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
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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`

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Part I
Gnuplot

Cx: n8 " (Copyright)

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

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```
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 in addition to the base release version number,
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```
     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. 259)**!#

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$$^$9!#**gnuplot** $O:G8e$N%U%!%$%k$r=hM}$7=*$o$k$H=*N;$7$^$9!#FI$_9~$^;$k%U%!%$%k$r01$D$b;XDj$7$J$>19g$O!"**gnuplot** $OI8=`F~NO$+iNBPOCF~NO$r<h$j$^$9!#>\:Y$O!"0J2<;2>H: **batch/interactive (p. 24)**!#gnuplot MQ$N%*%W%7%g%s$K$D$$F$O!"0J2<$Nh&$K7$F01Mw$r8+$k3H$,$G-$^$9:

```
gnuplot --help
```

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

BPOC7?IA2h&#%s%I%&GN: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$9<j3]jrM?$($F$/$lkG7$g&!#

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) $N01Mw

$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;$$%9/%j%W%H$rDs<(($9kHJ*NI$$G7$g&!#

?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$[$HsII3KG$b=q$/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:BI870;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) $N:BI870$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. 190)**) 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=:_;HMQ$7$F$$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 $N:BI870$,;XDj5l$F$$$J$>l9g$O**first** $,;H$ol^$9!#y $N:BI870$,;XDj5l$F$$$J$>l9g$Ox KBP9$k:BI870$,;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$KBP9k:9H7$F;H$$$^$9!#M?$(il$?:BI8$,BP?t<4FbK"$k>l9g$O!"$=$NAjBPE*JCMOG\N(H7$F2r<a$5l^$9!#Nc$($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$$O$=$l0J>e) $N<4$,; ~4V<4G"$k>l9g! "**timefmt** $N=q<0J8; zNs$K=>CF! "0zMQId$G0O$^l?; ~4V
J8; zNs$GE,@Z$J:BI8$r; XDj$9kI,MW,$"$j$^$9! #0J2<; 2>H **set xdata (p. 183)**, **set timefmt (p. 179)**! #$^
$?! "**gnuplot** $O@0?tI=5-$bG'aF$$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 $O! "x <4$K1hCFI8=`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$r x <4$K1h$CFD1F9T$-$^$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@<(B*$J**set term** %3%^%s%IKh$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$N%U%!$%k$kL>$N;XDj$K;Ho1$^$9!#

GNUPLOT_LIB $O!"%G!<%?$d%3%^%s%I%U%!$%k$N8!:w%G%#%l%/%H%j$rDI2CDj5A$9kN$K;H$o1^$9!#$=$NUQ?t$O!"0lDN%G%#%l%/%H%jL>$+$^$?$OJ#?t$N%G%#%l%/%H%jL>$r=q$/$3H,G-$^$9$,!"%G%#%l%/%H%j$N6h@ZjO%W%i%C%H%[!<%'Kh$K0c$$$^$9!#Nc($PUnix GO':' $G!"MS-DOS, Windows, OS/2 GO';' $G$9!#GNUPLOT_LIB NCMOJQ?t**loadpath** $KDI2C$5$1$^9,!"$=$1$O**save** $d**save set** %3%^%s%I$G$OJ]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$OJ]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. 244)**!#

<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$NJ8;zNs
sprintf("format",x,...)	J#?t8D	C 8@81$Nsprintf NJV9J8;zNs
strlen("string")	J8;zNs	J8;zNsCf$NJ8;z?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$NxNsL\
columnhead(x)	@0?t	%G!<%?%U%!%$%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$+J8;zNs	J8;zNsH7FNxNsL\$NFhMF
timecolumn(N,"timeformat")	@0?t, J8;zNs	%G!<%?F~NCCfNN$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$Ncolumn($x$) $N@5Ev@-
value("name")	J8;zNs	L>A0name $NJQ?t$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)** $N0$+$i&P/2$^GNHOO$N9-5A@QJ,$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** $N0$+$i&P/2$^GNHOO$N9-5A@QJ,$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)** $N0$+$i&P/2$^GNHOO$N9-5A@QJ,$NCMrJV7$^$9!#%Q%i%a!<%?**n** $O1$h$j>.$5$/!"**k** $O-1$H1$N4V(N>C<$O4^$^$J$$)GJ$1$1$P$$1$^;$s!#Dj5Ahj!"9YFN@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コマンドがエラーになるとGPVAL_ERRNOH=$N%(%i!<%N$?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. 46)**!#

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. 46)**, **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?tGDFONTPATH $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?tGNUPLOT_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$$$^$9$,! "$=$l$iFCDj$N%U%)%s%H%;%C%H$O"$J$?$N%7%9%F%`$d&W%j%s%?$N@_Dj$KOMB8$7$^$9! #gnuplot $O! "$=lOCNj^$;$s$75$$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$$PostScript $r4^$`=PNO%U%!%$%k$r:n@.7^9,! "$=$l$OFC<l$J%U%)%s%H$r; 2>H$7$^$9NG! "0lIt$N%W%j%s%?$dI=<(%=%U%H7+! "MW5a7?$=$NFCDj$N%U%)%s%H$OI=<(G-$J$$$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! "FCDj$N%i%$%;%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. 242)**! #

%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:

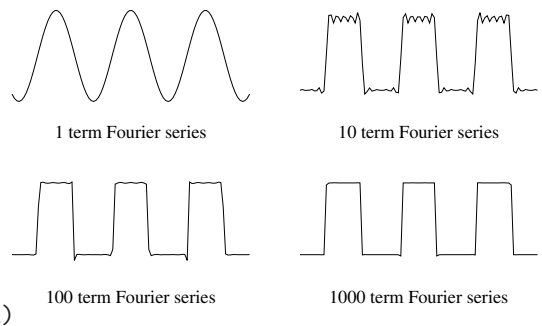
```
$Mydata << EOD
11 22 33 first line of data
44 55 66 second line of data
# %G! <%?%U%!%$%kF1MM%3%a%s%H$b5!G=$9$k
77 88 99
EOD
stats $Mydata using 1:3
plot $Mydata using 1:3 with points, $Mydata using 1:2 with impulses
```

%G! <%?%V%m%C%/L>$O! "B>$NUQ?t$H6hJL$9k?aK! ":G=i$NU8;z$r$ K9kI,MW,$"$j$^$9!#%G! <%?$N=*$ojN6h@Z$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! "$9YF$NL>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$$r07$($k if/else/while/do $,F3F~$5lF$$^$9!#0J2<;2>H: **if (p. 83)**,**while (p. 202)**, **do (p. 74)**!#C1=c$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$K4^$^lk1HVL\$+$iNHVL\$^GNC18lJ8;zNs$r=g$KCMH7$F<h$j$^$9!#2HVL\$N=q<0GO! "<start>, <end>, <increment> $O@0?t!"$^$?$O@0?tCM$r<h$k?t<0$G$9!#

0lDNNc30$r=|$$$F! "gnuplot $NUQ?t$OBg0hE*$G$9!#L>A0$GE:;z$E$1$5l?! "1JB3E*$GM-8z$JUQ?t$N%j%9%H$,0lD@1"$j! "JUQ?t$N3djEvF$O! "$=$N%j%9%H$K9'$r@8@.$9k+! "$^$?$O9'$NCV-49(Kh$j9T$ol^$9!#JQ?t$r$=$N%j%9%H$+$i:o=|9k$?$@0lDNJ}K!$O! "**undefine** %3%^%s%I$r;H$&3H$G$9!#

3lN?$@0l$D$NNc30$O! "7+jJV7;XDj$GMQ$$$ilkJQ?t$G$9!#7+jJV7JQ?t$NM-8zHO0O (scope) $O! "$=$N7+$jJV7NCf$@$1G9$+$i! "$=$NCM$r! "7+$jJV7N<B9T%V%m%C%/Fb$+$i1JB3E*$KJQ9$9k3HOG-$^$;$s!#7+$jJV$7JQ?t$,7+jJV7$NA0$KCM$r;}$C$F$$$?H7$?$i! "$=$NCM$O7+$jJV7N=*N;;~$KJ];}! "$^$?$OI|5"5l$^$9!#Nc$($P! "0J2<$N%3%^%s%I$O! "1 2 3 4 5 6 7 8 9 10 A $r=PNO$7$^$9!#

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

@~<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%s5 $N%G%U%)%k%H$O! "=PNO7A<0$KL54X78$K6&DL$N8 ?'Ns$r;HMQ7^$9!#

@~<o (linetype) $NB0@-$NJBSO!"BPOCE*$+=i4|2=%U%!%$%k$N$$:l+KhCF5i$K%+%9%?%^%$%:2DG=$G$9!#0J2<;2>H **set linetype (p. 142)**!#G[I[%Q%C%1!<%8$K=i4|2=%U%!%$%k$N%5%s%W%k$,$$$/D+MQ0U5l$F$$^$9!#

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

0lHL$K!"?'$N;XDj$O!"?'$NL>A0$+!"RGB (@V!"NP!"@D) @.J,$+!"HSV (?'Aj!":IEY!"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. 194)**!#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%s5 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 $NHO0C$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. 200)**!#

"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! "$3$1$O16 ?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 $O40A4$KITF)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$NA4HO0O$KBP1~IU1kbN$G! "**palette cb** $O! "?'<4$NHO0O$rF1$8%+%i!<%Q%l%C%H$X3d$jEvFkbN$G$9!#0J2<;2>H: **set cbrange (p. 194)**, **set colorbox (p. 120)**!#$3$1iNBP1~IU1NIAi+$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$N z NCMr! "%Q%l%C%H$XBP1~$E1ilF$$$k cbrange $NHO0O$KBP1~E1$^$9!#$3$1Kh$j! "3<!85$N6J@~$d6JLI$K1hCF?'$r3j$i$+$KJQ2=5;k3H,G-$^$9!#$3$1$O! "2<!85IA2h$G! "%Q%l%C%HCM$rDI2C$NNs%G!<%?$+$iFI$_9~$^$;$F?'IU$1$9kNKb;H$($^$9($9YF$N2<!85IA2h%9%?%$%k$,$3$NDI2CNs$rG'<1$9$ko1GO$"$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$5$1$^$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!<%?$k$K$OJ#?t$N%G!<%?=89g$rF~$l$k$3$H$,2DG=$G! "
# $=$1$i$O 2 9T$N6u9T$GJ,N%$5$1$F$$$^$9!#8D!9$N%G!<%?=89g$K$O
# index CM$,3d$jEv$F$i$1$F$$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=1>$l0[$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_J5$1$^$9!#$=NCMr%G!<%?%U%!%k$+$iD>@\M?$($k>l9g$O! "$3$1$O:G$b4JC1$J7A<0$N16 ?JCM$GM?$($^$9(0J2<;2>H:**rgbcolor (p. 41)**)!#0lJ}$G! "0J2<$NNcNh$&$K24-bit RGB ?'H7$FI>2A$5$1$kh&$J?t<0$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**) $,3F6J@~Kh$NB0@-H7$FFHN)$7$^$7$?!#=>Mh$Nh&$J!";HMQCf$N=PNO7A<0$NE@@~$r=q$/$?aNFCJL$J%b!<%I$H7F;XDj9kI,MWO"j^$;$s!#9JoA!"**set term** <**termname**> {**solid**|**dashed**} Nh$&$J%3%^%s%I$O8=:_$OL5;k5l$^$9!#%P!<%8%g%s4MQ$K=q$$$?8E$$%9%/%j%W%HXN8eJ}8_49@-$,I,MW$J>l9g$O!"0J2<$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;XDj7J1l$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?>l9g!"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<6uGrD9> NCMK10 $rDI2C$7$^$9!#$=$N>l9g!"%3%^%s%I**show dashtype** $O!"85$NJ8;zNs$HJQ498e$N?tCMNNsNN>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@$$49(lP!"3l$OCzEYlinetype $+$i1JB3@-$r<h$j=|$$$?bN!"$H8@$&3H$,$G$-$k$G7g$&!#**linetypes** $O1JB3E*(L@<(E*$K$=$lir:FDj5A9k$^$G$OJ];}$5lk) G9$,!"**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$9$kKO!"?’ND$$$?D9U}7A$rB0@- **behind** $GDj5A$9lP$$$$o1G$9!#

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

IA2h$N=gHV$O0J2<NDLj$G$9:

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

3F3,AXFbGO!"MWAG$NIA2h$O0J2<$N=gHV$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$,$"$k>l9g (multiplot %b!<%I)!"3N=g=x$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$3HG$"$i$+$8$aDj5A$7$?4X?t$r<B9T5;k3H,G-$^$9!#%^%&%9F~NO$r **batch** %3%^%s%I%9%/%j%W%HHAH_9go;k3Hb2DG=$G!"Nc$($P **pause mouse** H7$F!"$=$N8e$K%^%&%9%/%j%C%/KhCF%Q%i%a!<%?H7$FJUV$CFMhk%^%&%9JQ?tr=$N8e$N%9%/%j%W%HF0:n$KH?1G$5$;$k3H$,$G$-$^$9!#0J2<; 2>H: **bind (p. 44)**,**mouse variables (p. 46)**!#$^$?0J2<$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@$$^$9!#**bind** $O!"gnuplot $, **mouse** $r%5%]!<%H$9kh$&$K%3%s%Q%$%k$F$$$F+$D%^%&%9,M-8z$J=PNO7A<0>e$G;H$olF$k>l9g$KN_M-8zG"k3HKCm0U7F$/$@$5$$!#f!<%6;XDj$N%-!<3dEv (binding) $O!"AH$_9~$_ (builtin) %-!<3dEv$rCV-49($^$9,!"<space> $H’q’ $ODL>o$O:FDj5AOG$-$^$;$s!#$=$NM#01$NNc30$K$D$$F$O!"0J2<; 2>H: **bind space (p. 45)**!#

%^%&%9%\%?%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** $G%G%U%)%k%H$NuBV$KI|5"$G$-$^$9!#

=$>~%-!<$r4^$’J#?t$N%-!<$NDj5A$O0zMQId$G0O$’I,MW$,$"k3HKCm0U7F$/$@$5$$!#

I8=’GO%[%C%H%-!<$O8=:_$NIA2h%&%#%s%I%&>e$KF~NO%+!<%=%k$,$"$k>l9gN_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$^$9!#3N>l9g!"gnuplot JQ?t MOUSE_KEY_WINDOW K=l,9TJol?%&%#%s%I%&$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) $OBgJ8;z>.J8;z$N6hJLO"j^$;$s$,!"%-!<$O$=$&GO$"$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%-!<GOJ/!"%&%#%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$5l?>19g$O!"IA2h%&%#%s%I%&Fb$G<space> $r%?%$%W9k$Hgnuplot $N%3%^%s%I%&%#%s%I%&$,A0LL$K=P$^$9!#$3$N%[%C%H%-!<$O!"gnuplot -ctrlq' Nh$&$K7F gnuplot $r5/F0$9k+!"$^$?$O X %j%=!<%9$N'gnuplot*ctrlq' $r@_Dj$9k3HG ctrl-space $KJQ99$G$-$^$9!#0J2<;2>H: **x11 command-line-options (p. 261)**!#

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

mousing (%^%&%95!G=) $,M-8z$J>l9g!"8=:_$N%&%#%s%I%&>e$G$N%^%&%9%/%j%C%/$KhC$F gnuplot $N%3%^%s%I%i%$%s>e$G;H$&3H$,$G$-$k?'!9$J%f!<%6JQ?t$,@_Dj5l$^$9!#%/%j%C%/;~$N%^%&%9$N:BI8$QJQ?t MOUSE_X, MOUSE_Y, MOUSE_X2, MOUSE_Y2 $KBeF~$5l^$9!#%/%j%C%/$5l?%\?%s$d!"$=NH$-$N%a%?%-!<$N>uBV$O MOUSE_BUTTON, MOUSE_SHIFT, MOUSE_ALT, MOUSE_CTRL $KBeF~$5l^$9!#$3li$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$5l^$9!#M-8z$JIA2h%&%#%s%I%&Cf$G%^%&%9$,4{$K%/%j%C%/$5l?$+$I$&$+$r%9%/%j%W%H$+$iD4$YkK$O!"$3li$NJQ?t$N$&$ANIl+0lD,Dj5A5l$F$$$k$+$I$&$+$r%A%'%C%/$9lP==J,$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$O MOUSE_KEY KO2!5l$?%-!<$N ASCII %3!<%I$,J]B8$5l^$9!#MOUSE_CHAR KO$=$NJ8;z<+?H$,J8;zNsCM$H7FJ]B8$5$l$^$9!#pause %3%^%s%I$,(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;}$C$?$^$^%/%j!<%s$K;Dj^$9!#=PNO7A<0$KhCFO!"$=$N;DC?%&%#%s%I%&>eGbB?>/$N%^%&%9A\:n$,2DG=$J>l9g$b$"$j$^$9!#7+$7!"%0%i%UN:FIA2h$rMW5a9k%:!<%\(H=$N5U)$Nh&$JA\:n$O!"4{$K%W%m%0%i%\$,=*N;7F$$$kNG0lHE*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$$$^$9!#**plot** $O2<!85%0%i%U$r@8@.7^$9!#**splot** $O3<!85%0%i%U($bAm$s<B:]$KO=$N2<!85LI$X$N<M1F)$r@8@.7^$9!#**replot** $O!"D>A0$N **plot** $d **splot** %3%^%s%I$r:F<B9T7^$9!#**refresh** $O!"**replot** $H;w$F$$$^9,!"F~NO%G!<%?$r%U!%$%kd$F~NO%H%j!<%\'$+$i:FFI$_9~$_$9kBeojK!"A0$KJ]B8$7$?%G!<%?$r:F;HMQ7^$9!#

3l$i4 DN%3%^%s%IN&A$N0lDr<B9T7?>l9g$O!"8=:_Dj5A5l$F$$$k<4!"%i%Y%k!"%?%$%H%k!"$*hS85$N plot %3%^%s%I$G;XDj5l$?5$^6^$J4X?t$d%G!<%?$N%9%Y%F$r4^$`=PNO$N%9%/%j!<%s$r:FIA2h$9k+!"?7$7$$=PNO%Z!<%8$r@8@.$7$^$9!#b7!"0lDN%Z!<%8$KJ#?t$N%0%i%UrNYj9g$&$h$&KJB$Y$F=PNO$7$?$>l9g!"Nc

$ ($PJ#?t$N?^$N%Q%M%k$r:n@.7?$j!"Bg$-$J%0%i%U$NCf$K>.$5$J%0%i%U$rA^F~7?j7$?$$>19g$O!"%3%^%s%I **set multiplot** $r;HMQ$7!"3FIA2h%3%^%s%I$G?7$7$%Z!<%8$,:nilkN$rM^@)$7F/$@$5$$!#

