O!"0lHIE*$J PostScript %U%)%s%HL>$bG'<1$7!"$=lHF1Ey$GM-8z$J X11 %U%)%s%H$+ TrueType %U%)%s%H$KCV-49($^$9!#3l$HF1$8<j=g$,!"**set label** $NMW5a$Khk%U%)%s%H$N@8@.$G$b;H$olF$$$^$9!#

$"$J$?$N gnuplot $, configure $N–enable-x11-mbfonts %*%W%7%g%srD1F%$%s%9%H!<%k$5l?bNJi!"%U%)%s%HL>$NA0$K "mbfont:" rD1k3H$G%^%k%A%P%$%H%U%)%s%H$r;XDj$9k3H,G-$^$9!#%U%)%s%HL>$rJ#?t;XDj$9$k8D$HbG$-$^9,!"$=$N>19g$O%;%_%3%m%s$G6h@Zj^$9!#%^%k%A%P%$%H%U%)%s%H$N%(%s%3!<%G%#%s%0$O locale $N@_Dj$K=>$$^9N$G!"4D6-JQ?t LC_CTYPE $rE,@Z$JCM(Nc$($P ja_JP.eucJP, ko_KR.EUC, zh_CN.EUC JI) KK@_Dj9kI,MW$,$"j^$9!#

Nc:

```
set term x11 font 'mbfont:kana14;k14'
      # 'kana14' $H 'k14' $OF|K\8l$N X11 font %(%$%j%"%9L>!"';'
      # $O%U%)%s%HL>$N6h@Z$j$G$9!#
set term x11 font 'mbfont:fixed,16,r,medium'
      # <font>,<size>,<slant>,<weight> 7A<0$b;HMQ$G$-$^$9!#
set title '(mb strings)' font 'mbfont:*-fixed-medium-r-normal--14-*'
```

F1$8=q<0$O X $N%j%=!<%9$G$N%G%U%)%k%H%U%)%s%H$N@_DjGbM-8z$G$9!#Nc:

```
gnuplot*font: \
    mbfont:-misc-fixed-medium-r-normal--14-*-*-*-c-*-jisx0208.1983-0
```

gnuplot $, –enable-x11-mbfonts $G%$%s%9%H!<%k5l$?>19g!"**"**mbfont:" rD1J$/$F$b2 DNFCJL$JPostScript %U%)%s%HL>'Ryumin-Light-*', 'GothicBBB-Medium-*' (I8=`E*$JF|K\8lPS %U%)%s%H) $r;H$&3HbG$-$^$9!#

%3%^%s%I%i%$%s%*%W%7%g%s (**command-line_options**)

X Toolkit %*%W%7%g%s$K2C$(!"0J2<$N%*%W%7%g%s$, gnuplot $NN)$A>e$2;~$N%3%^%s%I%i%$%s$G!"$^$?$O%f!<%6$N%U%!%$%k ".Xdefaults" Fb$N%j%=!<%9H7$F;XDj$G$-$^$9 (**raise** $H **persist** $O **set term x11** [**no**]**raise** [**no**]**persist** KhCF>e=q$-$5lk3H$KCm0U$7F/$@$5$$):

'-mono'	%+%i!<%G%#%9%W%l%$>e$G6/(@)E*$KGr9uIA2h
'-gray'	%0%l%$%9%1!<%k$^$?$O%+%i!<%G%#%9%W%l%$>e$G$N%0%l%$%9%1!<%kIA2h (%G%U%)%k%HGO%0%l%$%9%1!<%k%G%#%9%W%l%$$OGr9uIA2h$r<u$1IU1k)
'-clear'	?7$7$$IA2h$rI=<($9$kA0$K(=V4VE*$K) 2hLL$r>C5n
'-tvtwm'	geometry %*%W%7%g%sKh$k0LCV$N;XDj$r!"2>A[%k!<%H%&%#%s%I%&Cf$N8=:_$NI=<(ItJ,KBP9$kAjBPE*$J0LCVK9$k
'-raise'	3FIA2h8e$KIA2h%&%#%s%I%&$r:GA0LL$X=P$9
'-noraise'	3FIA2h8e$KIA2h%&%#%s%I%&$r:GA0LL$X=P$9$3$HO7$J$$
'-persist'	gnuplot %W%m%0%i%\=*N;8e$bIA2h%&%#%s%I%&$r;D$9

>e5-$N%*%W%7%g%s$O%3%^%s%I%i%$%s>e$G$N;XDj=q<0$G!"**".Xdefaults" $K%j%=!<%9$H7F;XDj9kH-$O0[$J$k=q<0$r;H$$$^$9!#

Nc:

```
gnuplot*gray:  on
gnuplot*ctrlq: on
```

gnuplot $OIA2h%9%?%$%k **points** $GIA2h$9$kE@$N%5%$%:$N@)8fKb!"%3%^%s%I%i%$%s%*%W%7%g%s (**-pointsize** <**v**>) $H%j%=!<%9(**gnuplot*pointsize:** <**v**>) $rDs6!$7F$$$^$9!#CM**v** $OE@$N%5%$%:$N3HBgN((H7F;Hol$k<B?tCM(0 < v <= 10) $G!"Nc$($P **-pointsize 2** $O%G%U%)%k%H%5%$%:$N2 G\!"**-pointsize 0.5** $OIaDL$N%5%$%:$NH>J,$NE@$,;Hol$^$9!#