IA2h$K4X$9$k0lHLE*$J>pJs$NBgH>$O!"**plot** $K4X$9$k9'$G8+D+j^$9!#3 <!85IA2h$K8GM-$N>pJs$O**splot** $N9'$K$"$j$^$9!#

plot $Oxy D>8r:BI87O$H6K:BI87O$,;H$($^$9!#0J2<;2>H: **set polar (p. 165)**!#**splot** $Oxyz D>8r:BI8$,;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=1>$1FHN)$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$7!"$=$10J30NbNO**set logscale xy** Nh$&$K!"1 $D!"$^$?$OJ#?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$N3J;RDj5A$K4X$9$k>pJs$K$D$$$F$O!"0J2<;2>H: **set isosamples (p. 135)**!#3 <!85%G!<%?$N%U%!%$%kKI,MWJ7ABVKD$$$F$O!"0J2<;2>H: **splot datafile (p. 195)**!#Ey9b@~$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=L<\$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$F:n$ilk5?;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$Ognuplot $N%$%s%9%H!<%k;~$K7hDj$5$l!"**show loadpath** GCNk3H$,$G$-$^$9!#<!$K%f!<%6$N%[!<%'%G%#%/%H%jFb$K8D?MMQ$N@_Dj%U%!%$%k$rC5$7$^$9!#$=$N%U%!%$%k$OUnix 7O$N%7%9%F%'$G$O**gnuplot** G"$j!"$=$NB>$N=hM}7OGO**GNUPLOT.INI** HJCF$$^$9!#(OS/2 GO!"4D6-JQ?t**GNUPLOT** $K@_Dj$5lF$$kL>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$G$-$^9,!"%;%-%e%j%F%#>e4m81JNG=lO?d>)7^$;$s!#

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

J8;zNsDj?t$K2C$($F!"$[HsINgnuplot %3%^%s%I$OJ8;zNsJQ?t!"U8;zNs<0$^$?$OJ8;zNsrJV94X?t$b<u$lIU1^$9!#Nc$($P!"0J2<$N4 DNplot Nd$jJ}$O7k2LH7$FA4$FF1$8IA2h%?%$%H%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$HF1MM$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*$Jgnuplot XNL?NaJ8K!$N0lItJ,$HG'<1$5lkbN0J30$O!"M-8z$JJ8;zNsJQ?t$H7F$NI>2AN_,9TJcl^$9!#hC$F!"0J2<$N3%^%s%INs$O!"62i/$O:.Mp$r0z$-5/$3$5$J$$$h$&$KHr1ilkY-G9$,!"J8K!E*$K$O4V0c$CFO$$^;$s:

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

<!$N3 DNFs9‘1i;;;R$OJ8;zNs$K:rMQ7^$9: J8;zNs$N7k9g1i;;;R"."，J8;zNs$NEy9fli;;;R"eq"，$*hSJ8;zNs$NITEy9fli;;;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!"J8;zNsJQ?t!"J8;zNsCM4X?t$K!"HOOO;XDj;R$rD1k3HKhjItJ,J8;zNs$r;XDj$G$-$^$9!#HOOO;XDj;R$O[begin:end] $N7A$G!"begin $OItJ,J8;zNs$N@hF,0ICV!"end $O:G8e$N0ICV$G$9!#0ICV;XDj$O!":G=i$NJ8;z$r1 HVL\$H8+$^$9!#@hF,$N0ICV!":G8e$N0ICV$O6u!"$"$k$$$O'*' Gb9=$$$^$;$s!#$=$N>19g!"$=$l$O85$NJ8;zNs<+BN$N@hF,!"$"$k$$$O:G8e$r0UL#$7$^$9!#Nc$($P!"str[:] $dstr[*:*] OIAi$bstr $NJ8;zNsA4BN$r0UL#7^$9!#

CV49$H%3%^%s%I%i%$%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$NCV49$,<B9T$5l^$9!#$=li$O5U0zMQId(!.) (ASCII HV9f96) $G0O$^lF$$k$+!"$^$?$O@ (ASCII HV9f64) $,F,$K$D$$$?J8;zNsKBP7$F9T$Jol$^$9!#

5U0zMQIdKh$k%7%9%F%‘%3%^%s%I$NCV49 (Substitution backquotes)

%7%’%k%3%^%s%I$r5U0zMQId(!.) $G0O$‘3HKhOF%3%^%s%ICV49$r9T$&3H$,$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. 200)**!#

%3%^%s%ICV49$O!"C10l0zMQIdFb$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%^%/%mCV49 (Substitution macros)

J8;z@ $O!"%3%^%s%I%i%$%s>eG=$NJ8;zNsJQ?t$NCMXNCV49$r9T$J$&$N$K;H$ol^$9!#J8;zNsJQ?t$NCMH7FNJ8$O!"J#?t$NC18l$+$iJk3H$b2DG=$G$9!#$3lKhjJ8;zNsJQ?t$r%3%^%s%I%i%$%s%^%/%mH7$F;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!<%6Dj5AJQ?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(!.) FbGO%^%/%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$$$^$9!#$hCF!"

```
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$$$k$+$i$G$9!#%7%9%F%‘%3%^%s%I$r%^%/%m$H7FJ]B8$7!"$=$N8e$=lr<B9T9kKO!"5U0zMQId<+BN$b%^%/%mFb$K4^akI,MW$,$"j^$9!#$3lOJ2<Nh$&$K%^%/%m$rDj5A$9k3HG<B8=G-$^$9!#sprintf $N=q<0$K$O3 <dN‘$N0zMQIdA4F,F~$l;R$KJC$F$$$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%3m%s(:) $G6h@Z$CF+$.$+$C3([]) G/$/j^$9$7!"J8;zNs$d%U%!%$%kL>$OzMQIdG/$/$j!"B>$K$$$/D+%+%C3(()) G/$/$kbN$,$"j^$9!#

%3%s%^$OJ2<$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 **grid3d 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+=P7N

0LCV; **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!<%?$GOJ$/) L@<(E*$K=89gM?$($k>l9g$N6h@Z$jH7$F!"$^$?$O **fit**, **plot**, **replot**, **splot** %3%^%s%I$N **using** %U%#%k%?$G$N7W; ;$r; X<($9%k$?aK; Hol$^$9!#

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

$+$.$+$C3O!"**set**, **plot**, **splot** %3%^%s%IGCHC0C0$r6h@Z$kNK; Hol$^$9!#

%3%m%s$O **range** (HC0C0) ; XDj(**set**, **plot**, **splot** %3%^%s%I$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$9kNK$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<($9%3$H$,2DG=$G$9!#

0zMQId (Quotes)

gnuplot $O!"J8; zNs$r6h@ZkN$K!"Fs=E0zMQId(ASCII %3!<%I 34 HV)!"C10l0zMQId(ASCII %3!<%I 39 HV)!"$*$h$S5U0zMQId(!.) (ASCII %3!<%I 96 HV) $N3<cN`$N0zMQId$r; H$$^$9!#

%U%!%$%kL>$OC10l0zMQId!"$"$k$$$OFs=E0zMQIdFb$G0O$_$^$9!#3N%^%K%e%"%kGO1lHL$K%3%^%s%I$NIc<(GO!"o+jd9/9k$?$a$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_8zNC$r; }$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!<%I 39 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$NCV4 9$N$?$a$K7%9%F%`%3%^%s%I$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$7!"%i%Y%k$N0lCV$H!"F|;~%G!<

%?CM$r<u$1F~lk9YFNbNXNF~NO$N=q<0$,! "%G%U%)%k%HG3lKJj$^$9! #0l; ~KO0lDN%G%U%)%k%HF~NO=q<0N_$,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$dNs$+$i%G! <%?rFI_3 `3HKh$j! "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; ~4V$X$NJQ49$N5!G=$O2?$b; }$A9g$o$;$F$$$^$;$s! #$b$7%G! <%?$,$9$Y$FF1$8I8= `; ~4VB$K=>CF$$kJi ($=$7$FA4$F$,2F; ~4V$+! "$=$&GJ$$$+NIAi$+0lJ}$KN_=>$&$J$i) 3l$K4X7F2?$b?4G [9k3HO"j^$;$s! #7+$7! "$"J?$,; HMQ9k%"%W%j%1! <%7%g%s$G@dBPE*$J; ~9o$r87L)$K9M; !$7J1lP$$$1J>l9g$O! "$"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=< (5;kH! "$=$1$O?7$7$$ **timefmt** $K=>$C$FI=< ($5l^$9! #$3N?$a! "(**set xdata** JIKh$j) $=$N<4KBP9$k%G! <%?7?$r%j%;%C%H9k$H! "$=NCMO@0?tCMH7$FI=< ($5lk3HKJj^$9! #

%3%^%s%I **set format** $^$?$O **set tics format** $O! "; XDj$5l?<4KBP9$kF~NO$,; ~4V/F |IUG"kJ7K4Xoi$: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$$$^9,! "; ~4V/F |IU%G! <%?O=NCfK%9%Z! <%9$r4^$_F@k+iG$9! #$b$7%?%V6h@Z$j$r; HMQ$7$F$$kNJ$i! "$"J?$N%?%9%F% `$,$=$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*$JF |; ~%0%i%U%r:n@.9kNK$b; H$ ($^$9! #0z?t$N7?$O$=$l$,JV$9bN$r7hDj$7$^$9! #0z?t$,@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; zNs$rDs6!9kh&$=$l$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
```

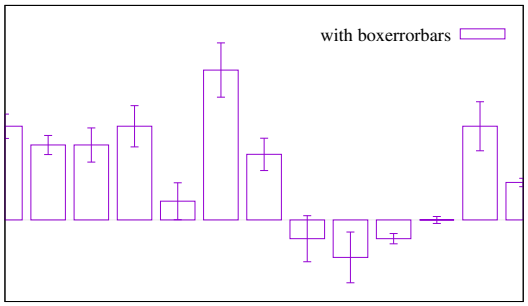
3FIA2h%9%?%$%k$O! "$=$l<+BN$,%G!<%?%U%!%$%k$+$i$N$$$/D+$N%G!<%?$NAH$r4|BT$7$^$9! #Nc$($P! "%G%U%)%k%HGO **lines** %9%?%$%k$O! "y NCM@1N1 Ns$N%G!<%?(x NCMCOEL[$K=gHV$K<hil$k)! "$^$?$O:G=i$, x, <! $, y $N2 DNNs$r4|BT7F$$$^$9! #%U%!%$%k%N2?Ns$N%G!<%?rIA2h%G!<%?$H2r<a5;k&$^$J}K!$K4X$9$k>pJs$K$D$$$F$O! "0J2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



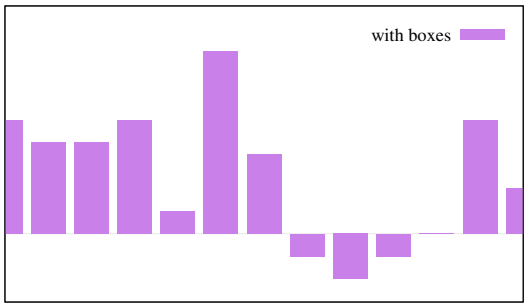
H"$N9b$5$O! "**yerrorbars** %9%?%$%kF1MM$Ky $N8m:9$NCM$+$i7hDj5l$^$9! #y-ydelta $+$iy+ydelta $^$G! "$"$k$$$O ylow $+$iyhigh $^$G! "3liO2?Ns$N%G!<%?$,M?$($ilF$$$k$+$KhC$F7h$^j^$9! #

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
```

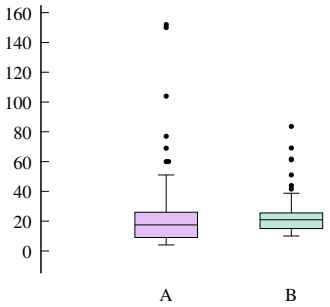
sin $O%Q%?!<%s0 $G!"cos $O%Q%?!<%s1 $GIA2h$5l^$9!#DI2C$5lkIA2h$O=PNO%I%i%$%P$,%5%]!<%H$9$k%Q%?!<%s$r=[4DE*$K;HMQ$7$^$9!#

$=$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
```

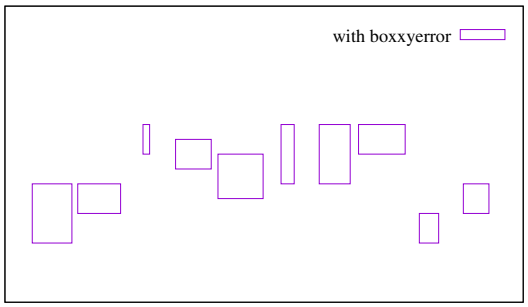
$=$NH"$N%G%U%)%k%H$NI}$O **set boxwidth** <**width**> $G@_Dj$G$-$^9,!"plot %3%^%s%I$N **using** Kh$k3 HVL\$N%*%W%7%g%sNsGb;XDjG-$^$9!#1 HVL\$H3 HVL\$NNs(x :BI8$HI}) $ODL>o%G!<%?Ns$GOJ$/Dj?t$H7FM?$($^$9!#

%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!#

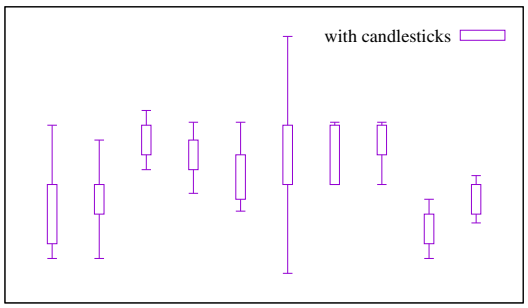
6 Ns$N7A<0$N%3%^%s%I$O!"G$0U$Nx, y $NI}$ND9J}7A$r=q$/4JC1$JJ}K!$rDs6!7^$9!#

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!#

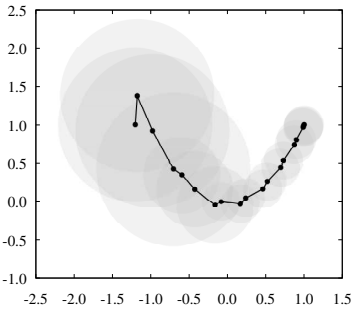
Cm0U:Cfl{CM$rI=$9$?$a$N5-9f$JIrDI2C7?$>l9g!"0J2<$NNc$N%h$&$K!"$R$2IU$-$NK@%0%i%U$KB>$NIA2h%3 %^%s%I$rDI2C9kI,MW$,$"j^$9:

```
# %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)**

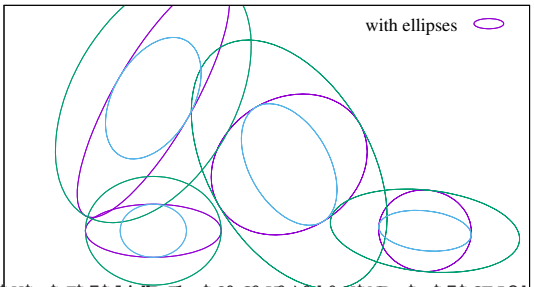
```
# LL@Q$, 3 NsL\$NCM$KHfNc$9$k$h$&$J1_$rIA2h
set style fill transparent solid 0.2 noborder
plot 'data' using 1:2:(sqrt($3)) with circles, \
     'data' using 1:2 with linespoints

# 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. 175) **set style ellipse (p. 175)** 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
```

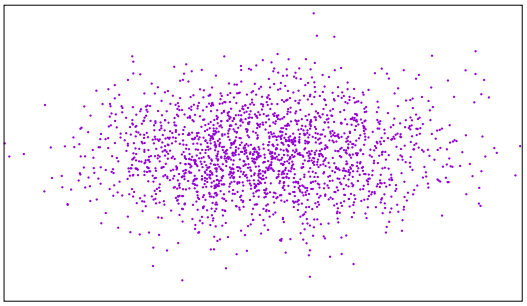
0J2<$b;2>H: **set object ellipse (p. 153)**, **set style ellipse (p. 175)**, **fillstyle (p. 171)**!#

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

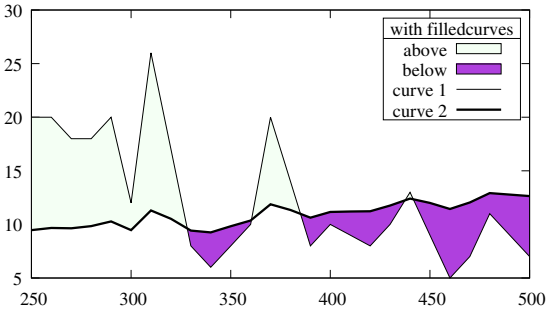
%9%?%$%k **filledcurves** $O2<!85IA2h$GN_MxMQ7^$9!#$3lO3<dN'$N0[$J$k;XDj$,2DG=$G$9!#:G=i$N2<dN'$O1DN4X?tIA2h!"$"$k$$$O(x,y) 2 Ns$NF~NO%G!<%?$bNG!"8e$G>R2p$9kh$&$K%*%W%7%g%s$G99$J$k;XDj$,G-$^$9!#

=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$H8+J7$^$9!#F~NO%G!<%?$, 2 Ns$N>19gKO3l$,%G%U%)%k%H$G$9!#

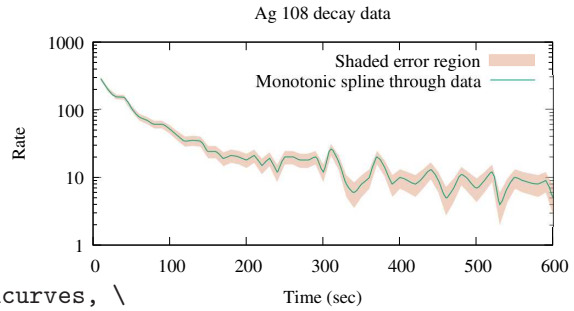
2<dN'L\$O;XDj5l$?<4!"$"$k$$$O?eJ?@~!"?bD>@~!"M?$($il?E@JI$H!"6J@~$H$N4V$K:nil$kNN0h$rEIjDV7$^$9!#

```
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;k$7$^$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 $N%b!<%I%G%U%)%k%H$N **closed** G"$k>19g$K<u$1IU$1$^$9!#Nc:

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

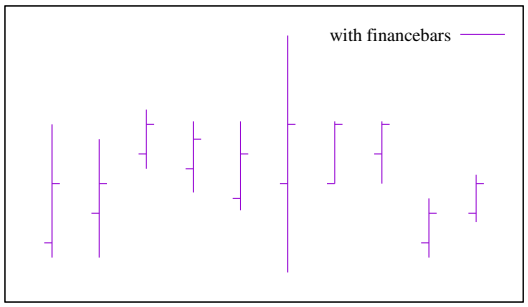
Financebars

financebars %9%?%$%k$O6bM;%G!<%?$N2<!85$N%G!<%?IA2hGN_MxMQ2DG=$G$9!#$3$1$O!"1$D(DI>cF|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!#

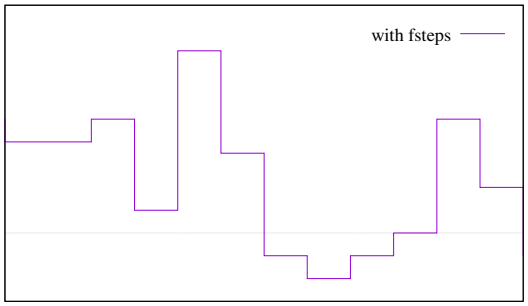
5-9f$O! "?eJ?J}8~$KO=$Nx :BI8$KCV$+$l! "?bD>J}8~KO :G9bCM(high) $H:G0BCM(low) $rC<$H9k@~J,$,;H$ol^ $9! #$=7F! "$=$N@~J,$K?eJ?:8B&$N9o$_$,3+;OCM(open) $N=j$K! "?eJ?1&B&$N9o$_$,=*$jCM(close) $N=j$KD-$^$9! # $=$N9o$_$ND9$5$O**set errorbars** $GJQ99$G$-$^$9! #5-9f $O:G9bCM$H:G0BCM$,F~$lBXoCFbJQoj$^$;$s!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

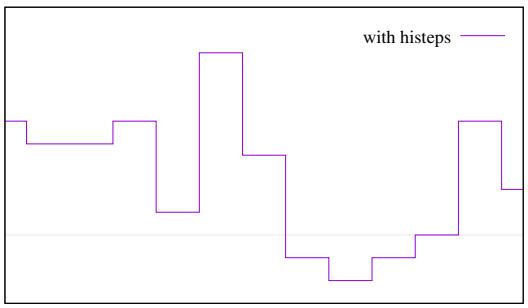


Fillsteps

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!#

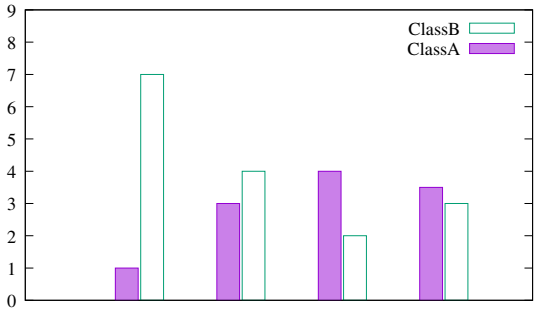
H"$NI}$O%3%^%s%I**set boxwidth** $GJQ99$G$-$^$9!#H"$NEIjD$V$7%9%?%$%k$O%3%^%s%I**set style fill** $G@_Dj G-$^$9!#

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!#

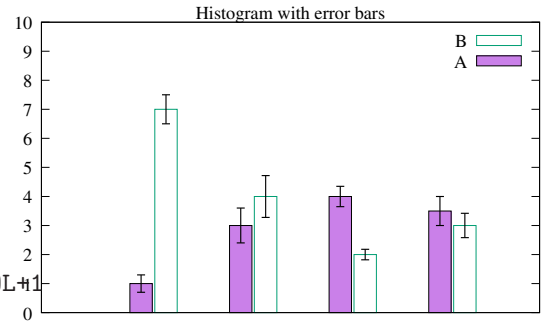
Nc

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
```

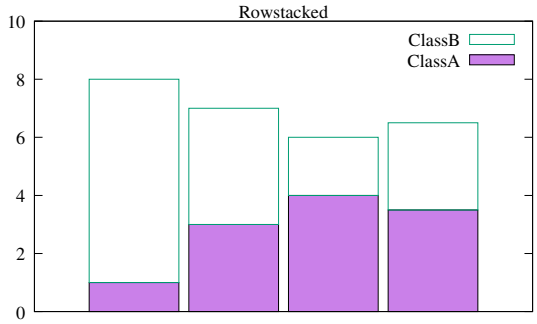


```
plot for [COL=2:4:2] 'file.dat' using COL:xticlabels(1)
```

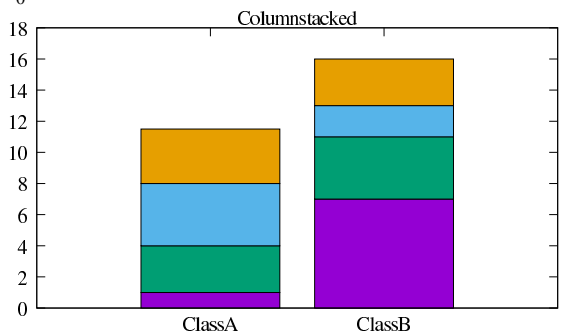



```
set errorbars fullwidth
set style fill solid 1 border lt -1
set style histogram errorbars gap 2 lw 2
plot for [COL=2:4:2] 'file.dat' using COL:COL+1
```

```
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!#

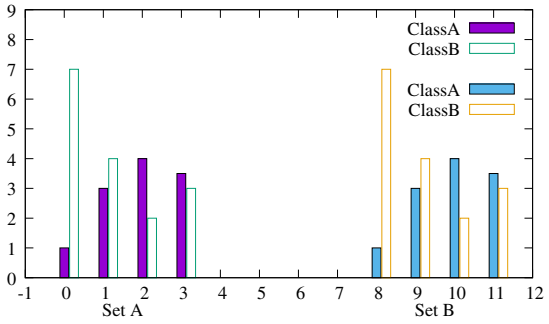
%3%^%s%I newhistogram $O!"%R%9%H%0%i%'$N?'IU1r6/@)E*$K;XDj$7$??'(linetype) $G;O$akNKb;H$($^$9!# %G%U%)%k%H$G$O!"?'$NHV9f$O%R%9%H%0%i%'$N6-3&r^$?$$G5($bO"B3E*$KA}2C$7B3$1$^$9!#<!NNcO!"J#?t $N%R%9%H%0%i%'$KF1$8?'IU$1$r;\$7$^$9!#

```
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:

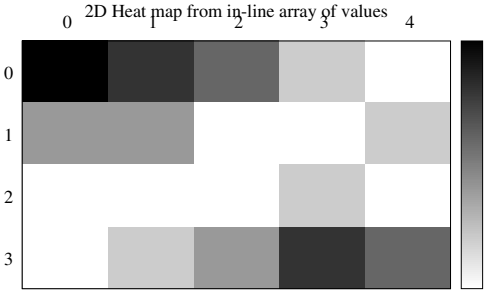
```
set style histogram columnstacked
plot for [i=3:8] "datafile" using i title columnhead
```

Image

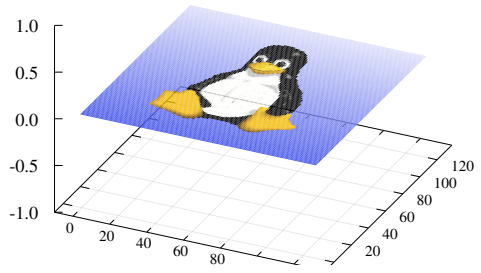
IA2h%9%?%$%k **image**, **rgbimage**, **rgbalpha** $O!"$$$:lb0lMM$KI8K\E@$r<hC?3J;R>u%G!<%?CM$r!"2<!85!" $^$?$O3<!85f$N$"$kJ?LL>e$K<M1F$7$^$9!#F~NO%G!<%?O!"4{K"$k%S%C%^%C%W2hA|%U%!%$%k(PNG Nh$& $JI8=`E*$J%U%)!<%^%C%H$+$iJQ49$7$?bNGh$$) $+!"C1=c$J?tCMG[Ns$G$9!#

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!#

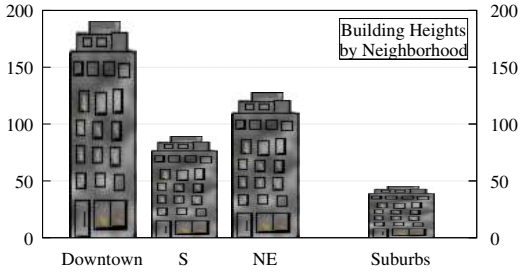
```
plot '-' matrix with image
5 4 3 1 0
2 2 0 0 1
0 0 0 1 0
0 1 2 4 3
e
e
```



F~NO2 <!852hA|$N3F%T%/%;%k(%G!<%?E@) $O! "IA2h%0%i%U Cf$G$OD9J}7A! "$^$?$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!<%? $r2 <!85IA2h:BI87CFb$NFCDj$ND9J}7A$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! "$=l>$l dx, dy, origin $r;XDj$7$FJ#?t2s G[CV$7$^$7$?! #F~NO PNG 2hA|$G$"$k%S%k$N3($O 50x128 %T%/%;%k$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$$^ $9(LuCm ?^$,I=<(5l$F$$k>19g)! #



%9%?%$%k **image** $O! "%0%l%$%9%1! <%k(3%?'3,D4)! "$^$? $O%+%i! <%Q%l%C%HCM$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$5l?%T%/%;%k$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] $NHCOOFb$K$"$k$H2>Dj$5l^$9! #$3$1$O! "PNG $d JPEG %U%!%$%k%G;HMQ5l$F$$k;E AH$_$K9gCF$$^$9(0J2<;2>H: **binary filetype (p. 89)**)! #7+$7! "RGB @.J,$H7F[0:1] $NHCOOC$N<B?tCM $r<h$k;EAH$_$r;HMQ9kh&JG! <%?%U%!%$%k$bCfKC$"$j$^$9! #$=$Nh&JG! <%?$G **rgbimage** %9%?%$%k$r ;HMQ$9kK$O! "?'@.J,$r[0:255] $NHCOOC$K%9%1! <%kJQ49$7$J1l$P$$$1$^$;$s! #

%9%?%$%k **rgbalpha** $O! "@V! "NP! "@D$N RGB @.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] $NHCOOFb$K$"$k$H2>Dj$5$l $^$9! #RGBA @.J,$,[0:1] $NHCOO$N<B?tCMG"$k%G! <%?$rIA2h9kKO! "?'@.J,$r[0:255] $NHCOOFb$K%9%1! < %kJQ49$7$J1l$P$$$1$^$;$s! #

F)L@2=(transparency)

IA2h%9%?%$%k **rgbalpha** $O! "F~NO%G! <%?$N3F%T%/%;%k$,[0:255] $NHCOOFb$N%"%k%U%!CM$r;}$C$F$$$kI,MW$,$" j^$9! #alpha = 0 $N%T%/%;%k$O4OA4$JF)L@$G! "$=$N2<(1|) $NIA2hMWAG$rA4$/JQ$($^$;$s! #alpha = 255 $N%T %/%;%k$O4OA4$JIT1F)L@$G$9! #$9YF$N=PNO7A<0$O! "$3$1$i2 DNN>6KC<JCMr5%]!<%H7^$9! #0 < alpha < 255 $N%T%/%;%k$OCH>F)L@$G! "H>F)L@$r5%]!<%H7F$$J$=PNO7A<0$G$O! "$=NCMr0 $+255 $N$$:l+$K4]$a $^$9! #

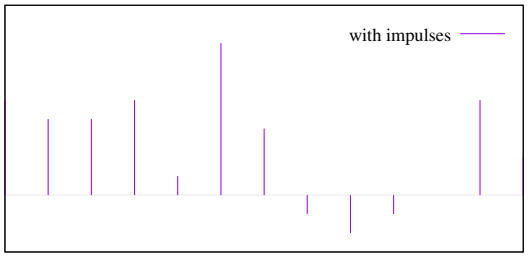
Image pixels

=PNO7A<0KhCF$O! "2 <!85$ND9J}7ANN0hFbGN2hA|$G! <%?IA2h$N! "%G%P%$%9$d%i%$%V%i%j$K0MB8$7$?:GE,2= %k! <%A%s%r;HMQ7F$$^$9! #$3$1$O! "Nc$($P%/%j%C%T%s%0$d?-=L$,$&$^$/$J$+$C$?$j! "1o$,7g$1kJ$I! "K>$^ 7/$J$$=PNO$r@8@.$9k3H,$"$j$^$9! #-!<%o!<%I **pixels** $O! "$=Nh$&$J%k! <%A%sNBeojK! "2hA|$r1 %T%/%;%k:$DIA2h9kh&$J0lHE*$J3! <%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$/$1kG 7g$&(%*%W%7%g%s **pixels** $O! "0JA0$Ngnuplot GO **failsafe** $H8F$PlF$$$^7?)! #Nc:

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

Impulses

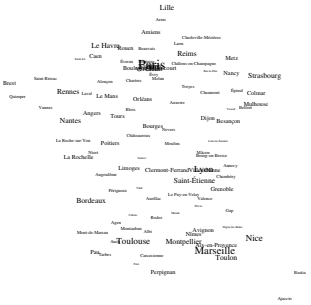
impulses %9%?%$%k$O!"2 <!85IA2hGOy=0 $+$i3FE@$N y NCMX$N!"3 <!85IA2hGOz=0 $+$i3FE@$Nz NCMX$N!" ?hD>$J@~J,$rI=<(7^$9!#y $dz NCMOIiNCMGbh$$ 3H$KCm0U$7F/$@$5$$!#%G!<%?$NDI2CNs$r3F?hD>@~J, $N?'$N@)8f$KMxMQ$G$-$^$9!#$3$N%9%?%$%k$r3 <!85IA2h $G;HMQ$9$k>19g!"B@$$@~(linewidth > 1) $rMxMQ$9kH$h $j8z2IE*$G7g$&!#$=lO3 <!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!#$3lO4pK\E*$K3 Ns!"$^$?$O4 Ns$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$N1 NsL\$+$i<h$C$?;T$NL>A0$+$i:nil$kJ8;zNs$r!"4, 5 NsL\$+ $i<h$C$?CO?^:BI8$KIA2h7^$9!#%U%)%s%H%5%$%:$O!"3 NsL\$NCM$+$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
```

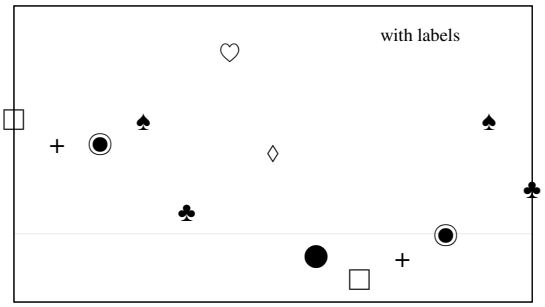
%U%)%s%H%5%$%:$r!"8D!"9$N;T$NL>A0KBP7$F0[$J$k%5%$%:$K9g$o$;$J$/$F$$$$JiP!"%3%^%s%IObCH4JC1 $G$9:

```
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^$9!#0J2<;2>H **hypertext (p. 142)**)!#3N>19g%O%$%Q!<%F%-%9%H$NCV$->l=j$H7F5!G=9kE@$r:n$k$?$a K=$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
```

points **labels**



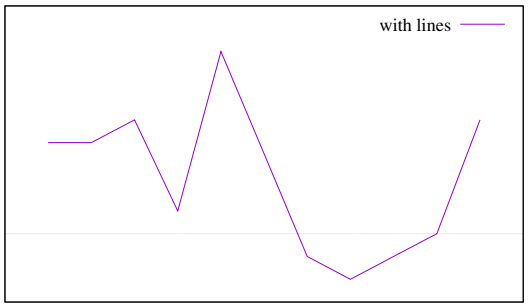

```
set encoding utf8
symbol(z) = "<UTF-8 J8;zNs>"[int(z):int(z)]
splot 'file' using 1:2:(symbol($3)) with labels
```

using

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

Lines

lines **rgbcolor variable** (p. 42)



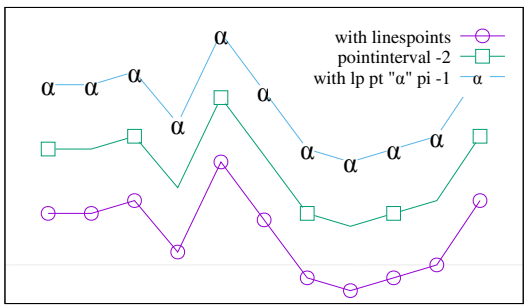

```
2 <!85("using" ;XDj$J$7) $N>19g
    1 Ns:   y        # 9THV9f$K$h$k0EL[$N x
    2 Ns:   x  y
```

```
3 <!85("using" ;XDj$J$7) $N>19g
    1 Ns:   z        # x $C0EL[$N9THV9f!"y $O index $+$i
    3 Ns:   x  y  z
```

linetype (p. 142), **linewidth** (p. 173), **linestyle** (p. 173)

Linespoints

linespoints **lp**



lines (p. 65), **points** (p. 66)

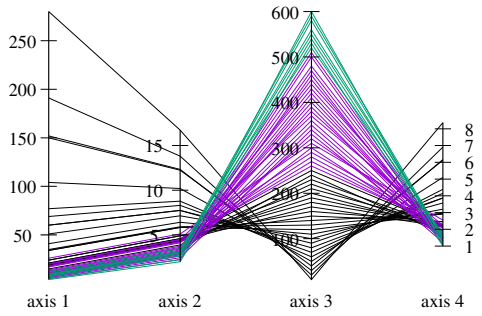
pointinterval **pi**, **point-number** **pn**

pi N **pi -N** gnuplot **set pointintervalbox**

pn N **pn -N** gnuplot **pi**

Parallelaxes

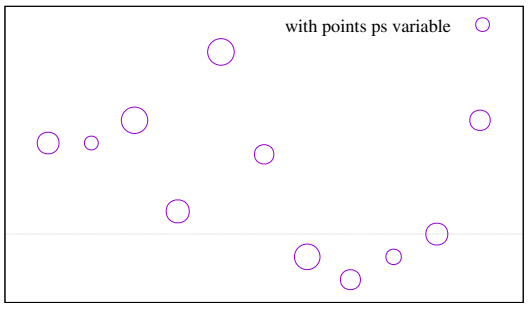
J?9T:BI8IA2h(parallel axis plot, parallel coordinates plot Hb8FPl$k) $O!"B?<!85%G!<%?$NAj4X$r;k3P2=$7$^$9!#3FF~NONs$O!"JL!9$N%9%1!<%k$N=D<4$K3djEvFil$^$9!#F~NO1 9T$+$iFI$_9~$s$@$=l>lNNsNCMO!"1 $DL\$N<4$+$i2 $DL\$N<4$X!"2 $DL\$N<4$+$i3 $DL\$N<4XH@~J,$G7k$Pl^$9!#$9Jo$AJ?9T:BI8IA2hCf$G$O!"F~NO$N3F9T$,$=l>$lFHN)$7$?@^$l@~KJj^$9!#$=li$r?t<dN'$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 $O<F'OE*$K8D!9$N<4$NHOOO!"%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>Dj5l$?J}K!$G2r<a5l$^$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$5lF$$$k$+$r8+kK$O!"%3%^%s%I **test** $r;HMQ$7F/$@$5$$!#$^$?!"2<NNcNh&K7$F!"G$0U$N0u;z2DG=J8;z$rE@<oHV9fNBeojK;HMQ9k3HbG$-$^$9!#$h$jD9$$J8;zNs$O!"IA2h%9%?%$%k **points** GOJ/**/labels** $r;H$($P=PNO$G$-$^$9!#