-ctrlq %9%#%C%A$O!"IA2h%&%#%s%I%&$rJD8k%[%C%H%-!<$r **q** $+$i<**ctrl**>**q** $KJQ99$7$^$9!#3l$O!"**pause mouse keystroke** Kh$k%-!<%9%H%m!<%/$NJ]B85!G=$r;H$C$F$$$k19gKO!"B>$N%"%k%U%!%Y%C%HJ8;z$HF1MM$K**q** $rJ]B8$G$-$kh&KJkN$GM-MQ$G$7%g$&!#F1$8M}M3$G!"**-ctrlq** %9%#%C%A$O <space> %[%C%H%-!<$b <ctrl><space> KCV-49$($^$9!#

%+%i!<%j%=!<%9 **(color_resources)**

Cm0U: 3N%;%/%7%g%s$O!"gnuplot %P!<%8%g%s 5 HOBg$-$/$:$l$F$$$^$9!#x11 =PNO7A<0$O0J2<$N%j%=!<%9($3$3$GO=$N%G%U%)%k%H$NCM$r<($7$^$9)!"$^$?$OGr9u3,D4(greyscale) $N%j%=!<%9$r;2>H7^$9!#%j%=!<%9$NCM$O%7%9%F%`>e$NX11 rgb.txt %U%!%$%k$K=q$+$l$F$$k?'L>!"$^$?$O16 ?J$N?';XDj(X11 $N%^%K%e%"%k$r;2>H)$+!"?'L>$H6/EY(0 $+$i1 $N4V$NCM) $r%3%s%^$G6h@ZC?CM$r;HMQ$G$-$^$9!#Nc$($P **blue, 0.5** $OH>J,$N6/EY$N@D!"$r0UL#7^$9!#

```
gnuplot*background: white
gnuplot*textColor: black
gnuplot*borderColor: black
gnuplot*axisColor: black
gnuplot*line1Color: red
gnuplot*line2Color: green
gnuplot*line3Color: blue
gnuplot*line4Color: magenta
gnuplot*line5Color: cyan
gnuplot*line6Color: sienna
gnuplot*line7Color: orange
gnuplot*line8Color: coral
```

3liK4X9k%3%^%s%I%i%$%s$N=q<0$O!"GX7J(bacground) $K4X$7FOC1=c$GDL>o$NX11 toolkit %*%W%7%g%s$N"-bg" $KD>@\BP1~$7$^$9!#B>NbNb!"A4$F0lHLE*$J%j%=!<%9$N>e=q$-%*%W%7%g%s"-xrm" $r;H$&3H$G@_Dj$G$-$^$9!#

Nc:

GX7J?'$rJQ99$9kK$O

```
gnuplot -background coral
```

@~<o1 HVL\$N?'$r=q$-49$($kKO

```
gnuplot -xrm 'gnuplot*line1Color:blue'
```

3%?'3,D4%j%=!<%9 **(grayscale_resources)**

-gray $rA*Br$9kH!"**gnuplot** $O!"%0%l%$%9%1!<%k$^$?$O%+%i!<%G#%9%W%l%$$KBP7F!"0J2<$N%j%=!<%9$r;2>H7^$9($3$3$GO=$N%G%U%)%k%H$NCM$r<($7$^$9)!#%G%U%)%k%H$NGX7J?'$O9uG"k3HKCm0U7F$/$@$5$$!#

```
gnuplot*background: black
gnuplot*textGray: white
gnuplot*borderGray: gray50
gnuplot*axisGray: gray50
gnuplot*line1Gray: gray100
gnuplot*line2Gray: gray60
gnuplot*line3Gray: gray80
gnuplot*line4Gray: gray40
gnuplot*line5Gray: gray90
gnuplot*line6Gray: gray50
gnuplot*line7Gray: gray70
gnuplot*line8Gray: gray30
```

@~IA2h%j%=!<%9 **(line_resources)**

Cm0U: 3N%;%/%7%g%s$O!"gnuplot %P!<%8%g%s 5 HOBg$-$/$:$l$F$$$^$9!#**gnuplot** $OIA2h$N@~$NI}(%T%/%;%kC10L)$N@_Dj$N?$a$K0J2<$N%j%=!<%9$r;2>H$7$^$9($3$3GO$=$N%G%U%)%k%HNCMr<(7^$9)!#0 $^$?$O1$O:G>.$N@~$NI}$N1 %T%/%;%kI}$r0UL#7^$9!#2 $^$?$O3 NCMKhC$F0%i%U$N304Q$r2~A1G-$k>l9gb"kG7g$&!#

```
gnuplot*borderWidth: 1
gnuplot*axisWidth: 0
gnuplot*line1Width: 0
gnuplot*line2Width: 0
gnuplot*line3Width: 0
gnuplot*line4Width: 0
gnuplot*line5Width: 0
gnuplot*line6Width: 0
gnuplot*line7Width: 0
gnuplot*line8Width: 0
```

gnuplot $O@~IA2h$G;HMQ9kE@@~$N7A<0$N@_DjMQ$K0J2<$N%j%=!<%9$r;2>H$7$^$9!#0 $O<B@~$r0UL#7^$9!#2 7e$N10 ?J?t **jk** (**j** $H **k** $O1 $+$i9 $^$G$NCM) $O! "**j** 8D$N%T%/%;%k$NIA2h$K **k** 8D$N6uGr$N%T%/%;%k$,B3$/%Q%?!<%s$N7+$jJV7+iJ$kE@@~$r0UL#7^$9!#Nc$($P'16' $O1 8D$N%T%/%;%k$N8e$K6 DN6uGr$,B3$/%Q%?!<%s$NE@@~$KJj$^$9!#5i$K!"4 7e$N10 ?J?tGh$j>\:Y$J%T%/%;%k$H6uGr$NNs$N%Q%?!<%s$r;XDjG-$^$9!#Nc$($P!"'4441' $O4 DN%T%/%;%k!"4 DN6uGr!"4 DN%T%/%;%k!"1 DN6uGr$N%Q%?!<%s$r0UL#7^$9!#0J2<$N%G%U%)%k%H$N%j%=!<%9CM$O!"Gr9u%G%#%9%W%l%$!"$"$k$$O%+%i!<$dGr9u3,D4 (grayscale) %G%#%9%W%l%$>e$NGr9uIA2hK*1kCM$G$9!#%+%i!<%G%#%9%W%l%$$G$O dashed:off $,%G%U%)%k%H$KJC$F$$^$9!#

```
gnuplot*dashed: off
gnuplot*borderDashes: 0
gnuplot*axisDashes: 16
gnuplot*line1Dashes: 0
gnuplot*line2Dashes: 42
gnuplot*line3Dashes: 13
gnuplot*line4Dashes: 44
gnuplot*line5Dashes: 15
gnuplot*line6Dashes: 4441
gnuplot*line7Dashes: 42
gnuplot*line8Dashes: 13
```

X11 pm3d %j%=!<%9 (pm3d_resources)

Cm0U: 3N%;%/%7%g%s$O!"gnuplot %P!<%8%g%s5 HOBg$-$/$:$l$F$$$^$9!#E,@Z$J visual %/%i%9$H?'?t$rA*Br9kNO!"X11 %"%W%j%1!<%7%g%sKHCF61$7$/!"A4CHLq2pJ3HG$9!#$=lO X11 $,0[$J$k?<EY (depth) $N6 DN visual 7?$r%5%]!<%H7F$$$k$+$i$G$9!#

%G%U%)%k%HGO **gnuplot** O=$N%9%/%j!<%s$N%G%U%)%k%H$N visual $r;HMQ$7$^$9!#3djEvFk3HNG-$k?'?t$OA*Br5l$?visual %/%i%9$KhCFJQoj^$9!#12bit $rD6$($k?<EY$r;}$D visual %/%i%9e$G$O!"gnuplot $O:GBg?'?t$G$"$k0x200 (=512) ?'$G5/F0$7$^$9!#8bit $rD6$($k (12bit 0J2<$G) ?<EY$N visual %/%i%9$G$O:GBg?'?t$O0x100 (=256) ?'!"8bit 0J2<$N%G%#%9%W%l%$$G$O:GBg?'$O240 (16 ?'$O6J@~$N?'MQ$K<h$ilk) KJj^$9!#

gnuplot $O:G=i$K!">e$K=R$Y$?$h$&$J:GBg?'$r3d$jEvFh$&$H5/F0$7$^$9!#$3lK<:GT9kH=$N?'?t$O!"gnuplot $,$=$NA4It$r3djIUlk3H,G-k^$G!"1/2 $:$D8:i5l^$9!#**maxcolors** $r7+$jJV$72 $G3d$C$?7k2L!"**mincolors** hj$b>.5?t;zKJC?>19g!"**gnuplot** $O private %+%i!<%^%C%W$r;H$*$&H7$^$9!#3N>19g!"%&%#%s%I%&%^%M!<%8%c$O!"%]%$%s%?$,X11 %I%i%$%P$N%&%#%s%I%&$KF~k+=Pk+$G%+%i!<%^%C%W$rB`Hr (swapping) 5;$k@UG$$r;}D3HKJj$^$9!#

mincolors $N%G%U%)%k%H$NCM$O maxcolors / (num_colormaps > 1 ? 2 : 8) $G!"num_colormaps $O gnuplot $,8=:_;HMQ$7$F$$$k%+%i!<%^%C%W$N?t$G!"3l$O!"x11 $N%&%#%s%I%&$,1 D@$13+$$$F$$$kh&$JDL>o$N>19g $O1 $G$9!#

J#?t$N(0[$J$k) visual %/%i%9$r!"0lDN%9%/%j!<%s>e$G%5%]!<%H$9kh$&$J%7%9%F%'b"j^$9!#$3Nh$&$J%7%9%F%'GO!"gnuplot $K;XDj$7$?visual %/%i%9$r6/@)E*$K;H$o$;$kI,MW$,$"j^$9!#Nc$($P!"%G%U%)%k%H$N visual $, 8bit PseudoColor $@$1lI$b%9%/%j!<%s$O 24bit TrueColor $r%5%]!<%H$7$F$$$F'7m3AiNJ}$rA*Br$9Y-G"kh$&$J>19g$G$9!#