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

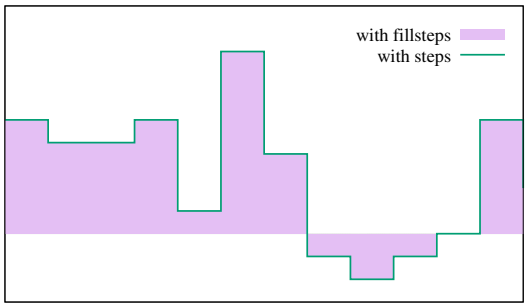
E@<oH7$F!"G$0U$N UTF-8 J8;z$r;HMQG-$^$9!#0J2<;2>H: **utf8 (p. 127)**!# plot %3%^%s%I>e$G%-!<%o!<%I **pointtype**, **pointsize**, **linecolor** $r;H$&:]!"HV9fNBeojK%-!<%o!<%I **variable** $rDI2C$9k3H,G-$^$9!#3N>19g!"3FE@$NBP1~$9$kB0@-CM$rF~NO%G!<%?$NDI2CNs$+$i<hF'@$7$^$9!#2DJQ(variable) pointsize CM$O!"**>o$K using** ;XDj$GM?$(il$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$F3 DNB0@-r9YF;XDj9k>19g$O!"F~NO%G!<%?Ns;XDj$N=gHV$OJ2<$Nh&KJj^$9!#

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

CmOU:!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$9!#3$l$O 2 K\$N@~J,GNYj9g$&E@$rDJ$.$^$9: 1 K\L\$O(x1,y1) $+$i(x2,y1) $^$G!"2 K\L\$O(x2,y1) $+$i(x2,y2) $^$G!#F~NGNs$N>r7o$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$$$F$+$i<!$Ky J}8~$K=q$-$^$9!#6J@~$H%Y!<%9%i%$%s$G$"$k y=0 HN4V$NNN0h$rEIjDY9KO!"**fillsteps** $r;HMQ$7F/$@$5$$!#0J2<;2>H**steps** %G%b!#



Rgbalpha

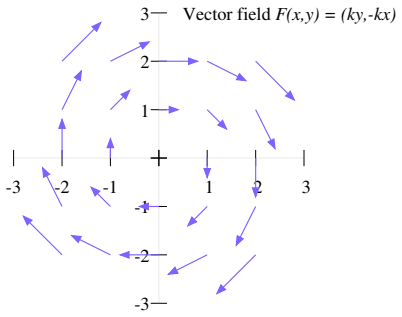
0J2<;2>H **image (p. 62)**!#

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$b!"F~NGNs$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:]$K$O=$l$,arrow $NB0@-CM$9YFrKdakN$G=$Nplot %3%^%s%IFb$KB>$N@~B0@-$darrow %9%?%$%k;XDj$r3$N%-!<%o!<%I$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:

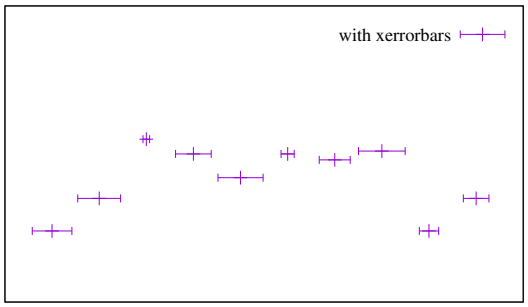
```
plot 'file.dat' using 1:2:3:4 with vectors head filled lt 2
splot 'file.dat' using 1:2:3:(1):(1):(1) with vectors filled head lw 2
```

vectors %9%?%$%k$r;HCF$Nsplot $O**set mapping cartesian** N_$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$_$GMxMQ 2DG=$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
```

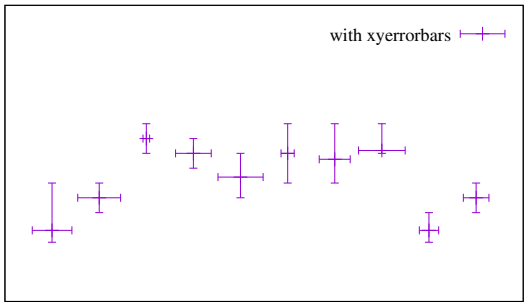


F~NCNs$rDI2C(4,5 NsL\) 9k$H!"$=li$OE@$N variable color >pJsH7$F;H$ol^$9!#

Xyerrorbars

xyerrorbars %9%?%$%k$O2 <!85$N%G!<%?IA2h$N$_$GMx MQ2DG=$G$9!#**xyerrorbars** $O!"?eJ?!"?bD>$N8m:9;X<(@~ (error bar) $bI=<($5lk0J30$O**points** $HF1$8$G$9!#3F E@(x,y) K*$$F(x,y-ydelta) $+$i(x,y+ydelta) $^$G$H (x-xdelta,y) $+$i(x+xdelta,y) $^$G!"$^$?$O(x,ylow) $+ $i(x,yhigh) $^$G$H(xlow,y) $+$i(xhigh,y) $^$G$N@~J, $,0z$+l^9,!"3liO$$/DN%G!<%?Ns$,M?$(il k+KhCFJQoj$^$9!#8m:9;X<(@~$NC<$N9o$_$N0u$N 8+$?L\$O!"**set errorbars** $G@)8f$G$-$^$9!#$3lO4Ns $+!"6 Ns$N%G!<%?$,I,MW$G$9!#

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



%G!<%?$,!"%5%]!<%H$5lF$$$J$$:.9g7?$N7A<0$GM?$($il?>l9g!"**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"$k>l9g!"0J2<$N$h $&$K7^$9:

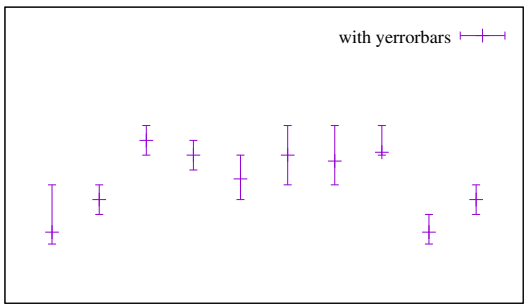
```
plot 'data' using 1:2:($1-$3):($1+$3):4:5 with xyerrorbars
```

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

Yerrorbars

yerrorbars ($^$?$O**errorbars**) %9%?%$%k$O2<!85$N%G!< %?IA2hN_$GMxMQ2DG=$G$9!#**yerrorbars** $O!"?bD>$N8m:9 ;X<(@~(error bar) $,I=<($5lk0J30$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$+ l^9,!"3liO$$/DN%G!<%?Ns$,M?$(ilk+$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
```



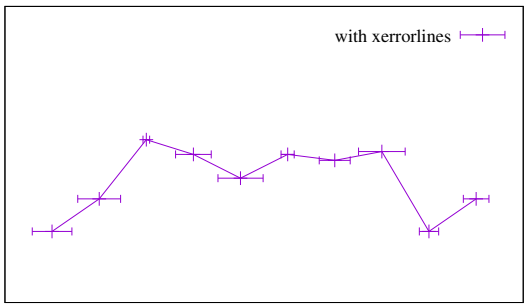
F~NCNs$rDI2C(4,5 NsL\) 9k$H!"$=li$OE@$N variable color >pJsH7$F;H$ol^$9!#

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$$^9,!" ?eJ?$N8m:9@~$,IA$+$lk3H,0c$$^$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$+$l $^$9!#8m:9@~$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
```

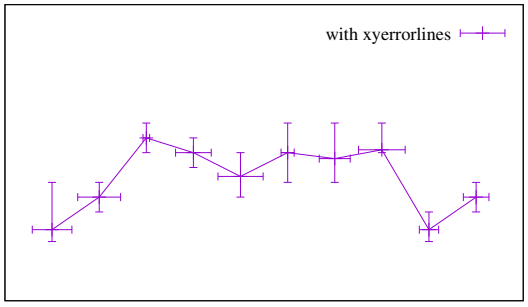


F~NONs$rDI2C(4,5 NsL\) 9k$H!"$=li$OE@$N variable color >pJsH7$F;H$ol^$9!#

Xyerrorlines

xyerrorlines %9%?%$%k$O2 <!85$N%G!<%?IA2h$N$_$GMx MQ2DG=$G$9!#**xyerrorlines** $O**linespoints** $K;w$F$$^$9 $,!"?eJ?$H?bD>$N8m:9@~$bIA$+$lk3H,0c$$^$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$+$l$^$9!#8m:9@~$NC<$N9o$_ $N0u$N8+$?L\$O!"**set errorbars** $G@)8f$G$-$^$9!#$3$l $O!"4 Ns$+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$5lF$$J$$:.9g7?$N7A<0$GM?$($il?>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:

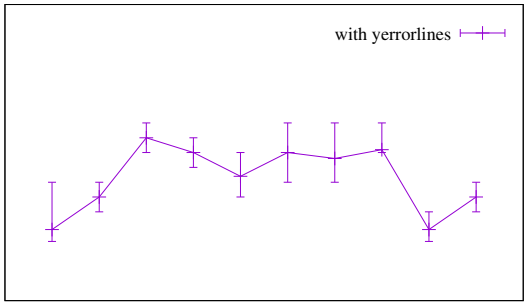
```
plot 'data' using 1:2:($1-$3):($1+$3):4:5 with xyerrorlines
```

F~NONs$rDI2C(5,7 NsL\) 9k$H!"$=li$O3F%G!<%?Eh$N variable color >pJsH7$F;H$ol^$9!#

Yerrorlines

yerrorlines ($^$?$O **errorlines**) %9%?%$%k$O2 <!85$N %G!<%?IA2hN_$GMxMQ2DG=$G$9!#**yerrorlines** $O **linespoints** $K;w$F$$^9,!"?bD>$N8m:9@~$,IA$+$lk3H, 0c$$^$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$+$l$^$9!#8m:9@~$NC<$N9o$_$N 0u$N8+$?L\$O!"**set errorbars** $G@)8f$G$-$^$9!#$3lO!" 3 Ns$+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$H!"$=li$OE@$N variable color >pJsH7$F;H$ol^$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%?%$%k$N0lDNUQ<oNh$&$JbN$G$9!#3l$O!"2$D$N4X?t$N4V!"$^$?$OF1$8xKBP7$F2$D$Ny:BI8$NE@$rM?$(B$FF@$ilk%G!<%?$N@^$l@~$N4V$NNN0hrEIjDY7^$9!#$3lO!"4Ns$+5Ns$NF~NO$,I,MW$G$9!#

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

zlow $H zhigh $N4V$NNN0hrEIjDY$7!"$=$N8ez$NCMNH3m$K@~$rIA$-$^$9!#%G%U%)%k%H$G$O!"$=$N@~$HEIjDY7KOF1$8?'$r;H$$^9,!"$=$N?'$Osplot %3%^%s%I>e$GJQ9G-$^$9!#EIjDY7$N@_Dj$O!"Bg0hE*$Jfill style $N1F6A$b<u1^$9!#0J2<;2>H **set style fill**!#

splot %3%^%s%I$KJ#?t$N6J@~$r;XDj$7$?>19g$O!"8e$KIA$$?6J@~$,!"A0$N9YFN6J@~$r1#$7F7$^$&2DG=@-$,$"j^$9!#8+$k?MB&$N<jA0$N6J@~N_$,1#$9h&$KE,@Z$J?<$5=g$NUBY+$($r9T$&$K$O!"%3%^%s%I **set pm3d depthorder** $r;HMQ$7F/$@$5$$!#;DG0J,$i!"$3lOzNCMKBP1~9k9YFN@^$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<$N:G=i$N2DNNcNEIjDY$7NN0h$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)
```

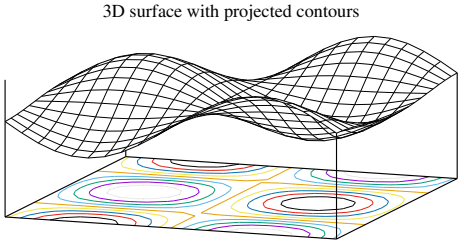
3NIA2h%9%?%$%k$O!":t%0%i%U (fence plot) $r:n@.$9kN$K;H$&3HbG$-$^$9!#0J2<;2>H **fenceplots (p. 71)**!#

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) $O!"z:BI8%G!<%?Ns$rD12C;XDj9l$P3<!85$G$b;H$($^$9!#2<!85<M1F%0%i%UN_,M_7?>19gGb!"**splot** %3%^%s%I$r;H$C$F@8@.$7J1lP$$$1$J$$IA2h7? (pm3d coloring, surfaces, contours) bCfKO"j^$9!#

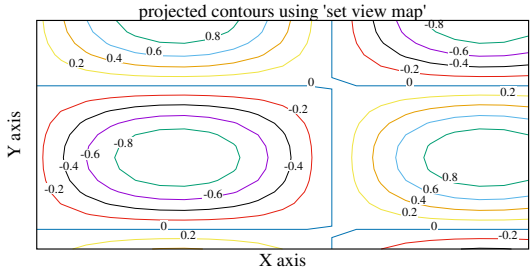
6JLLIA2h (Surface plots)

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-$^$9!#6JLL$ODL>o!"$=l,3<!85$N6JLL$G$"$kHOC-jo$+$kh&$JE,@Z$J;kJ}8~$+$iI=<(5l$^$9!#0J2<;2>H **set view (p. 181)**!#$=$N>19g!"X, Y, Z<4O9YFIA2hF|b$KI=<($5l^$9!#3<!85E*$J:x3P$O!"1#@~=hM}$d!"6JLLMWAG$N?<5@Ns$Khj!"hjA}I}5l$^$9!#0J2<;2>H **hidden3d (p. 133)**, $*$h$S **set pm3d (p. 156)** $N%*%W%7g%s$G$"$k **depthorder (p. 158)**!#%3%^%s%I **splot** $O!"Dj?t$NZ CMKBP9$kEy9b@~$r7W;;$7IA2h$9$k3$HbG$-$^$9!#$3li$NEy9b@~$O!"6JLL$=$l<+BN$N>e$K=q$/$3HbG-$^$9$7!"XY J?LL$X<M1F9k3HbG-$^$9!#0J2<;2>H **set contour (p. 121)**!#



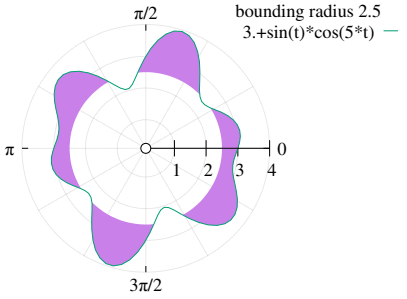
2 <!85<M1F (set view map)

%3%^%s%I **splot** $NFCJL$J>l9gH7$F!"IA2h$NZ J}8~$N<M 1F$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[$r@8@.9kNKMxMQ G-$^$9!#3N?^$OIA2h%9%?%$%k **lines** $r0lEY!"**labels** $r0lEYIA2h$7$?Ey9b@~$r<(7F$$^$9(LuCm ?^$,I=<($5 lF$$k>l9g)!#



6K:BI8IA2h (Polar plots)

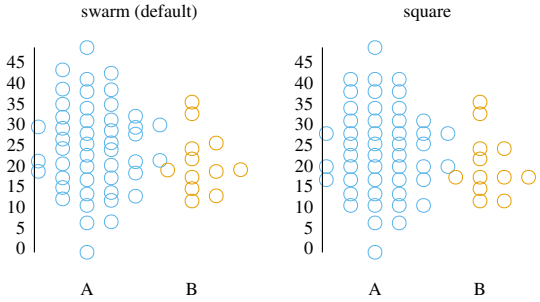
6K:BI8IA2h(polar) $O!"plot %3%^%s%I$rF~NO9kA0$K8=:_ $N:BI87O$r6K:BI8$KJQ9$9k3HKhC$F@8@.$7$^$9!#%* %W%7%g%s**set polar** $O!"F~NO$9$k2 <!85:BI8$r<x>,<y> NBeojK< 3Q>,< H>7B> $H2r<a$9k3Hr gnuplot $K;X<($7$^$9!#9YFGOJ$$$G9,!"B?$/$N2 <!85IA 2h%9%?%$%k,6K:BI8%b!<%I$G$b5!G=$7$^$9!#?^$O!"IA2h %9%?%$%k **lines** $H **filledcurves** NAH_9go;$r<($7$F $$^$9!#(LuCm ?^$,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)

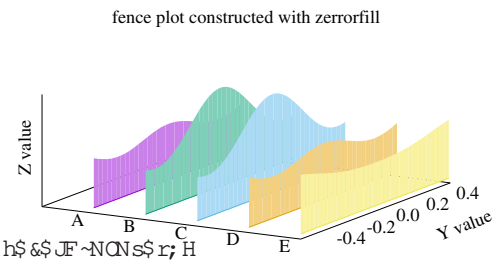
%S!<%9%&%)!<%`(bee swarm) %0%i%U$O!"MI$i$.(jitter) $r E,MQ$7$F=EJ#E@$rJ,N%$9$k$3$H$K$h$jF@$i$l$k7k2L$G$9!# $=$NE57?E*$JNc$O!"3FE@$Kx :BI8$r7hDj$9$k2 $D0J>e$N %+%F%4%j$K$h$C$FI=$o$5$l$ky $NCM$NJ,I[$NHf3S$G$9!#E $J$j$NH=Dj4p=`$d!"jitter $G;HMQ$9$k0\F0%Q%?!<%s$r@)8f 9kJ}K!$K4X$7FO!"0J2<;2>H: **set jitter (p. 136)**!#$3 $N?^$N%0%i%U$O!"0[$J$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$K X $K1h$CFO$:: i7$?7A$G7k9g7?bN$G$9!#EZBfNCM+$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) $,$"$k$H$-!"'splot with zerrorfill' $G0J2<$N$h$&$JF~NONs$r;H

$($P:t%0%i%U$r=q$/$3$H$,$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. 202), **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<B9T7^$9!#**save** %3%^%s%I$GD/il$?%U%!%$%k$O!"**load** 9k3H$,G-$^$9!#M-8z$J%3%^%s%I$N=q$+l?%F%-%9%H%U%!%$%k$rD/lP!"$=lO!"**load** %3%^%s%IKhCF!"<B9T$9k3H,G-$^$9!#**load** Cf$N%U%!%$%kNCfK5i$K **load** $^$?$O **call** %3%^%s%I$,$"$CFb9=$$^;$s!#%3%^%s%ICf$N%3%a%s%HKD$$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$G0O$^JllPJj$^$;$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$lIUlk3H$r0UL#$7$^$9!#>\:Y KD$$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) $OL58z$KJj$^$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. 46)**!#

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$1$?b$N! "$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. 195)**, **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#$7(0J2<;2>H: **binary matrix (p. 195)**)! "B>$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. 195)**! #)

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. 195)**!#

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%$%J%j%G!<%?$OIT2D) $N@hF,$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=$N%U%!%$%kFbN%G!<%?N9YF$N%V%m%C%/$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$r plot %?%$%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. 169)**, **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\$NOBNCMr plot 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!<%?$r plot 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$$O6 DNNs$,$"k3 Hr4 |BT7F$$$^$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. 169)**! #