X %5!<%P$NG=NO$K4X9k>pJs$O%W%m%0%i'**xdpyinfo** $G<hF@$G$-$^$9!#visual L>$O<!N&AN0lD,A*BrG-$^$9: StaticGray, GrayScale, StaticColor, PseudoColor, TrueColor, DirectColor!#$=$N X %5!<%P$,MW5a$5$l

$?visual 7?$N0[JkJ#?t$N?<EY$r%5%]!<%H7F$$$k>l9g!"**gnuplot** $O:G$bBg$-$$(:G?<$N)?<EY$N visual %/%i%9$rA*Br$7$^$9!#MW5a5l$?visual %/%i%9$,%G%U%)%k%H$N visual H"CF$$F!"$=$N7?$NJ#?t$N%/%i%9$,%5%]!<%H$5lF$$k>l9g$O!"%G%U%)%k%H$N visual $,A*Br$5l^$9!#

Nc: 8bit PseudoColor $N visual >e$G$O!"**gnuplot*maxcolors: 240**!"5Z$S**gnuplot*mincolors: 240** $H;XDj$9k3HG6/@)E*$K private %+%i!<%^%C%W$r;H$&$h$&$KG-$^$9!#

```
gnuplot*maxcolors: @0?t
gnuplot*mincolors: @0?t
gnuplot*visual: visual L>
```

X11 $NB>$N%j%=!<%9 (other_resources)

%G%U%)%k%HGO!"8=:_$NIA2h%&%#%s%I%&$NF|bMF$O!"%&%#%s%I%&$NX %$%Y%s%H$K=>CFX11 %/%j%C%W\!<%IKAwil^$9!#'gnuplot*exportselection' $N%j%=!<%9$NCM$r'off' $+'false' $H@_Dj$9k3HKhj3l$rL58z$KG-$^$9!#

%G%U%)%k%HGO!"J8;z$N2sE>$OB.$/$=lr9TJ&J}K!$,;H$ol^9,!"GX7J?'KhCFO=$NIU6a$,1xlk3H$,$"j^$9!#$3l,5/3k>l9g$O!"%j%=!<%9'gnuplot.fastrotate' $r'off' K7F_F/$@$5$$!#

```
gnuplot*exportselection: off
gnuplot*fastrotate: on
gnuplot*ctrlq: off
```

Xlib

xlib %I%i%$%P$OX11 Windows System $r%5%]!<%H$7$F$$$^$9!#$3$N%I%i%$%P$Ognuplot_x11 XNL?Na$r@8@.7^9,!"**set output '<filename>'** $r;XDj$9kH$=$lir%U%!%$%k$K=q$-=P$7$^$9!#**set term x11** $O!"**set output "|gnuplot_x11 -noevents"; set term xlib** $HF1CM$G$9!#**xlib** KO**x11** $HF1$8%*%W%7%g%sNAHrM?$($k3H$,$G$-$^$9!#

Part V

%P%0 (Bugs)

%P%0% j%]!<%H$Oe-mail $Ggnuplot-bugs %a!<%j%s%0%j%9%HXAwk$+!"$^$?$OSourceForge $Ngnuplot %&%'%V%5%$%HK=$NJs9p$rEj9F7F$/$@$5$$!#$=$N:]!"$"$J$?$,;HMQ7F$$k gnuplot $N%P!<%8%g%s$N40A4$J>pJs!"$=7F2DG=JiP=$N%P%0$r<B>Z$9k%F%9%H%9%/%j%W%H$rAwCF$/$@$5$$!#0J2<;2>H:**seeking-assistance (p. 20)**!#

CNil$F$$k@)8B (limitations)

do $d **while** %k!<%W$NCf3g8lFb$G%$%s%i%$%s%G!<%?(Nc: plot '-' ...) $r;H$&3HOG$-$^$;$s!#

%,%s%^4X?t$H%Y%C%;%k4X?t$OJ#AG?t0z?t$r%5]!<%H$7$F$$^$;$s!#

";~9o" H7$F;XDj$5l?:BI8$O24;~$G@^jUV7$^$9!#

G^2pJQ?t$N6J@~: **nohidden3d** $O!"A4BNE*$J@_DjG"$k **set hidden3d** $r8D!9$N%0%i%UKBP7$FLH=|$9k?aN%*%W%7%g%sG9$,!"$3lOG^2pJQ?t$N6J@~(parametric) KBP7FO5!G=7^$;$s!#%3%^%s%I **plot** Fb$N7+$jUV$7(iteration) $O!"G^2pJQ?t$N6J@~KBP7FO5!G=7^$;$s!#

X11 =PNO7A<0: UTF-8 %U%)%s%H$NA*Br$,:FqG$9!#$9YF$NX11 IA2h%&%#%s%I%&$KBP7F!"0lEYKO1DN%+%i!<%Q%l%C%HN_$,M-8z$G$9!#$3lO!"0[Jk%Q%l%C%H$r;HMQ$9$kIA2h$r4^s@multiplot GOx11 >eGO@5$7$/I=<(5l$J$$$3Hr0ULL#7^$9!#