Errorlines

8m: 9@~ (errorbar) $rH<$&@~IA2h$O! "2 < !85%G! <%?%U%!%$%k$NIA2h$G%5%]! <%H5l$F$$$F! "$=$l$O1 8D$+$i4 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. 169)**!#

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!<%?$7$^$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$8$h&$KIA2h5l$^$9!#$?$@$7!"%G!<%?%U%!%$%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$$$1$^$;$s!#$=Nh$&$J3Hr9k$H!"9=J8%(%i!<$KJj!"G^2pJQ?t4X?t$,40A4$K$O;XDj$5lF$$$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$$$FN_@bL@7^$9!#$3lr;XDj9k$H!"$=$NHOOO$O!"$=$l0JA0NI$N **set range** Kh$kHOOO$N@)8Bhj$bM%@h7F07$ol^$9!#%3%^%s%I **plot** NULJ>l=j$K;XDj$9$k!"8D!9$NIA2hMWAG$NHOOO$N@)8B$?$a$N%*%W%7%g%s$K$D$$$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>$O **set dummy** $GJQ99$G$-$^$9)!#

G^2pJQ?t%b!<%I(parametric) GJ1l$P!"HOOO;XDj$OJ2<$N=g$KM?$($J1l$P$$$1$^$;$s:

```
plot [<xrange>][<yrange>][<x2range>][<y2range>] ...
```

G^2pJQ?t%b!<%I (parametric) GO!"HO0O;XDj$O0J2<$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) $d max (:GBgCM) $K<+F0HO0O;XDj (autoscale) $N5!G=$r;H$&$3Hr2DG=K7$^$9!#;XDj=gHVN?a@1KI,MW$JHO0O;XDj$K$O!"6u$NHO0O[] $r;H$CF/$@$5$$!#

plot $d **splot** $N%3%^%s%I9T$G;XDj5l$?HO0O$O$=$N%0%i%U0lDKN_1F6A$r5Z$\$7$^$9!#hC$F!"$=$N8e$N%0%i%U$N%G%U%)%k%H$NHO0O$rJQ99$9kK$O**set xrange** $d **set yrange** $r;HMQ$7F/$@$5$$!#

%j%s%/5l$?<4$KBP7F$O!"plot %3%^%s%I$G$N0l;~E*$JHO0O;XDj$N;HMQ$O!"4|BT9k7k2L$r@8$^$J$$$+b7l^$;$s (0J2<;2>H: **set link (p. 143)**)!#Beoj$K**set xrange** $H **set yrange** $NJ8$rJL!9$K;XDj$9$kJ}$,$$$$$G7g$&!#

;~4V%G!<%?KBP7FO!"HO0O$O!"%G!<%?%U%!%$%k$+$iFI$_9~$`NK;HMQ9kNHF1$8=q<0$G!"0zMQId$G0O$s$G;XDj$9kI,MW,$"$j$^$9!#0J2<;2>H:**set timefmt (p. 179)**!#

Nc:

0J2<$O8=:_$NHO0O$r;HMQ$7$^$9:

```
plot cos(x)
```

0J2<$O x $NHO0O$N$_$N;XDj$G$9:

```
plot [-10:30] sin(pi*x)/(pi*x)
```

0J2<$O>e$HF1$8$G9,!"2>JQ?tH7$F t $r;H$$$^$9:

```
plot [t = -10 :30]  sin(pi*t)/(pi*t)
```

0J2<$O x $H y $NN>J}$NHO0O$N;XDj$G$9:

```
plot [-pi:pi] [-3:3]  tan(x), 1/x
```

0J2<$O!"y $NHO0O$N$_$N;XDj$G$9:

```
plot [ ] [-2:sin(5)*-8] sin(x)**besj0(x)
```

0J2<$O x $N:GBgCM$H y $N:G>.CM$N$_$N;XDj$G$9!#

```
plot [:200] [-pi:]  $mydata using 1:2
```

0J2<$O x $NHO0O$r;~7ONs%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 $^$?$O t <4) (1D sampling)

%G%U%)%k%HGO!"4X?t$d5?;w%U%!%$%k "+" $G@8@.$5lk%G!<%?$O!"IA2hHO0OA4BN$Ko?CFI8K\(%5%s%W%k)$,<h$il^$9!#$3$NHO0O$O!";vA0$K%3%^%s%I**set xrange** $G@_Dj$9k+!"plot %3%^%s%I$+splot %3%^%s%I$N:G=i$N>l=j$GBg0hHO0O$rL@<(E*$K;XDj9k$+$7J1lP!"$=$N%0%i%UN9YF$NMWAG$r4^$`HO0OFb$K%G!<%?A4BN$,F~$kh&x $NHO0O$r<+F0=L<\(autoscaling) 7^$9!#$7$+$7!"$=$NI8K\2=HO0O$O8D!9$NIA2hMWAGKhK5iK@)8B7F3djEvFk3HbG-$^$9!#

Nc:

0J2<$O!"x A4BN$NHO0O$r 0 $+$i 1000 H7$F%U%!%$%k$N%G!<%?$rIA2h$7!"2 DN4X?t$rA4BN$NHO0O$N0lItJ,$@1=l>$lIA2h7^$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$$$^$9! #$3lO! "5.2 hjA0$N%P! <%8%g%s$+iN;EMM$N! VUQ99! W$G! "=>Mh$Ox, y <4$K1hCFI8K\2=7F$$$^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$9! #3l$O! "IA2h%9%?%$%k **with vectors** $GI=<($5lk%0%i%U$r@8@.$7$^$9! #0J2<;2>H: **vectors (p. 67)**! #

```
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$9! #3l$O! "**sampling.dem** $G;HMQ$5lF$$$kbN$K;w$?%3%^%s%INs$G$9! #3N2 DN6JLL$O! "@8@.$5lk%0%i%U$NHCOOA4BN$hjb69$$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! "<!5N%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}}
                }
```

$3$3$G!"<style> $O0J2<$N$$$:l+:

```
    lines        dots       steps     errorbars     xerrorbar    xyerrorlines
    points       impulses   fsteps    errorlines    xerrorlines  yerrorbars
    linespoints  labels     histeps   financebars   xyerrorbars  yerrorlines
    surface      vectors    parallelaxes
```

$^$?$O!"

```
    boxes         boxplot        ellipses       histograms  rgbalpha
    boxerrorbars  candlesticks   filledcurves   image       rgbimage
    boxxyerror    circles        fillsteps      pm3d        zerrorfill
```

$^$?$O

```
    table
```

:G=i$N%0%k!<%W$N%9%?%$%k$O!"@~!"E@!"J8;z$NB0@-$r;}$A!"Bh2 $N%0%k!<%W$N%9%?%$%k$O!"5iKEIjDY$7B0@-$b;}CF$$$^$9!#0J2<;2>H: **fillstyle (p. 171)**!#5i$K%5%V%9%?%$%k$r;}$D%9%?%$%k$b$"$j$^$9!#8D!9$N%9%?%$%k$N>\:Y$K$D$$$F$O!"0J2<;2>H: **plotting styles (p. 52)**!#%9%?%$%k **table** $O!"%0%i%U$NBeoj$KI=7A<0$N=PNO$r@8@.$7$^$9!#0J2<;2>H: **set table (p. 176)**!#

%G%U%)%k%H$N%9%?%$%k$O!"**set style function** $H **set style data** $GA*Br$G$-$^$9!#

%G%U%)%k%HGO!"$=$l$>$l$N4X?t$d%G!<%?%U%!%$%k$O!";H$&$3H,G-$k7?$N:GBg?t$KC#$9k^$G0[$J$k@~<o!"E@<o$r;H$$$^$9!#$9YF$NC<KvMQ%I%i%$%P$O:GDc6 DN0[JkE@<o$r%5%]!<%H7F$$$F!"b7$?$/5sMW5a5l$?>l9g!"$=li$r=g$K:FMxMQ7F$$$-$^$9!#;HMQCf$N=PNO7A<0$G$N@~<o!"E@<o$N=89gA4BN$r8+$?ll$P!"**test** H7F/$@$5$$!#

0lDNIA2h$G@~<o$dE@<o$rA*$S$?$$$JiP!"<line_type> $d <point_type> $r;XDj$7F/$@$5$$!#3liNCM$O!"$=$NIA2h$G;Hol$k@~<o$dE@<o$r;XDj$9$k@5$N@0Dj?t($^$?$O?t<0) $G$9!#;HMQ9kC<Kv$G;H$($k@~<o!"E@<o$rI=<(9kKO **test** %3%^%s%I$r;H$CF/$@$5$$!#

IA2h$N@~$NI}$dE@$NBg$-$5$O <line_width> $d <point_size> $GJQ99$G$-$^$9!#$3liO=$N3F!9$NC<Kv$N%G%U%)%k%H$NCMKBP9$kAjBPE*$JCMH7$F;XDj$7$^$9!#E@NBg-5OA4BN$KDIMQ$9kh$&$KJQ99G-$^$9!#>\:Y$O!"0J2<;2>H:**set pointsize (p. 165)**!#7+$7!"$3$3$G%;%C%H5l$k <point_size> $H!"**set pointsize** $G%;%C%H$5lkBg$-$5$O!"$$$:lb%G%U%)%k%H$N%]%$%s%H%5%$%:$K3]1ilk3H$KCm0U$7F/$@$5$$!#9JoA!"$=$liN8z2L$ON_@Q$O7^$;$s!#Nc$($P!"**set pointsize 2; plot x w p ps 3** $O!"%G%U%)%k%H$N%5%$%:$N3G\$G$"$C$F!"6 G\$GO"j^$;$s!#

%i%$%s%9%?%$%k$N0lItJ,!"$"$k$$$O3F plot K*$$$F **pointsize variable** $H$$$&;XDj$b2DG=$G$9!#$3$N>l9g!"F~NO$K$ODI2C$N1 Ns$,MW5a$5l^$9!#Nc$($P 2D IA2h$G$O3 Ns!"3D IA2h$G$O4 Ns$N%G!<%?$,I,MW$KJj$^$9!#8D!9$NE@$N%5%$%:$O!"A4BNrDL7FN pointsize $K!"%G!<%?%U%!%$%k$+$i$NF~NO$KhkCMr+1?bNH7$F7hDj$5l^$9!#

set style line $r;H$C$F@~<o/@~I}!"E@<o/E@I}$NAH$rDj5A$9lP!"$=$N%9%?%$%k$NHV9f$r <line_style> $K%;%C%H$9k3HG$=$lir;H$&$3H,G-$^$9!#

gnuplot $, **pm3d** $r%5%]!<%H$9kh$&$K%$%s%9%H!<%k$5lF$$$kJi$P!"**splot** K*$$$F lines, points, dots $N?'$r3ji+$KJQ2=$5$;$k$?$a$NFCJL$J%-!<%o!<%I **palette** $,;H$($^$9!#$=$N?'$O!"%3%^%s%I **set palette** G"i+8a@_Dj5l$?3j$i$+$KJQ2=9k%+%i!<%Q%l%C%H$+$iA*Br7^$9!#?'$NCM$O!"E@$Nz :BI8NCM+!"$^$?$O **using** $G4 HVL\$N%Q%i%a!<%?H7$F;XDj$5lk?':BI8$KBP1~$7$^$9!#2 <!85!"3 <!85$NIA2h(**plot** $H **splot** %3%^%s%I) $NN>J}$G!"%Q%l%C%H?'$r>.?tCM$+$^$?$O%+%i!<%\%C%/%9$NHO0O$XBP1~$E1il?CM$N$$$:l+$G;XDj$9k3H,G-$^$9!#%Q%l%C%H?'NCMO!"**using** ;XDj$GL@<(E*$K;XDj5l$?F~NONs$+iFI_9~$'$3Hb2DG=$G$9!#0J2<;2>H: **colors (p. 40)**, **set palette (p. 160)**, **linetype (p. 142)**!#

%-!<%o!<%I **nohidden3d** $O!"**splot** %3%^%s%I$G@8@.5l$kIA2h$KN_E,MQ5l$^$9!#DL>o!"%0%m!<%P%k$J%*%W%7%g%s **set hidden3d** $O%0%i%U>e$NA4FNIA2hKE,MQ5l^9,!"3F!9$NIA2h$K **nohidden3d** %*%W%7%g%srD1k3H$G!"$=lr hidden3d $N=hM}$+$i=|30$9k3H,G-$^$9!#**nohidden3d** $,%^!<%/$5l?6JLL0J30$N8D!9$NIA2hMWAG(@~J,!"E@!"%i%Y%kEy) $O!"DL>o$OB>$N2?$i$+$NIA2hMWAG$G1#$5lF7^$&>l9g$bA4$FIA2h$5l^$9!#

F1MM$K!"%-!<%o!<%I **nocontours** $O!"%0%m!<%P%k$K **set contour** ;XDj$,M-8z$J>l9gGb!"8DJL$N plot KBP9$kEy9b@~IA2h5!G=$r%*%UK7$^$9!#

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. 181)**!#

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
```

```
;CE@$+$i$NAjBPE*$J5wN%$r%0%i%U:BI8$GM?$($FLp$rIA$/$K$O:
```

```
set arrow from 0,-5 rto graph 0.1,0.1
```

```
x $NBP?t<4$KAjBPE*$J=*E@$r;XDj$7$FLp$rIA$/>19g:
```

```
set logscale x
set arrow from 100,-5 rto 10,10
```

```
$3$1$O 100,-5 $+$i 1000,5 $^$G$NLp$rIA$-$^$9!#@~7A<4(y) $KBP$7$F$OAjBPE*$J:BI8 10 $,":9 10" $r0UL#$9
$k$N$KBP$7!"BP?t<4(x) $KBP$7$F$OAjBPE*$J:BI8 10 $O"G\?t 10" $H$7$FF/$-$^$9!#
```

```
2 HV$NLp0u$r>C$9$K$O:
```

```
unset arrow 2
```

```
A4$F$NLp0u$r>C$9$K$O:
```

```
unset arrow
```

```
A4$F$NLp0u$N>pJs$r(B?%?%0$N=g$K)8+$k$K$O:
```

```
show arrow
```

Lp0u$N%G%b

<+F0=L<\ (autoscale)

```
<+F0=L<\5!G=(autoscale) $Ox, y, z $N3F<4$KBP$7$FFHN)$K!"$^$?$O0l3g$7$F;XDj$G$-$^$9!#%G%U%)%k%H$G$OA4
$F$N<4$KBP$7$F<+F0=L<\@_Dj$r9T$$^$9!#?^$NCf$N0lIt$NIA2h(plot) $NAH$N$_$r85$K autoscale $7$?$$>19g
$O!"$=$NBP>]$G$J$$plot $K%U%i%0noautoscale $r$D$1$k$3$H$,$G$-$^$9!#0J2<;2>H: datafile (p. 91)!#
=q<O:
```

```
set autoscale {<axes>{|min|max|fixmin|fixmax|fix} | fix | keepfix}
set autoscale noextend
unset autoscale {<axes>}
show autoscale
```

```
$3$3$G!"<axes> (<4) $Ox, y, z, cb, x2, y2, xy $N$$:$1$+$G$9!#min $^$?$Omax $r<4$KDI2C;XDj$9$k$H
(xy $G$O;H$($^$;$s$,) $=$1$Ognuplot $K$=$N<4$N:G>.CM!"$^$?$O:GBgCM$N$_$r<+F0=L<\$5$;$k$3$H$K$J$j$^
$9!#<4$b2?$b;XDj$5$1$F$$J$>19g$OA4$F$N<4$,BP>]$H$J$j$^$9!#
```

```
%G%U%)%k%H$G$O!"<+F0=L<\5!G=$O<4$NHC0O$N8B3&$r!"IA2h%G!<%?A4BN$r4^$'!":G$b6a$$$L\@9$j%i%Y%k0LCV$K@_
Dj$7$^$9!#%-!<%o!<%Ifixmin, fixmax, fix, noextend $O!"<!$NL\@9$j0LCV$^$G$NHC0O$N<+F03HBg$r gnuplot
$K9T$o$;$J$$$h$&$K$7$^$9!#$=$N>19g<4$NHC0O$N8B3&$O!"0lHVC<$K$"$k%G!<%?E@$N:BI8CM$K40A4$K0lCW$7$^
$9!#set autoscale noextend $O!"set autscale fix $HF1$8$G$9!#<4$NHC0O;XDj%3%^%s%I$N8e$m$K%-!<%o!<%I
noextend $rDI2C$9$l$P!"0l$D$N<4$NHC0O$N1dD95!G=$@$1L58z$K$9$k$3$H$b$G$-$^$9!#Nc:
```

```
set yrange [0:*] noextend
```

```
set autoscale keepfix $O!"fix $N@_Dj$rJQ99$;$:$K;D$7$?$^$^!"$9$Y$F$N<4$r<+F0=L<\$K$7$^$9!#
<+F0=L<\5!G=$r;H$&$H$-$O!"IA2hHC0O$O<+F0E*$K3d$j=P$5$l!"=>B0JQ?t<4(plot $N$H$-$Oy <4!"splot $N$H$-
$Oz <4) $O!"4X?t$d%G!<%?$NCM0h$,<}$^$k$h$&$K@_Dj$5$1$^$9!#
=>B0JQ?t<4(y $^$?$Oz) $N<+F0=L<\5!G=$,;XDj$5$1$F$$J$>19g$O!"8=:_$Ny $dz $NIA2hHC0O$,$=$N$^$^;H
$o$1$^$9!#
FHN)JQ?t<4(plot $N$H$-$Ox <4!"splot $N$H$-$Ox,y <4) $N<+F0=L<\5!G=$,;XDj$5$1$F$$k>19g$O!"IA2h$5$1
$kA4$F$N%G!<%?%U%!%$%k$NE@$,<}$^$k$h$&$KDj5A0h$r$H$k$h$&$K$J$j$^$9!#%G!<%?%U%!%$%k,1 $D$b;XDj$5$1
$F$$J$>19g$O!"<+F0=L<\5!G=$O$J$s$N8z2L$b$"$j$^$;$s!#$D$^$j!"4X?t$N$_$,;XDj$5$1$F$$F%G!<%?!<%U%!
%$%k$r;H$o$J$>19g$O!"x <4$NIA2hHC0O(z = f(x,y) $rIA2h$7$F$$k$H$-$Oy <4$b) $O1F6A$r$&$1$^$;$s!#
HC0O$K4X$9$k$h$j>\$7$$>pJs$K4X$7$F$O!"0J2<;2>H: set xrange (p. 185)!#
G^2pJQ?t%b!<%I(parametric) $G$b<+F0=L<\5!G=$OM-8z$G$9(0J2<;2>H:set parametric (p. 156))!#$3$N>19g!"
$h$jB?$/$N=>B0JQ?t$,$"$k$N$G!"x, y, z 3F<4$K4X$7$F!"$h$jB?$/$N@)8f$,9T$o$1$^$9!#G^2pJQ?t%b!<%I$G$NFH
```

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. 263)**, **set style line (p. 173)**!#

?'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. 198)**!#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$7FI_9~sGIA2h9lPhjh$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. 195)**!#

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$N Fortran D 7?!"Q 7?$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!<%?NFI_9~$_$N:]$K:"$9YF$N?t<0$NI>2A$NA0$KIbF0.?tE@Nc30%O%s%I%i%N:F=i4|2=r7$J$$h$&$Kgnuplot $KL?Na$7$^$9!#3lKh$j!"$HFbBg$-$J%U%!%$%k$+$i%N%G!<%?$NF~NO$,$+JjB.$/$Jj^9,!"IbF0.?tE@Nc30$,5/$-$?>l9g$K%W%m%0%i%'$,0[>o=*N;$7F7$^$&4m81$O"$j$^$9!#

Set datafile missing

=q<0:

```
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!#

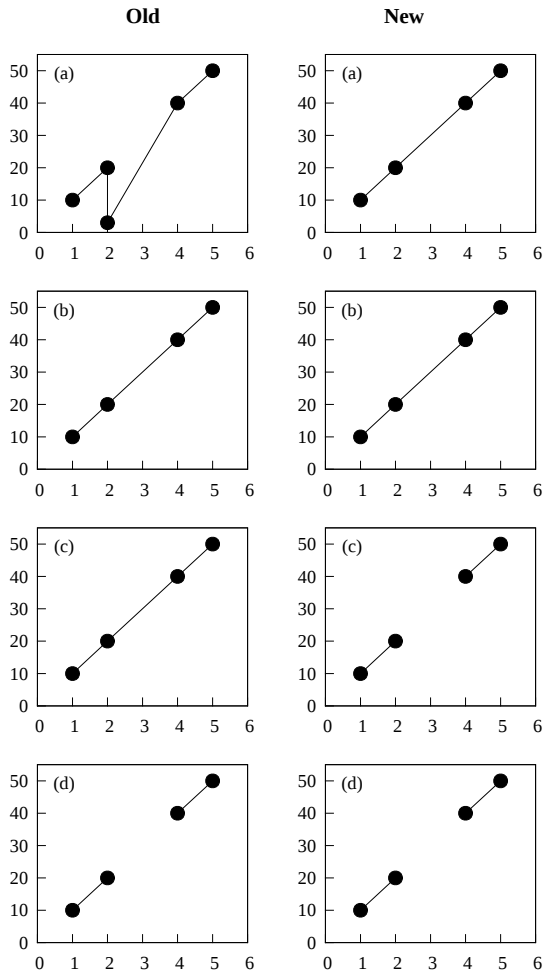
?tCM$,4|BT$5lk>1LL$G?tCM$GOJ$J8;z$,8=l?>19g$O!"$=l, **missing** $G;XDj$9$kJ8;zNs$K%^%C%A9k>19g$r=|$$F!"DL>o7gB;%G!<%?GOJ/!"L58zJCMH7F2r<a7^$9!#

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$rFI$`>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+;0J8;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$r%G%U%)%k%H$HHbKN$K;H$ol^$9!#=q<0$O!"$=$l$, **plot** $^$?$O **splot** %3%^%s%I$G;HolkN$H@53N$KF1$8$G$9!#<binary list> $K=q$l$k%-!<%o!<%I$X\7$/$O!"0J2<;2:H **binary matrix (p. 195)**,**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$@$$$?$$"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$$C %i%$%V%i%j$G$O!"%m%1!<%k@_Dj$N%5%]!<%H(Nc$($P?t;z$N3 7eKh$N6h@Z$jJ8;z$J$I) $rItJ,E*$K7+Ds6!7F$$$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() $r;H$C$F=q<02=$9$k?tCM$OL@<(E*$K;XDj$5l?'.' 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. 198)**!#

=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") $NJ8;z$X$NJQ 49$O-18 $+$i+18 $^$G$N;X?t$KBP7F%5]!<%H5l$F$$$^$9!#$3$NHC0C30$N;X?t$N>l9g!"=q<0$CDL>o$N;X?t 7A<0$KLaj^$9!#

$[$+$K;H$&3HNG$-$k=$>~;l("%" $H=q<0;XDj;R$N4V$K=q$/bN) KO!"<!$N$$$/D+$,$"j^$9: "-" $O?t ;z$r:85MaK$7!""+" $O@5$N?tKbId9frD$1!"" " (6uGr0l$D) OIiN?t$K"-" rD1kY->l=j$K@5$N?t$N >l9g$K6uGr$r0lDD$1!""#" $O>.?tE@0J2<$N?t;z$,0 $@$1G"CF$b>.?tE@$r$D$1!"@5$N@0?t$O=PNOI}$rDj $a!"=PNOI};XDj$ND>A0$N"0" (J8;z$GJ/?t;z) $O@hF,$K6u$$?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&!7!"5UK3$l0J30$NbNrb%5]!<%H9kOS 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!"0J 2<;2>H:**set timefmt (p. 179)**!#

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. 173)**)!#

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/Jk3HrKI0$3$H,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<+?HNJBS49$($r7F$$^9N$G!"3J;R@~$N=gHV$N%*%W%7%g%s$OA4$FL5;k$5$l!"3J;R@~$b1#@~hM}K+1il^$9!#$3li$N%*%W%7%g%s$O!"<B:]KO3J;R@~$@$1GJ$/!"**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. 194)**) $G1#@~hM}$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$,'3J;R>u' (0J2<;2>H: **splot datafile (p. 195)**) G"kI,MW,$"$j! "$^$?$=$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$N=EMh$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$Nl#$5lkItJ,$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&' $N@~$rIA2h9k@~$N@~<o$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%HO=li$N;03Q7A$N3FJU$NI=< ($r7hDj7^$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! <%?E@KE,MQ5$;$k%"%k%4%j%:%'$r;X< ($7$^$9! #$=$Nh&$JE@$O! "$=$lGbI=< (5lF7$^$&$+! "$^$?$OF~NO%G! <%?$+$i<h$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,! "HO0O$rD6$ ($?E@$O<NFil^$;$s! #<level> = 1 GO! "3l$,%G%U%)%k%H$G9,! "HO0O$rD6$ ($?E@$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?!#

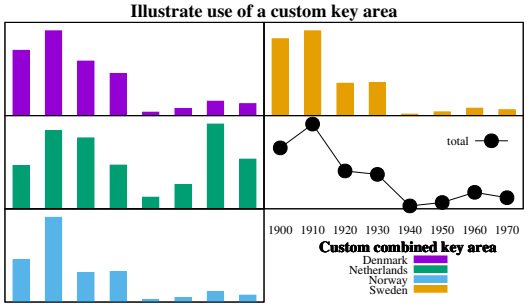
%0%i%U6J@~$N%5%s%W%k$N@~J,$ND9$5$O **samplen** $G;XDj$G$-$^$9!#$=$ND9$5$OL\@9$j$ND9$5$H!"<sample_length>*(J8;zI}) NDBH7F7W;;$5$1$^$9!#**sapmlen** $O!"%0%i%U>e$NE@$N%5%s%W%k$N0LCVKb($b $7%5%s%W%k@~J,<+?H$,=q$+$1JJ$/$F$b)1F6A$rM?$($F$$$^$9!#$=1O!"E@$N5-9f$O%5%s%W%k@~J,$NCf{$K=q$+ 1k$?aG$9!#

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?'$rJQ99$7$^$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** $NOLCV$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> $,%-!<%o!<%I **lt**, **pt**, **ps** HHbKM?$ (ilkH (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$G; HMQ5l$F$$$^$9! #8+=P$7J8; zNs6a$/$NE@$NIA2h5!G=$r off (**3l$,%G%U%)%k%H**) K9kK$O! "**nopoint** $r; HMQ$7F/$@$5$$! #

$=$N0\F0$O! "%G%U%)%k%H$G$O! "<pointstyle> $,M?$ (illP **pointsize** $NC10L$G1,1 $G! "<pointstyle> $,M?$ (il$F$$$J1l$P 0,0 $G$9! #0\F0$O! "DI2C$N **offset** <**offset**> Gb@)8fG-$^$9! #$3$3$G! "<offset> $O x,y $+$^$?$O x,y,z $N7A<0$G9,! "$=$l$K: BI87O$rA*Br7F! "$=$NA0$K **first**, **second**, **graph**, **screen**, **character** $N$$$:l+rD1k3HbG$-$^$9! #>\:Y$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?$,$C$F0zMQId$G0O$^$l$?J8; zNs$GM?$ (kI,MW,$"$j$^$9! #0J2<; 2>H: **set xdata (p. 183)**, **set timefmt (p. 179)**! #

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) $NOLCV$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$ (K9$k>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$rshift %-! <$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. 182)**)! #

%^%&%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. 175)**)!#%-!<%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$$$3$HCmOU$7F/$@$5$$! #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$$$l$P! "set object ellipse' GO! ":G=i$N<2r> $Ox<4$NC10L$G! "8e$m$N<2r> $Oy<4$NC10L$G7W$il^9,! "3l$Ox<4$Hy<4$N=L<\$,F1$8$G! "$+$DIA2h$N%"%9%Z%/%HHf$,1 G"$k>19g$N$_1_$r@8@.9k3H$r0UL#$7$^$9! #7+$7! "**units** $r **xx** $d **yy** $K%;%C%H$9lP! "%3%^%s%I **set object** $G;XDj$7$?D>7B$CF1$8C10L$G7W;;5lkN$G! "BJ1_$O@5$7$$%"%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$G$Nu,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@$7$^$9!#ÐL>o$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. 66)**, **set xrange (p. 185)**, **set xtics (p. 186)**!#range $H tics %3%^%s%I$X$NDI>o$N%*%W%7%g%s$O!"U?9T:BI8IA2h%9%?%$%kKK$C0UL#$N$J$$$bNb"j^9,!"0l1~9YFr<u1D1^$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$$$F$$!"3l$O%G!<%?$,3J;R>uG"Cb!"%G!<%?Av:Kh$KE@$N?t$,0c$C$F$$kh&$JHs3J;R>u$N%G!<%?$"$C$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=@-$,$"$kh&$J6JLL$NEIjDV7$N:]$K4X?4$r;}$?lkG7g&!#

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<$b;2>H **set palette (p. 160)**, **set cbrange (p. 194)**, **set colorbox (p. 120)**!#$=$7FbAm$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!<%?$Nsplot: 3%?'/%+%i!<$NCM$O!"% NCMNBeoj$K:G8eNNsN: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. 194)**!#

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^$9!#K~0O$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$$F<!$KE70fLI$K?'CO?^$rIA $-$^$9$7!"**at bstbst** $O... ??LLL\$JOC!"3sJbNO;H$$^$;$s!#

EIil$?;M3Q7A$O!"<!$+$i<!XHIA2h5l$F9T$-$^$9!#6JLI$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!#EIjDV7O?<$5=g$KJBSJQ(5l$?8e$G9Tol!"3lKhj+JjJ#;($J6JLI$G$b;k3PE*$JbN$K$9 k3H,G-$^$9!#>\:Y$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$^$9!#%3%N%3%^%s%I$O<g$K!"%Q%l%C%H$Nrgbformulae Dj5A$,gnuplot $HF1$8J*$r;H$C$F$$$k30It%W%m%0%i%'!"Nc$($Pzimg 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. 200**)!#

=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%s%0$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. 185)**!#

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%K@%$%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$$&<filename> $O<STDOUT> $r0UL#$7$^$9!#**append** %U%i%0$O%U%!%$%kDI2C(append) %b!<%I$G3+$/3H$r0UL#$7$^$9!#%Q%$%W$r%5%]!<%H9k%W%i%C%H%[!<%`>eGO!"<filename> $,"|" $G;O$^CF$$?$i!"<shell_command> XN%Q%$%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$9NK;HMQ9k8!:w%Q%9$r@)8f$7$^$9!#3N;EAH$_$O!"JL$K%m!<%+%k%K%+%9%?%^%$:7?prolog %U%!%$%k72$H@ZjBX(kN$K;H$($^$9!#8!:w$N=gHV$OJ2<Nh$&$KJC$F$$^$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$9k+I&$+$r@ZjBX ($^$9! #8=:_$N rrange $N:G>.CM$,0 GJ$$($=$7$F<+F0=L<\$G$J$$) >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)**!#

Rgbmax

=q<O:

```
set rgbmax {1.0 | 255}
unset rgbmax
```

rgbimage %0%i%U$NRGB (@V! "NP! "@D) ?’@.J,$O! "%G%U%)%k%H$G$O[0:255] $NHC0O$N@0?tCMG"kH$_$J7^$9! # **set rgbmax 1.0** H9kH! "gnuplot $O **rgbimage** $d **rgbalpha** GN%0%i%U$N?’@.J,$N@8@.$K;H$&&G!<%?CM$r! "[0:1] $NHC0O$N<B?tCMG"kH$_$J7^$9! # **unset rgbmax** $O! "$=lr%G%U%)%k%H$N@0?tCM$NHC0O[0:255] KLa7$^$9! #

7Y9p: 3N%3%^%s%I$O;n83CJ3,$G$9! #>\:Y$OJQ99$9$k2DG=@-$,$"j^$9! #FC$K! "gnuplot $N>-Mh$NHGGO! "rgbmax $OBg0hE*$J@_DjGOJ/! "$`$7$m%U%!%$%kKh! "$"$k$$$O plot Kh$KE,@Z$K@_Dj5l$k7A$G<BAu5lkG7g$&! #

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. 184)**!#

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$NF07BJ}8~$NHC0O$r@_Dj$7$^$9! #3l$O xrange $H yrange $NN>J}$b@_Dj7F7^$$$^$9! #N><T$O! "[-(rmax-rmin) : +(rmax-rmin)] KJj^$9! #$7$+$7! "3l$N8e$G xrange $d yrange $rJQ99$7Fb(Nc$($P3HBg9k$?$a$K)! "$=lO rrange $rJQ99$7$J$$$N$G! "%G! <%?E@$O rrange $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** $O! "F07B<4$K1hCFL\@9jrG[CV7^$9! #L\@9$jH=$N8+=P$7$O6E@$NL&B&KIA+l^$9! #%-! <%o! <%I **mirror** $O! "$=li$r86E@$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$NIA2hHC0O(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$O 100 E@$H@_Dj5l$F$$$^$9!#$3NCMrA}d9Hh$j@53N$JIA2h$,=PMh$^9,CY$/$Jj^$9!#$3$N%Q%i%a!<%?$O%G!<%?%U%!%$%k$NIA2hKO2?$NLF6A$bM?$(B$^$;$s$,!"Ud4V/6a;w$N%*%W%7%g%s$,;H$olF$$$k>l9gO=$N8B$jGO"j^$;$s!#2 <!85IA2hKD$$$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<O:

```
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%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%U%O$=$N%-%c%s%P%9A4BN$KIA2h$5l^$9!#

set size <XX>, <YY> $O!"IA2h<+BN$r%-%c%s%P%9$N%5%$%:KBP7$FA jBPE*$K?-=L5;$^$9!#1 hj>.$5$$?-=LCM$r;XDj$9kH!"%0%i%U%O%-%c%s%P%9A4BNrKda$:!"1 hjBg$-$$?-=LCM$r;XDj$9kH!"%0%i%U$N0lItJ,$N$_$,%-%c%s%P%9A4BN$K9g$&h&$KIA2h$5l^$9!#1 hjBg$-$$?-=LCM$r;XDj$9kH!"$"$k=PNO7A<0GOLdBj$,5/$3k+b7lJ$$$3HKCm0U7F$/$@$5$$!#

ratio $O!";XDj$7$?<xscale>, <yscale> $NIA2hHO0OFb$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$5$,F10l$KJkh&&@_Dj5l$^$9!#3l$O!"3 <!85MQ$N%3%^%s%I **set view equal xy** $N2 <!85$G$NF1EyJ*$G$9!#<r>=-2 NH$-!"y <4$NC10LL\@9jND9$5$O x <4$NC10LL\@9jND9$5$N2 G\$K@_Dj5l$^$9!#<r>$,Ii$NCM$K4X$7$F0J2<F1MM$G$9!#

gnuplot $,;XDj$5l?%"%9%Z%/%HHf$N%0%i%U$r;Acs$H=q$1k+$OA*Br$5lk=PNO7A<0$K0MB8$7$^$9!#%0%i%U$NNN0h$O=PNO$N;XDj$5l?ItJ,KAcs$H<}$^$j!"%"%9%Z%/%HHf$,<r> G"kh$&&$J:GBg$ND9J}7A$HJj$^$9(bAmsE,v$JM>Gr$b;D7^9,)!#

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%HNCM(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. 182)**!#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-5G@5J}7AK7$^$9:

```
     set size square 0.5,0.5
```

%0%i%U$N9b$5$r2#I}$N2 G\$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$-$^$9!#1X?t$d%G!<%?$N%G%U%)%k%H$NIA2h%9%?%$%k$r8D!9$KJQ99$9$kJ}K!$K$D$$$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%?%$%k(arrowstyle)$rFCDj7^$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:_$7J1lP!";XDj5l$J+$C$?CM$O%G%U%)%k%HNCMKJj$^$9!#

nohead $r;XDj$9k3HG!"Lp@hNJ$$Lp!"9JoA@~J,$r=q$/3HbG$-$^$9!#$3lOIA2h$N>e$K@~J,rIA/JL$JJ}K!$rM?$($^$9!#%G%U%)%k%H$G$O1 DNLp@h$,$D$$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;^$HLp<4$,J93QEY (C10L$OEY) $G$9!#<**length**> $NC10L$Ox<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$N=*E@%T%C%?%j$N>l=j$KCV$+$l!"$=$NLp@h$OA4BN$H7F>/$7>.$5$/$Jj^$9!#E@@~$GLprIA/>19g$O!"E@@~$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$O%f!<%6$ND j5A7?%i%$%s%9%?%$%k$N%j%9%H$+$iA*$V3HbG$-$^$9$7(0J2<;2>H: **set style line (p. 173)**)!"MQ0U5l$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+$7!"%f!<%6!<Dj5A:Q$N%i%$%s%9%?%$%k$,A*Br$5l?>19g!"$=$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$5l?>19g(%G%U%)%k%H) OLpO%0%i%U$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$K%G!<%?$E@$NBh0l;MJ,0L$+$iBh;0;MJ,0L$NCM$NHC00$K$+$+CF$$$^$9!#H"$+$i1dD9$5lkH"R2$N8B3&$O!"2 DN0[JkJ}K!$G@)8f$G$-$^$9!#%G%U%)%k%H$HGO!"H"R2$O!"$=$NH"$N$=$l$>$l$NC<$+$i!";MJ,0LHC00$N1.5 G\(9JoA!"$=$NH"$N87L)$J?bD>J}8~$N9b$5) KEy7$$HC00K^$G1dD9$5l^$9!#H"$R2=l>lO!"%G!<%?$=89g$N$"$kE@$KB0$9$k y NCMG=*N;9kh&$K!"%a%"%s$K8~$+CF@Z$j<NFil^$9!#;MJ,0LHC00$NCzEY1.5 G\$NCM$NE@$,$J$$$>19gb"j^9+$i!"H"$R2O$=$NL>L\>e$NHC00$hjbC;$/$J$k>19g$b$"$j$^$9!#3N%G%U%)%k%H$O0J2<$KBP1~7^$9!#