Qt =PNO7A<0: 3<!85GNB?3Q7A$d6JL1$N2sE>OCY/Jk2DG=@-$,$"j^9,!"3l$OQt $N%l%s%@%j%s%0%b!<%I(Qt $N@bL@=q$r;2>H7F$/$@$5$$) $K6/$/0MB8$7$^$9!#

raise $H **lower** $N5!G=$O$"$^jEvFKG$-$^$;$s!#

30It%i%$%V%i%j (External libraries)

30It%i%$%V%i%j GD (PNG/JPEG/GIF %I%i%$%P$G;HMQ): %P!<%8%g%s 2.0.33 $^$G$N libgd KO!"Adobe $N Symbol %U%)%s%H$NJ8;z$N%^%C%T%s%0$K4X9k$$/D+$N%P%0$,$"$j$^$7$?!#$^$?!"%"%s%A%(%$%j%"%9$5$l$?@~J,$,%-%c%s%P%9$N>e$N3Q$H8r$o$k>l9g$K!"%i%$%V%i%j$,%;%0%a%s%F!<%7%g%s%U%)%k%H$r0z$-5/$9$3Hb$"$j$^$7$?!#

30It%i%$%V%i%j PDFlib (PDF %I%i%$%P$G;HMQ): gnuplot $O libpdf $N%P!<%8%g%s 4, 5, 6 $N$$$:l+$r%j%s%/$G$-$^$9!#$7$+$7!"3liO%P!<%8%g%sKhCF%Q%$%W$5l?F~=PNO$N=hM}$,0cCF$$$^9N$G!"%Q%$%W$r;H$C$F PDF $r=PNO$9$k gnuplot %9%/%j%W%H$O!"PDFlib $N"$k%P!<%8%g%s$G@$1$7+$Acs$HF0$+$J$$+b7l^$;$s!#

30It%i%$%V%i%j svgalib (linux, vgadl %I%i%$%P$G;HMQ): 3l$O gnuplot $, root $K setuid (7y!) 5lk3HrMW5a7^$9$7!"%S%G%*%+!<%I(X11 $G;HMQ$5lk%0%i%U%#%C%/%I%i%$%P$KFCM-$NB?$/$N%P%0$,$"$j$^$9!#

9q:]2=(%m%1!<%k$N@_Dj): gnuplot $O!"F~=PNO$N?t!";~9o!"F|IUJ8;zNs$N%m%1!<%k$K0MB8$7$?=q<0$N@)8f$r!"C %i%s%?%$%'%i%$%V%i%j$K4^$^$l$ksetlocale() $rMQ$$$F9T$&$N$G!"%m%1!<%k$NM-8z@-$d!"%m%1!<%k5!G=$N%5%]!<%H$N%l%Y%k(Nc$($P?t;z$N37eKh$N6h@Z$jU8;zJI) JI$O!"$"J?$N%3%s%T%e!<%?$,Ds6!9k9q:]2=$N%5%]!<%H$NEY9g$$$K0MB8$7$^$9!#

Part VI

Index

Index

+, 97
++, 97, 104
.gnuplot, 47
3D, 70

abs, 30
acos, 30
acosh, 30
acsplines, 95
adobeglyphnames, 243
aifm, 202
airy, 30
all, 109
angles, 112, 166
Aqua, 202
aqua, 202
arg, 30
arrays, 36
arrow, 113, 170
arrowstyle, 67, 113, 169
asin, 30
asinh, 30
atan, 30
atan2, 30
atanh, 30
automated, 62
autoscale, 92, 114
autotitle, 27, 138
avs, 89
axes, 26, 39, 46, 87
azimuth, 147, 181

back, 43
background, 42
backquotes, 48, 199
bars, 54, 128
batch/interactive, 20, 24, 75, 85, 112
BE, 202
be, 202
beeswarm, 71, 136
behind, 43
besj0, 30
besj1, 30
bessel, 264
besy0, 31
besy1, 31
bezier, 95
bgnd, 42
binary, 87, 89
bind, 44, 111, 115, 147
bins, 92, 95
bitwise operators, 34
black, 42
bmargin, 115
bold, 27
border, 58, 115, 133, 171, 177, 188
boxed, 175
boxerrorbars, 52, 117
boxes, 52, 54, 117
boxplot, 53–55, 171
boxwidth, 54, 55, 117
boxxyerror, 54
branch, 81
break, 72, 74, 201
broken axis, 152
bugs, 264

caca, 205
cairolatex, 206
call, 72, 85
candlesticks, 54, 55, 59, 171
canvas, 25, 224, 227, 238, 247
cardinality, 33, 36
cbdata, 191
cbdtics, 191
cblabel, 192
cbmtics, 192
cbrange, 41, 42, 157, 158, 173, 193
cbtics, 193
cd, 72
cdawson, 31
ceil, 31
center, 63, 90
cerf, 31
cgm, 209
changes, 23
circle, 56, 154
circles, 56
clabel, 118
clear, 73
clip, 67, 118
cnormal, 96
cntrlabel, 47, 118, 120, 121, 138
cntrparam, 47, 119, 121, 197
colorbox, 42, 120, 157–159, 193
colornames, 41, 121, 173
colors, 40, 41, 107, 118, 162, 173
colorsequence, 117, 118
colorspec, 41, 57, 141, 153, 173, 174, 180
column, 32, 98
columnhead, 32
columnheader, 27, 98, 105, 138, 198
command line editing, 25
command line options, 260
command-line-editing, 110
command-line-options, 45
commands, 72
comments, 19, 26, 85