```
set style boxplot range 1.5
```

b&0lDNJ}K!H7$F!"H"$R2,$+$+$kE@$NAm?t$N3d9g(fraction) $r;XDj$9k3H,G-$^$9!#3N>19g!"$=$NHC00$O%a%"%sCM$+$i!"%G!<%?=89g$N;XDj7?J,$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% $NE@$rOkKC0J2<Nh$&$K7^$9!#

```
set style boxplot fraction 0.95
```

H"R2$NHC00$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$Nboxplot NNYj9g$&bNF1;N$N5wN%$O%G%U%)%k%HGO1.0 (x<4$NC10L$G) G9$,!"$3$N4V3V$O%*%W%7%g%s **separation** $GJQ9$G$-$^$9!#

%*%W%7%g%s **labels** $O!"$3li$Nboxplot ($=l>$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~$7$^$9!#%*%W%7%g%s **labels x**, **labels x2** KhCF!"6/@)E*$Kx<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$k%l%Y%k$KBP1~9kboxplot $O@0Ns2=$O;$:!"%G!<%?%U%!%$%kK=$N%l%Y%k$,8=lk=gHV$KIA2h$7$^$9!#3N5sF0$O%*%W%7%g%s$N **unsorted** $KBP1~$7$^$9$,!"%*%W%7%g%s **sorted** $r;HMQ$9kH!"$^$:%l%Y%k$r<-=q=g$K%=!<%H$7!"$=$N=g$Kboxplot $rIA2h$7$^$9!#

%*%W%7%g%s **separation**, **labels**, **sorted**, **unsorted** $O!"plot $K4 NsL\$N;XDj$rM?$($?>l9g$N$_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$rJQ9$7$^$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$$$k>l9g!"$=$N?'GN%Y%2EIjr9T$$$^$9!#%Q%i%a!<%?<density>$OEIjD$V$7?'$N6/$5$rI=$7$F$$$F<density> $,0.0 JiH"$O6u!"<density> $,1.0 JiH"O=$NFbIt$O8=:_$N@<o$H40A4$KF1$8?'GEIil^$9!#=PNO7A<0$KhCFO!"3N6/5rO"B3E*$KJQ2=$5;ilkbNb$"j^9,!"$=$NB>NbNO!"ItJ,E*$JEIjDV7$N4vD+$N%l%Y%k$r<BAu7F$$$k$K2a$.$^$;$s!#%Q%i%a!<%?<density> $,M?$(ilJ+C?>l9g$O%G%U%)%k%H$N1 KJj^$9!#

%*%W%7%g%s **pattern** $O!"=PNO%I%i%$%PKhCFM?$($ilk%Q?!<%sGNEIjDV7$r9T$$$^$9!#MxMQ$G$-$kEIjD$V$7%Q?!<%s$N<oN'$H?t$O=PNO%I%i%$%P$K0MB8$7$^$9!#EIjDV7$Nboxes %9%?%$%k$GJ#?t$N%G!<%?=89g$rIA2h$9$k>l9g$=$N%Q?!<%s$O!"U#?t$N6J@~$NIA2hK*1k@<o$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$1D1$kBg

Dq$N>l=j$G fillcolor $r;XDj$G$-$^$9!#fillcolor $O **fc** $N>JN,7A$b;H$($^$9!#;XDj$7$J$$>l9g$O!"EI$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 $dlinecolor $rDI2C;XDj$9lPJQ9G-$^$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)EY 0 $O40A4$JF)L@$r!"L)EY 1 $O40A4$JIF)L@$r0UL#$7$^$9!#transparent pattern NEIjDV7G$O!"%Q%?!<%s$NGX7J$,40A4$JF)L@$+40A4$JIF)L@$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>l9gKN$_F)L@=$NEIjDY7$,MxMQ$G$-$^$9!#PDF %U%!%$%kKOF)L@=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%?$G$OLdBj$O$J$$$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) $rJQ9$7$^$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,Ev$J@~<o$r8!:w9kNGOJ$/!"@~<o<+BN$r:FDj5A7^$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)
```

$3$1$O!"4X?t f1, f2, f4 $O?7$?$K%f!<%6Dj5A$5$1$?%i%$%s%9%?%$%k$GIA2h$5$1$^$9!#%f!<%6Dj5A%i%$%s%9%?%$%k$,8+D+iJ$>19g$O!"BeojK=1KBP1~9k%G%U%)%k%H$N@~<o$,MxMQ$5$1$^$9!#Nc$($P!">eNNcG$O!"f3(x) $O%G%U%)%k%H$N@~<o 3 $GIA2h$5$1$^$9!#

@~%9%?%$%k;XDj **(set style line)**

=PNOAuCVKO$*$N$*$N%G%U%)%k%H$N@~<o$HE@<o$N=89g$,$"$j!"$=$1iO%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!"$=1i$N>pJs$rA4It;XDj9kBeoj$K!"C1$J$kHV9f$G;2>HG-kh$&$K$"$i$+$8$aDj5A$9kbNG$9!#

=q<0:

```
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$=$1$HF1$8index $r;}$D@~<o(linetype) $K@_Dj$7$^$9!#

<index> $Nlinestyle $,4{$KB8:_9k>19g!"B>$NA4$F$OJ]B8$5$1$?$^$^!"M?$($i1?%Q%i%a!<%?N_$,JQ9$5$1$^$9!#<index> $,B8:_$7J1lP!";XDj$5$1J+C?CM$O%G%U%)%k%H$NCMKJj^$9!#

3Nh&KD/i1$k%i%$%s%9%?%$%k$O!"%G%U%)%k%H$N7?(@~<o, E@<o) rJLJbNKCV-4$($k3HO7$J$$$N$G!"%i%$%s%9%?%$%k!"%G%U%)%k%H$N7?!"IA$i;H$($^$9!#%i%$%s%9%?%$%k$O0l;~E*$JbN$G!"%3%^%s%I **reset** $r<B9T$9lP$$$DGb$=$1iO>C$(5n$j$^$9!#@~<o<+BN$r:FDj5A$7$?$>19g$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** $GM?$(i1$k>h?t$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($9YF$NE@$,IA2h$5$1$k)!#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** $GNIA2h$G$OE@$O3HVL\Kh$KIA2h$5$1$kh&$J%i%$%s%9%?%$%k$rDj5A7^$9!#$=$N4V3V$rIiNCMK9k$H!"$=1O4V3V$O@5$NCM$N>19g$HF1$8$G9,!"E@$N5-9f$N2<KJ$k@~$r=q$+$J$$$h$&$K7^$9(=PNO7A<0$KhCFO)!#

pointnumber B0@-$O!"**pointinterval** $H;w$F$$$^9,!"N 8D$*$-KIA/h&K9kBeojK!"A4BN$NE@$N8D?t$r N 8D$K8BDj9kH3m,0c$$$^$9!#

A4FN=PNOAuCV$, **linewidth** $d **pointsize** $r%5%]!<%H$7$F$$$ko1GO$"$j$^$;$s!#$b$7%5%]!<%H$5$1$F$$$J$$>19gO=1i$N%*%W%7%g%s$OL5;k$5$1$^$9!#

=PNO7A<0$K0MB8$7$J$$?'$r **linecolor** <**colorspec**> $+ **linetype** <**colorspec**> (>JN,7A$O **lc**, **lt**) $N$$:1+$r;H$C$F3d$jEvFk3H$,$G$-$^$9!#$3$N>19g!"?'$ORGB $N3 DAHGM?$(k+!"gnuplot $N;}$D%Q%1%C%H$N?'L>!"8=:_$N%Q%1%C%HKBP9$k>.?t;XDj!"$^$?$O cbrange XN8=:_$N%Q%1%C%H$NBP1~KBP9$kDj?tCM!"$N$$:1+$GM?$($^$9!#0J2<;2>H: **colors (p. 40)**, **colorspec (p. 41)**,**set palette (p. 160)**, **colornames (p. 121)**, **cbrange (p. 194)**!#

set style line <**n**> **linetype** <**lt**> $O!"=PNO7A<0$K0MB8$7$?2E@@~/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@~$N%Q%?!<%s$r;JQ99$;$:$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!"HV9f 1, 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%$%s%9%?%$%k$H7F!"NP$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
```

$O!"p(x) $r@V$$@~$G7k$Pl?%G%U%)%k%H$N;03Q7A$G!"q(x) ONPN@~$G7k$Pl?>.$5$$;03Q7A$GIA2h$7$^$9!#

```
splot sin(sqrt(x*x+y*y))/sqrt(x*x+y*y) w l pal
```

$O!"**palette** $K=>$C$F3j$i$+$J?'$r;H$C$F6JLL$rIA2h7^$9!#$3lO$=$l$r%5]!<%H$7$?=PNO7A<0$G7+AcsH$QF0:n$7$J$$$3HKCm0U7F$/$@$5$$!#0J2<$b;2>H: **set palette (p. 160)**, **set pm3d (p. 156)**!#

```
set style line 10 linetype 1 linecolor rgb "cyan"
```

$O!"RGB %+%i!<%r%5]!<%H$9k9YFN=PNO7A<0$G!"%i%$%s%9%?%$%k10 $K<B@~$N?e?'$r3d$jEvF^$9!#

1_%9%?%$%k;XDj (**set style circle**)

=q<0:

```
set style circle {radius {graph|screen} <R>}
                 {{no}wedge}
                 {clip|noclip}
```

3N%3%^%s%I$O!"IA2h%9%?%$%k"with circles" $G;H$olk%G%U%)%k%H$NH>7B$r@_Dj7^$9!#$3lO!"%G!<%?IA2h$G2Ns$N%G!<%?(x,y) 7+M?$($J$+$C$?>19g!"$"$k$$O4X?tIA2hNH$-$KE,MQ5l$^$9!#%G%U%)%k%H$O!"0J2<$Nh&KJCF$$$^$9:"set style circle radius graph 0.02"!#**nowedge** $O!"@p7A$N1_8LItJ,$+$iCf?4$K8~$+$&2K\$NH>7BrIA+$J$$$h$&$K7^$9,!"%G%U%)%k%H$O **wedge** $G$9!#3N%Q%i%a!<%?$O4OA4$J1_KBP7FO2?b7$^;$s!#**clip** $O1_$rIA2h6-3&$G%/%j%C%T%s%0$7$^$9,!"**noclip** O3lrL58zK7$^$9!#%G%U%)%k%H$O **clip** $G$9!#

D9J}7A%9%?%$%k;XDj (**set style rectangle**)

%3%^%s%I **set object** $GDj5A$5l?D9J}7AKOJL!9$N%9%?%$%k$r@_Dj$G$-$^$9!#$7$+$7!"8DJL$N%9%?%$%k;XDjr7J1lP!"$=$N%*%V%8%'%/%H$O%3%^%s%I **set style rectangle** Kh$k%G%U%)%k%H$r<u$17Q$.$^$9!#

=q<0:

```
set style rectangle {front|back} {lw|linewidth <lw>}
                    {fillcolor <colorspec>} {fs <fillstyle>}
```

0J2<;2>H: **colorspec (p. 41)**, **fillstyle (p. 171)**!#**fillcolor** $O**fc** $H>JN,$G$-$^$9!#

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
```

%G%U%)%k%H$N@_Dj$O!"GX7J?'GNEIjDY7$G!"6-3&$O9uKJCF$$$^$9!#

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}
```

3N%3%^%s%I$O!"BJ1_$ND>7B$rF1$8C10L$G7W;;$9k+I&$+$r@)8f7^$9!#%G%U%)%k%H$O **xy** $G!"$3lOBJ1_$N<g<4(Bh1<4)$ND>7B$Ox($^$?$Ox2)<4$HF1$8C10L$G7W;;$7!"I{<4(Bh2<4)$ND>7B$Oy($^$?$Oy2)<4$NC10L$G7W;;$7$^$9!#3N%b!<%IGO!"BJ1_$NN><4$NHf$O!"IA2h<4$N%"%9%Z%/%HHf$K0MB8$7$^$9!#**xx** $+**yy** $K@_Dj$9lP!"9YFNBJ1_$NN><4$OF1$8C10L$G7W;;5l$^$9!#3l$O!"IA2h$5lkBJ1_$NN><4$NHf$O!"2sE>$7Fb@5$7$$$^$^$G9,!"?eJ?J}8~$+?bD>J}8~$N0lJ}$N=L<\$NUQ99Kh$j@5$7$/$J$/$Jk3Hr0UL#7^$9!#

3l$O!"object H7$FDj5A$5l?BJ1_!"%3%^%s%I **plot** KhCFIA2h5l$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!"2NsN_$N%G!<%?!"$^$?$O4X?t$N plot L?Na$GE,MQ5l$^$9!#2DNCM$O!"BJ1_$N(2DN<g<4!"2DNI{<4$K8~$+$$9g$&)<g<4D>7B$HI{<4D>7BH7$F;HMQ$5l^$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$H%0%i%U$Nx<4$NJ}8~HJ$93Q$G!"C10LOEYGM?$($kI,MW$,$"j^$9!#

clip $OBJ1_$rIA2h6-3&$G%/%j%C%T%s%0$7$^$9$,!"**noclip** O3lrL58zK7$^$9!#%G%U%)%k%H$O **clip** $G$9!#

BJ1_$N object $NDj5A$K4X7F$O0J2<$b;2>H **set object ellipse (p. 153)**!#2<!85$NIA2h%9%?%$%k$K4X$7FO0J2<;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$$=PNO7A<0O3$N%9%?%$%k$rL5;k$7$^$9!#Cm0U:8=:_$N<BAu$O;n83E*$G!";EMM$OJQ99$5$lk+b7l^;;$s!#$$/D+$N=PNO7A<0(svg, latex)$G$N<BAu$OIT40A4$G$9!#$^$?!"$[$HsI$N=PNO7A<0$O!"2sE>7?J8;zNs$NH"IU$1$,@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%!%$%k$NE@KBP9kIsJE@$d@~$bIA$+$J$/$Jj^$9!#$3lO<g$K!"Ey9b@~$r:n$k6JLL$rIA$/Be$ojKEy9b@~N_rIA/>19g$KM-MQ$G$9!#$=$N>19g$G$b **set contour** $N@_Dj$Khj$^$9$,!"6JLL>e$KEy9b@~$,IA$+l^$9!#B>$NbN$CDL>o$N$^$^$G!"$"$k0l$D$N4X?t$d%G!<%?%U%!%$%k$N6JLLN_$r*%U$K9kKO!"**splot** %3%^%s%I>e$G%-!<%o!<%I **nosurface** $r;XDj$7F/$@$5$5$!#Ey9b@~$r3J;R$NEZBf$KI=<($7$?$>19g$O **unset surface; set contour base** $H$$&AH$,JXMx$G7g$&!#0J2<;2>H **set contour (p. 121)**!#

3<!85%G!<%?NAH,LVL\(3J;R@~)$HG'<1$5lk$H!"gnuplot $O%G%U%)%k%H$G$O3J;R6JLL$rMW5a7F$$$kbNH7$F!"0EL[$K **with lines** $NIA2h%9%?%$%k$rMQ$$$^$9!#0J2<;2>H **grid_data (p. 198)**!#%3%^%s%I **set surface explicit** O3$N5!G=$rM^@)$7!"F~NO%U%!%$%k$N%G!<%?$,N%5l$?%V%m%C%/$G5-=R5l$k8IN)@~$N$_$rIA2h7^$9!#$3$N>19g$G$b!"splot $GL@<(E*$K **with surface** H9lP3J;R6JLL$,IA2h$5l^$9!#

%F! <%V%k%G! <%?=PNO (table)

table %b! <%I$,M-8z$J>l9g! "**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$$^$9! #%U%i%0J8; z <frag> $O! "$=$NE@$,M-8z$JHC0CFb$K $"$k>l9g$O"i"! "HC0C30$N>l9g$O"o"! "L$Dj5ACM(undefined) $N>l9g$O"u" $G$9! #%G! <%?$N=q<0$O! "<4$N9o$_$N =q<0(0J2<;2>H: **set format (p. 130)**) KhCF7h$^$j$^$9! #Ns$O! "%G%U%)%k%H$G$O6uGr6h@Z$j$G$9! #I=%G! <%?$r CSV 7A<0$G=q$-=P$9J}K!$N>\:Y$O! "0J2<;2>H: **with table (p. 176)**! #3l$O! "Ey9b@~$r@8@.$7! "$=lr :EMxMQN?aKJ]B8$7$?$$$H$-$KJXMx$G$9! #3NJ}K!$O! "Jd4V$5l?%G! <%?$rJ]B8$9kNKb;H$&$3H,G- $^$9(0J2<;2>H: **set samples (p. 167)**, **set dgrid3d (p. 125)**)! #

=q<0:

```
set table {"outfile" | $datablock} {append}
          {separator {space|tab|comma|"<char>"}}
plot <whatever>
unset table
```

3N8e$NI=7A<0$N=PNO$O! "%U%!%$%k "outfile" $r;XDj$7$F$$$lP=lK=q$-=P$7$^$9$,! "$=$&$GJ1lPI8=`=P NO$+! "8=:_$N **set output** $,;XDj$9kbNK=PNO7^$9! #**outfile** $,{$KB8:_9k>l9g$O! "**append** %-! <%o!<%I$r;XDj$9lPDI2C=PNO! ";XDj7J1lP3$N=PNO$,>e=q$-$7$^$9! #B>$K! "I=7A<0=PNO$rL>A0IU$-%G! <%?%V %m%C%/$K%j%@%$%l%/%H$9k3HbG-$^$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@~$N1dD9! "2 <4HC0C0$N %A%"%C%/Ey) rHr1k?$a! "$"$k$$$OI=%G! <%?$KJQ49$G$-$kNs$N?t$rA}d9KO! "DL>o$NIA2h%9%?%$%kNBeo jK "table" %-! <%o! <%I$r;H$CF/$@$5$$! #3N>l9g! "HC0CFb/HC0C30/L$Dj5A$r0UL#9ki, 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>l9g! "<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$7$?>l9g$O! "J8;zNs$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$$?$>l9g$O! "$=$Nh&$K=q<02=$5l?J8;zNs$r@8@.$9kh$&$K sprintf $+gprintf $r;HMQ$7F/$@$5$$! #

```
plot <file> using ("File 1"):1:2:3 with table
plot <file> using (sprintf("%4.2f",$1)) : (sprintf("%4.2f",$3)) with table
```

CSV %U%!%$%k$r@8@.9kKO! "0J2<Nh$&$K7^$9! #

```
set table "tab.csv" separator comma
plot <foo> using 1:2:3:4 with table
```