commentschars, 26, 124
compatibility, 24
complex, 30
constants, 30
context, 212
continue, 72, 74, 201
contour, 47, 70, 120, 121, 134, 175, 197
contours, 121
coordinates, 26, 113, 136, 139–141, 153–155, 169, 178, 180, 183, 187
copyright, 18
corel, 214
corners2color, 159
cos, 31
cosh, 31
csplines, 96
cubehelix, 164
cumulative, 96
cycle, 143

dashtype, 41, 43, 122
data, 86, 91, 122, 166, 176
data file, 91
datablocks, 39, 97
datafile, 47, 75, 91, 114, 122, 134, 197
datastrings, 27, 106
date specifiers, 131
dawson, 31
debug, 214
decimalsign, 125, 128, 130, 144
degrees, 112
demos, 24
depthorder, 70, 158
dgrid3d, 125, 167, 175, 197
differences, 23
division, 29
do, 40, 74, 84, 201
domterm, 214
dots, 57
dpu414, 220
dumb, 214
dummy, 127
dx, 63, 90
dxf, 215
dxy800a, 215
dy, 63, 90

edf, 89
editing, 25
editing postscript, 241
eepic, 215
ehf, 89
ellipse, 56, 57, 153, 154, 175
ellipses, 56, 175
elliptic integrals, 32
EllipticE, 30
EllipticK, 30
EllipticPi, 30
emf, 216
emtex, 228
emxvesa, 217
emxvga, 217
encoding, 28, 37, 127, 144, 146, 225, 237, 239, 257
encodings, 127
enhanced, 27, 202, 236, 239, 240, 246, 248, 257, 258
environment, 29, 80
eps, 38
epscairo, 217
epslatex, 217
epson 180dpi, 220
epson 60dpi, 220
epson lx800, 220
equal, 168
equal axes, 181
erf, 31
erfc, 31
erfi, 31
error estimates, 77, 78
error state, 35, 111
errorbars, 55, 59, 91, 101, 128
errorlines, 91, 101
errors, 35
errorscaling, 80
evaluate, 74
every, 92
example, 93
examples, 24
excl, 221
exists, 32, 48
exit, 75
exp, 31
expint, 31
exponentiation, 34
expressions, 29, 109, 133

factorial, 33
faddeeva, 31
failsafe, 63
FAQ, 20
faq, 20
fc, 171
fenceplots, 70, 71
fig, 221
file, 91
filetype, 89
fill, 53–56, 58, 60
fillcolor, 171
filledcurves, 57
fillsteps, 59
fillstyle, 54–57, 107, 153, 171, 174, 238, 247
filter, 99, 197
financebars, 55, 58, 171
fit, 29, 35, 75, 77, 78, 80, 99, 129, 201
FIT LAMBDA FACTOR, 80

FIT LIMIT, 80
FIT LOG, 81
FIT MAXITER, 80
fit parameters, 77
FIT SCRIPT, 81
FIT START LAMBDA, 80
fitting, 77
flipx, 63, 90
flipy, 90
flipz, 90
floating point exceptions, 122
floor, 31
flush, 158
fnormal, 96
fontfile, 38, 241, 243
fontpath, 129, 242
fonts, 37, 38, 224, 238, 247, 259
for, 40, 60, 62, 84, 112, 200
format, 130, 175, 179, 183, 184, 187
format specifiers, 131
fortran, 122
fpe trap, 122
frequency, 92, 95, 96
front, 43
fsteps, 59
ftriangles, 158
function, 102, 133
functions, 36, 86, 102

gamma, 31, 264
gamma correction, 164
gd, 38
general, 87, 124, 164, 196
geographic, 189
geomean, 159
ggi, 222
gif, 38, 223
glossary, 39
gnuplot, 18
gnuplot defined, 35
gpic, 224
gprintf, 47, 130, 140, 146
GPVAL, 35
gpval, 35
graph menu, 254
graph-menu, 254, 256
grass, 225
gray, 147
grayscale resources, 261
grid, 133, 167, 180
grid data, 121, 125, 175, 194, 197
guidelines, 79

harmean, 159
heatmap, 62
help, 82
help desk, 20
hexadecimal, 30
hidden3d, 70, 133, 136
histeps, 59
histogram, 96
histograms, 59
history, 83
historysize, 135
hotkey, 44
hotkeys, 44
hp2623a, 225
hp2648, 225
hp500c, 225
hpdj, 226
hpgl, 225
hpljii, 226
hppj, 226
hsv, 32, 41
hsv2rgb, 32
hypertext, 64, 142

ibeta, 31
if, 40, 83
if old, 83
if-old, 83
igamma, 31
imag, 31
image, 62, 66
imagen, 227
import, 84, 199
impulses, 63
index, 92, 94
initialization, 47, 111
inline, 39
inset, 46, 73, 149
int, 31
internationalization, 264
interval, 172
introduction, 19
inverf, 31
invnorm, 31
isosamples, 47, 102, 134, 135, 167, 197
italic, 27
iterate, 40
iteration, 40, 74, 84, 104, 112, 200
iteration specifier, 40

jitter, 71, 136
jpeg, 38, 227

kdensity, 24, 92, 95, 96, 125
key, 106, 136
keys, 138
kyo, 227

label, 64, 140, 147
labels, 27, 64, 92, 141, 147
lambertw, 31
latex, 228

layers, 43
layout, 149
lc, 41
least squares, 75
legend, 136, 139
lgamma, 31
libgd, 264
license, 18
lighting, 158
limit, 78
line, 121, 133, 170, 192
line editing, 25
linecolor, 41, 52, 54, 55, 58, 67
lines, 65, 66
linespoints, 65, 172
linestyle, 65, 172
linetype, 40, 65, 66, 107, 117, 118, 142, 172, 173
linetypes, 40
linewidth, 65, 172
link, 103, 115, 143, 182, 185, 190
linux, 228
lmargin, 143
load, 85
loadpath, 143
locale, 37, 125, 128, 144, 264
log, 31, 117
log10, 31
logit, 152
logscale, 144
lower, 109
lp, 65
lua, 228, 249

macros, 36, 48, 74
map, 70, 159, 160, 194
mapping, 46, 145, 166
margin, 115, 143, 149, 167, 180
margins, 145
markup, 27
Marquardt, 75
matrix, 87, 94, 124, 194
max, 159
maxiter, 78
mcsplines, 96
mean, 159
median, 159
metafont, 231
metapost, 233
mf, 231
micro, 146
mif, 232
min, 159
minussign, 146
missing, 23, 99, 122
mixing macros backquotes, 49
modulo, 34
modulus, 30
monochrome, 41, 117, 146
mouse, 44, 45, 147, 246, 257
mouseformat, 148
mousewheel, 148
mousing, 147
mp, 233
mttics, 149
multi branch, 81
multi-branch, 76, 81
multiplot, 46, 74, 149, 249
mx2tics, 150
mxtics, 149–151, 167, 178
my2tics, 151
mytics, 151
mztics, 151

NaN, 29, 36, 99
nec cp6, 220
negation, 33
new, 21
newhistogram, 61
noarrow, 113
noautoscale, 114
noborder, 115
nocbdtics, 191
nocbmtics, 192
nocbtics, 193
nocontour, 121
nodgrid3d, 125
noextend, 114, 184
nofpe trap, 122
nogrid, 133
nohidden3d, 133, 264
nokey, 136
nolabel, 140
nologscale, 144
nomouse, 147
nomttics, 149
nomultiplot, 149
nomx2tics, 150
nomxtics, 151
nomy2tics, 151
nomytics, 151
nomztics, 151
nonlinear, 152
nonuniform, 195
nooffsets, 155
noparametric, 156
nopolar, 165
norm, 30, 31
nosurface, 175
notimestamp, 178
nox2dtics, 182
nox2mtics, 182
nox2tics, 182
nox2zeroaxis, 182
noxdtics, 183

noxmtics, 184
noxtics, 186
noxzeroaxis, 190
noy2dtics, 190
noy2mtics, 190
noy2tics, 190
noy2zeroaxis, 190
noydtics, 190
noymtics, 191
noytics, 191
noyzeroaxis, 191
nozdtics, 191
nozmtics, 192
noztics, 192
nozzeroaxis, 191

objects, 152
octal, 30
offsets, 145, 155
okidata, 220
old-style, 72
one's complement, 33
operator precedence, 33
operators, 33
options, 20
origin, 74, 149, 155
output, 155

palette, 41, 107, 121, 141, 157, 158, 160, 161, 173, 174, 180, 193
parallelaxes, 65, 156
parametric, 114, 156
pause, 85
paxis, 65
pbm, 235
pcl5, 225
pdf, 37, 235, 264
pdfcairo, 206, 236
perpendicular, 91
persist, 46
pi, 36
pixels, 63, 251
placement, 137
plot, 86, 110, 193, 194, 197
plot styles, 52
plotting, 46
plugin.dem, 199
pm, 237
pm3d, 70, 121, 156, 174
png, 37, 38, 237
pngcairo, 238
pointinterval, 65, 172
pointintervalbox, 165
pointnumber, 65, 172
points, 65, 66
pointsize, 107, 136, 165
pointtype, 66
polar, 46, 70, 71, 165, 167
polygon, 154
pop, 176
position, 157
postscript, 38, 239, 241
practical guidelines, 79
prescribe, 227
print, 109
printerr, 109
printing, 254
projection, 70
prologue, 29, 218, 240, 243
psdir, 166, 243
pseudocolumns, 94, 99, 100
pslatex, 207, 219, 243
pstex, 243
pstricks, 245
punctuation, 49
push, 176
pwd, 109

qms, 245
qt, 245
quit, 109
quotes, 30, 50

raise, 85, 109, 259
rand, 31, 32
random, 32
range frame, 189
rangelimited, 189
ranges, 75, 102
ratio, 168
raxis, 167
real, 31
rectangle, 153, 171
refresh, 97, 100, 109
regis, 246
replot, 97, 110
reread, 110
reset, 111, 112
restore, 184
rgbalpha, 62
rgbcolor, 41, 42
rgbformulae, 162
rgbimage, 62
rlabel, 167
rmargin, 167
rms, 159
rotate, 63, 90
rrange, 71, 115, 166, 167
rtics, 167, 180

sample, 103
samples, 95, 102, 134, 136, 167, 175
sampling, 97, 102, 103, 167, 194
save, 111
sbezier, 96

scan, 90
scansautomatic, 158
scansbackward, 158
scansforward, 158
scope, 40
screendump, 254
scrolling, 148
seeking assistance, 20
seeking-assistance, 264
separator, 98, 124
session, 111
set, 112
sgn, 31
shell, 193
show, 112
sin, 31
sinh, 31
sixel, 38
sixelgd, 246
size, 74, 149, 156, 168, 224, 227, 238, 247
SJIS, 127
sjis, 127
skip, 93, 94
smooth, 95
space, 44
special filenames, 97
special-filenames, 39, 194
specifiers, 130, 146
specify, 49
splines, 95
splot, 133, 193
sprintf, 32, 47, 140
sqrt, 31
square, 71, 168
starc, 220
start, 47
start up, 47
starting values, 81
startup, 29, 47
statistical overview, 78
statistics, 197
stats, 197
steps, 59, 66
strcol, 32
strftime, 32
string operators, 34
stringcolumn, 32
strings, 47, 140
strlen, 32
strptime, 32
strstrt, 32
style, 99, 101, 102, 106, 141
styles, 86, 107, 168, 171, 172
subfigures, 46
substitution, 48, 50, 144
substr, 32
substring, 32, 47
summation, 35, 40
surface, 70, 121, 175, 197
svg, 247
svga, 248
svgalib, 264
syntax, 19, 49, 130, 137, 180, 184
system, 32, 48, 193, 199

table, 107, 175, 176
tan, 31
tandy 60dpi, 220
tanh, 31
tc, 41
tek40, 248
tek410x, 248
term, 111, 202
terminal, 202
terminals, 176
termoption, 177
ternary, 34
test, 41, 199
texdraw, 248
text, 50, 141, 237, 253
text markup, 27
text menu, 255
text-menu, 256
textbox, 140, 175
textcolor, 41
tgif, 248
theta, 71, 166, 177
thru, 98
tics, 177
ticscale, 178
ticslevel, 178
tikz, 249
time, 32
time specifiers, 51, 131, 183
time/date, 50, 179, 183
timecolumn, 32, 183
timefmt, 27, 103, 131, 141, 178, 183, 264
timestamp, 178
tips, 82
title, 27, 136, 179
tkcanvas, 249
tm hour, 32
tm mday, 32
tm min, 32
tm mon, 32
tm sec, 32
tm wday, 32
tm yday, 32
tm year, 32
tmargin, 180
toggle, 200
tpic, 252
trange, 180
transparency, 63

transparent, 172
transpose, 90
ttics, 71, 180

unary, 33
undefine, 200
uniform, 194
unique, 95, 96
unset, 200
unwrap, 96
update, 201
urange, 180
user defined, 36
user-defined, 102
using, 27, 29, 35, 52, 98, 101, 102, 158
UTF 8, 127, 243
utf8, 66, 127

valid, 32
value, 33, 36
variable, 52, 54, 55, 58, 64–67, 94, 159
variables, 33, 35, 36, 44, 46, 66, 80, 85
vectors, 66, 104
vgagl, 252
vgal, 217
view, 70, 181, 189, 193
voigt, 31
volatile, 100
VP, 31
vrange, 182
vttek, 248
VWS, 253

wgnuplot.ini, 255
wgnuplot.mnu, 255
while, 40, 74, 201
windows, 253
with, 101, 102, 106, 165, 168, 222
word, 32, 33
words, 32, 33
writeback, 184
wxt, 37, 256

X resources, 259–263
X11, 258
x11, 20, 258
x11 fonts, 259
x11 mouse, 148
x2data, 182
x2dtics, 182
x2label, 182
x2mtics, 182
x2range, 182
x2tics, 182
x2zeroaxis, 182
xdata, 27, 141, 179, 182, 190, 191
xdtics, 182, 183, 190, 191
xerrorbars, 67
xerrorlines, 68
xfig, 221
xlabel, 167, 182, 183, 190, 192
xlib, 263
xmtics, 182, 184, 190–192
xrange, 114, 156, 166, 180, 182, 184, 190–193, 197
xterm, 248
xticlabels, 27, 100
xtics, 116, 130, 133, 144, 151, 156, 167, 178, 180, 182, 186, 190–193
xyerrorbars, 67
xyerrorlines, 69
xyplane, 26, 178, 181, 189, 191, 193
xzeroaxis, 190

y2data, 190
y2dtics, 190
y2label, 190
y2mtics, 190
y2range, 190
y2tics, 190
y2zeroaxis, 190
ydata, 190
ydtics, 190
yerrorbars, 68
yerrorlines, 69
ylabel, 190
ymtics, 191
yrange, 191
ytics, 191
yzeroaxis, 191

zdata, 191
zdtics, 191
zero, 191
zeroaxis, 182, 189–192
zerrorfill, 69, 71
zlabel, 192
zmtics, 192
zoom, 148
zrange, 192
ztics, 192
zzeroaxis, 191