=PNO7A<0 (terminal)

gnuplot $O?tB?$/$N%0%i%U%#%C%/7A<0$r%5%]!<7F$$$^$9! #%3%^%s%I **set terminal** $r;H$C$F **gnuplot** $N =PNO$NBP>]HJ$k7A<0$N<oN`$rA*s$G$/$@$5$$! #=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=< (7^$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$9!#4vD+$N0[$J$k=PNO7A<0$r@ZBX$($k>19g!"A0$N%*%W%7%g%s$r7+jUV7>'$($kI,MWO"j^$;$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$$$^$9!#$3lO**save term**, **load term** H[$\F1Ey$G9,!"%U%!%$%k%7%9%F%\$X$N%"%/%;%9$O9To:!"hCENc(P3lO!"0u:~8e$K%W%i%C%H%[!<%\$K0MB8$7$J$7A$G=PNO7A<0$rI|5"$9$kL\E*$K;H$($^$9!#gnuplot $N5/F08e!"%G%U%)%k%H!"$^$?$O**startup** %U%!%$%k$K=q$+$l$?=PNO7A<0$,<+F0E*$K5-21(push) 5l$^$9!#hC$F!"L@<(E*$K=PNO7A<0$r5-21$5$;$k3HJ/!"G$0U$N%W%i%C%H%[!<%\>e$G%G%U%)%k%H$N=PNO7A<0$r**set term pop** KhCFI|5"5;$k!"$H$$$&F0:n$r4|BT$7$?%/%j%W%H$r2DHB@-$r<:$o$:$K=q/3H$,=PMh$^$9!#

>\:Y$O!"0J2<;2>H **complete list of terminals (p. 203)**!#

=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%I01$DKBP7$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&KJCF$$^$9!#**set theta** Kh$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!"$3lHJQL$N%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 $OIT2D) KN$_$9YF$N<4$K1 EYE,MQ5l$^$9!#3l$O!"L\@9jHIA2hMWAG$,=EJC$?>l9g$KL\@9jrIA2hMWAG$NA0LL$K=P9+!"1|KCV/$+$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$$>l9g!"**axis** $r;HMQ$9kH6-3&$,I=<($5lF$$$l$P(0J2<;2>H:**set border (p. 115)**) L\@9jN8+=P$7J8;z$r6-3&$N30$K=P7F7^$&$G7g$&!#$3$N>l9g<+F0E*$J%l%$%"%&%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!#

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;XDj$G$-$k>.L\@9$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 $O!"J8;zNs$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 $H y <4$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$N0LCV$+$iN:i70LCV$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$$7k2L$r@8$`h&$K!"<4$H2sE>3Q$K0MB8$7$?0LCV$K<+F0E*$KB7$(il$^$9$,!"5$$K$$$iJ1lP!"L@<(E*$K **left**, **right**, **center** $N%-!<%o!<%I$Khj0LCVB7$($rJQ99G-$^$9!#**autojustify** $G%G%U%)%k%H$N5sF0$KI|5"$7$^$9!#

%*%W%7%g%sJ7$N **set tics** $O!"Bh1 <4$KBP9k6@1G (mirror) $HFbB&8~$-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$7FO!"0J2<;2>H: **set mxtics (p. 151)**!#3liN%3%^%s%I$O!"3F<4$NFHN)$J@)8f$rDs6!7^$9!#

Ticslevel

8=:_$O?d>)$5lF$$$^$;$s!#0J2<;2>H: **set xyplane (p. 190)**!#

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^$9! #%G%U%)%k%H$O asctime() $,; 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?bD>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. 179)**! #

F|; ~%G!<%?F~NO=q<0 (timefmt)

3N%3%^%s%I$O!"%G!<%?$,F|; ~$N7A<0$KJC$F$$$k>l9g$K!"$=$N; ~7ONs%G!<%?$KE,MQ5l$^$9! #3l$O%3%^%s%I **set *data time** $bM?$ (il$F$$$J$$H0UL#$,$"j^$;$s! #

=q<0:

```
set timefmt "<format string>"
show timefmt
```

J8; zNs0z?t (<format string>) $O **gnuplot** $KF|; ~%G!<%?$r%G!<%?U%!%$%k$+iINh$&$KFI$'$+$r; X<($7$^$9! #M-8z$J=q<0$O0J2<NDLj$G$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 $N@0?t!"F~NO$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$$$kI,MW$,$"j^$9! #\t (%?%V) $OG'<1$5l^$9! #%P%C%/%9%i%C%7%e + 8 ?J?tNs (\nnn) O=l,< ($9J8; z$KJQ4$9$5l^$9! #F|; ~MWAG$NCf$KJ,N%J8; z$,J>$l9g!"%d, %m, %y, %H, %M, %S O=l>$l2 7e$N?t; zrFI_9~$_$^$9! #%S GNFI$_9~$_$G>.?tE@$,$=$N%U%#!<%k%IKD$$$F$$k>l9g$O!"$=$N>.?tE@$D$-$N?t$r>.?t$NIC; XDj$@$H2r<a7^$9! #%Y $O4 7e!"%j $O3 7e$N?t; zrFI_9~$_$^$9! #%b $O3 J8; z$r!"%B OI,MWJJ,$@$1$NJ8; z$rMW5a7^$9! #

6uGr (%9%Z!<%9) $N07$$OddOc$$^$9! #=q<0J8; zNsCf$N1 DN6uGr$O!"%U%!%$%kCf$N0 8D!"$"$k$$O1 $D0J>e$N6uGrJ8; zNs$rI=$7$^$9! #9JoA!"'%H %M" $O"1220" $d"12 20" $r"12 20" $HF1$8h&KFI_$^$9! #

%G!<%?Cf$NHs6uGrJ8; z$N=8$^$j$=$l$>$l$O! **'using n:n ;** XDj$N0l$D0l$DNNsH%+%&%s%H5l$^$9! #hC$F **11:11 25/12/76 21.0** $O3 Ns$N%G!<%?$HG'<1$5l^$9! #: .Mp$rHrlk$?$a$K!"F|; ~%G!<%?,4^$^lk>l9g **gnuplot** $O!"$"J?N **using ;** XDj$,40'z$JbNG"kH2>Dj7^$9! #

F|IU%G!<%?,MKF|!"7n$NL>A0$r4^sG$$$k>l9g!"=q<0J8; zNsG=lrGS=|7J1l$P$$$1$^;$s$,!"'%a", "%A", "%b", "%B" G=li$rI=<($9k3HOG-$^$9! #**gnuplot** $O?tCM$+$i7n$dMKF|$r@5$7$/5a$a$^$9! #3l$i!"5Z$SF|; ~%G!<%?$N=PNO$NB>$N%*%W%7%g%s$N>\:Y$K4X$7FO!"0J2<; 2>H: **set format (p. 130)**! #

2 7e$N@>Nq$r %y GFI '>19g!"69-99 $O 2000 G/L$K~!"00-68 $O 2000 G/0J8e$H8+J7$^$9!#Cm0U: $3$1$O!" UNIX98 $N;EMM$K9go;$?$bNG9,!"3N47NcO"A3AG0c$$,$"$kNG!"2 7e$N@>NqCM$OK\<AE*K"$$ $^$$$G$9!#

B>$N>pJs$K$D$$F$O!"0J2<$b;2>H: **set xdata (p. 183)**, **time/date (p. 50)**!#

Nc:

```
set timefmt "%d/%m/%Y\t%H:%M"
```

$O!"**gnuplot** $KF|IU$H;~4V$,%?%V$GJ,N%7F$$$k3H$r65$($^$9($?$@$7!"$"J?$N%G!<%?$r$h!<$/8+F/$@$5$$!#%?%V$@$C$?$bN,I3$+$GJ#?t$N%9%Z!<%9$KJQ49$5$1$F$$^$;$s$+?=q<0J8;zNs$O%U%!%$%kCf$K<B:]K"$kJ*$H0lCW7F$$$J1lPJj^$;$s)!#0J2<$b;2>H;~7CNs%G!<%?(time data)%G%b!#

%0%i%U%?%$%H%k (title)

%3%^%s%I **set title** $O!"IA2h$N>e$N?2Cf$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}
set title
```

<offset> $rx,y $+$^$?$Ox,y,z $N7A<0$G;XDj7?>19g$O!"%?%$%H%k$OM?$(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 title offset 0,-1"** $O%?%$%H%k$Ny J}8~$N0LCVN_JQ99$7!"Bg$6CQ$K8@$C$F1J8;zJ,$N9b5@$1%?%$%H%k$r2<$K2<2^$9!#1J8;z$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$ol^$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%HXN3dEv$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$$$k>19gGb!"%?%$%H%k$r3HD%J8;zNs=hM}5;$J$$$h$&$K7^$9!#

set title $r%Q%i%a!<%?$J$&$H%?%$%H%k$r>C5n7^$9!#

%P%C%/%9%i%C%7%eJ8;zNs$N:rMQ!"5Z$SJ8;zNs$r0C$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$kG^2pJQ?t$NH0O0$r@_Dj$7$^$9!#>\:Y$O!"0J2<;2>H:**set xrange (p. 185)**!#

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$?>19g$O6-3&KJj^9,!"$=$&GJ1l$P6K:BI83J;R$N!"r<4KlhC$F:G$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%YkIU$1$5$l$^$9!#8=:_$N3Q$NH0O0$N@_Dj(trange) $K4X78$J$/!"F1?41_A4BN$K9o$_%i%Yk$rD1k3H,G-$^$9!#9o$_%i%Yk$,I,MW$JH0O0$N@_Dj$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$kG^2pJQ?t$NHO0O$r@_Dj$7$^$9!#>\:Y$O!"0J2<;2>H**set xrange (p. 185)**!#

Variables

show variables %3%^%s%I$O%f!<%6Dj5AJQ?t$HFbItJQ?t$N8=:_$NCM$N0lMw$rI=<(7^$9!#gnuplot $O!"GPVAL_, MOUSE_, FIT_, TERM_ $G;O$^$kL>A0$r;}$DJQ?t$rFbIt$GDj5A$7F$$^$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$$$k gnuplot $N%P!<%8%g%s!":G=*=$@5F|!"Cx:n8"<T$H!"FAQ $d info-gnuplot %a!<%j%s%0%j%9%H!"%P%0%l%]!<%H@h$N%a!<%k%"%I%l%9$rI=<(7^$9!#BPOCE*$K%W%m%0%i%`$,8F$PlF$$$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)$KEj1F9k$+$r@)8f7^$9!#$3lO!"IA2h5l$?%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,2hLI<+?H$K?hD>$J<4$,zHJCF$$^$9!#:G=i$Ox<4$N<~$j$K<rot_x>$@$12sE>$5l^$9!#<!$K!"?7$7$$z<4$N<~$j$K<rot_z>$@$12sE>$5l^$9!#

%3%^%s%I**set view map** $O!"%0%i%U$rCO?^Nh$&$KI=<(9k$^$9!#3l$OEy9b@~(**contour**) $N%0%i%Ud!"pm3d %b!<%I$Khk2<!8529EYJ,I[JI$G **with image** hjb'7$mM-MQ$G$9!#8e<TGO!"F~NO%G!<%?E@$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?-=IN($r@)8f$7!"<scale_z> $Oz<4$N?-=LN_$r9T$J$$^$9!#?-=IN($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$$$^$9!#2 DaNNcO=L>.N(N_$r0.5 $KJQ99$7$F$$$^$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$N?eJ?J}8~$KBP7F?bD>$JJ?LL$K4^$^$k!"9JoA!"z <4$N2 <!85<M1F$,%9%/%j!<%s$N1tD>J}8~$KJj$^$9!#0 GJ$$azimuth $O;k3&$r86E@$K4X$7$F2sE>$7!"z <4$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=:_$Nz <4$NHOOO$,!"IA2h6-3&$NHOOO$K9g$&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. 190)**!#

Vrange

%3%^%s%I **set urange** $H**set vrange** $O!"**splot** $NG^2pJQ?t(%Q%i%a!<%?) %b!<%I$Gx, y, z NCMr7W;;9kNK;Hol$kG^2pJQ?t$NHOOO$r@_Dj$7$^$9!#>\:Y$O!"0J2<;2>H: **set xrange (p. 185)**!#

X2data

%3%^%s%I **set x2data** $Ox2 (>e) <4$N%G!<%?~7ONs(F|;~) 7A<0$K@_Dj$7$^$9!#>\:Y$O!"0J2<;2>H: **set xdata (p. 183)**!#

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. 184)**!#

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$k?eJ?HOOO$r@_Dj7^$9!#%3%^%s%I%*%W%7%g%s$N9YFN@bL@KD$$$F$O!"0J2<;2>H: **set xrange (p. 185)**!#0J2<$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. 193)**!#

<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$($^$9!#8=:_$N gnuplot $O;~9o$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"k3Hr0UL#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;HCFI$_9~$_$^$9!#3NF~NO5!9=$O!"<4$NHC00(range) $r@_Dj$9kH$-$K;~4VNCMr;HMQ9k:]KbE,MQ5l$^$9!#0J2<;2>H **set timefmt (p. 179)**, **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** $O x <4$N8+=P7r@_Dj7^$9!#B>$N<4Kb8+=P7r@_Dj9kF1MM$N%3%^%s%I$,$"$j$^$9!#

=q<O:

```
set xlabel {"<label>"} {offset <offset>} {font "<font>{,<size>}"}
           {textcolor <colorspec>} {{no}enhanced}
           {rotate by <degrees> | rotate parallel | norotate}
show xlabel
```

F1$8=q<O$, **x2label**, **ylabel**, **y2label**, **zlabel**, **cblabel** KbE,MQ5l$^$9!#

<offset> $r x,y $+$^$?$Ox,y,z $N7A<O$G;XDj7?>l9g$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,$NI}$@$18+=P7r:8K:i7$^$9!#1J8;zNBg-5O!"%U%)%s%H$H=PNO7A<0$NN>J}$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!"Is$J=PNO7A<0$r;H$&$+$K0MB8$7$^$9!#

noenhanced $O!"3HD%J8;zNs=hM} (enhanced text) %b!<%I$,M-8z$KJC$F$$$k>l9gGb!"%i%Y%kJ8;zNs$r3HD%J8;zNs=hM}$5$;$J$$$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$7$O0%i%U$N2<$N?Cf

ylabel: y <4$N8+=P$7$O0%i%U$N:8$N?Cf$G!"?eJ?J}8~$K=q$+lk$+?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$FCf1{B7$(5l!"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$7$O0%i%U$N>e$G!"%?%$%H%khj$O2<!#$3lO!"2~9TJ8;z$r;H$($P!"$=lKhkJ#?t$N9T$+iJ$kIA2h%?%$%H%k$Gx2<4$N8+=P7r@8.9k3H$b2DG=!#Nc:

```
set title "This is the title\n\nThis is the x2label"
```

3l$OFs=E0zMQId$r;H$&$Y$-$G$"$k3H$KCm0U$7F/$@$5$!#$3$N>l9g!"$bAm$s2$D$N9T$GF1$8%U%)%s%H$,;Hol$^$9!#

2<!85IA2h$N>l9g$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$$KF~iJ$$$J$iP!"Be$ojK **set label** $r;H$CF/$@$5$$!#3N%3%^%s%I$OJ8;zNs$r$I3$KG[CV9k$+$rbC$H+M3$K@)8fG-$^$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<O:

```
set xmtics
unset xmtics
show xmtics
```

x2mtics, **ymtics**, **y2mtics**, **zmtics**, **cbmtics** KbF1$8=q<O$,E,MQ5l$^$9!#

0J2<$b;2>H: %3%^%s%I **set format (p. 130)**!#

<4HCOO;XDj (xrange)

%3%^%s%I **set xrange** $OI=< ($5lk?eJ?J}8~$NHCOO$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> $ODj?t!"?t<0!"$^$?$O'*' $G!"'*' $O<+F0=L<\5!G=$r0UL#7^$9!#F|;~%G!<%?$N>l9g!"HCOO$O **set timefmt** $N=q<0$K=>C?J8;zNs$r0zMQId$GOO$'I,MW$,$"$j$^$9!#<min> $d <max> $rJN,$7$?>l9g$O!"8=:_NCMrJQ99$7$^$;$s!#K<+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$OJ2<;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$$<4KBP7FO5!G=7^$;$s!#Cm0U: 3NJQ99$O!"%P!<%8%g%s4.7 $GF3F~$5l^7?!#

<+F0=L<\5!G=: <min> (F1MMN3H, <max> KbE,MQ5l$^$9) $,%"%%?%j%/"*" $N>l9g$O<+F0=L<\5!G=$,%*%s$KJj$^$9!#$=$N>l9gN=NCMK!"2<8B<lb>!"$^$?$O<e8B<ub>!"$^$?$O$=$NN>J}$N@)8B$rM?$($il^$9!#=q<0$OOJ2<NDLj$G$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*JCMO0 $+$i200 $N4V$KJj$^$9(5-9f$O'<' G9$,N>C<NCMb4^$_$^$9)!#2<8B$+>e8B$r;XDj7J$$>l9g$O!"$=$N'<' $b>JN,$G$-$^$9!#<ub> $, <lb> hj>.$5$$>l9g$O!"@)8B$O%*%UKJ$j!"40A4$J<+F0=L<\$KJj$^$9!#3N5!G=$O!"<+F0=L<\$@1lIbHCOO$K@)8B$,$"$kB,Dj$G!<%?$NIA2h$d!"30$lCM$N%/%j%C%T%s$O!"$^$?$O%G!<%?,$=l[INHCOOrI,MWH7F$$J$/$F$b:G>.$NIA2hHCOO$rJ]>Z$9kN$KM-MQ$G7g$&!#

%*%W%7%g%s **writeback** $O!"**set xrange** $G@j$ail$F$$$k%P%C%U%!NCfK<+F0=L<\5!G=Kh$j:n$il?HCOO$rJ]B8$7$^$9!#3l$O!"$$/D+$N4X?t$rF1;~$KI=<($7!"7+$7=$NHCOOO=N&A$N$$/D+NbN+$i7hDj$5$;$?$>l9g$KJXMx$G$9!#**writeback** $N:nMQ$O!"**plot** $N<B9TCf$K5!G=9kNG!"$=$N%3%^%s%I$NA0$K;XDj9kI,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>l9g!"y $NHCOO(yrange) $O sin(x) $NCM0h$H7F:nil$?[-1:1] $NJ}$KJj!"x/2 $NCM0h[-5:5] $OL5;k$5l^$9!#>e5-$N$=$l$>$l$N%3%^%s%I$N8e$K**show yrange** $r<B9T$9lP!"$>e$G2?$,9T$Jol$F$$k$+$rM}2r9k=u1KJkG7g&!#

2 <!85IA2hK*$$F!"**xrange** $H **yrange** $O<4$NHCOO$r7hDj$7!"**trange** $O!"G^2pJQ?t%b!<%I$NG^2pJQ?t$NHCOO!"$"$k$$$O6K:BI8%b!<%I$N3QEY$NHCOO$r7hDj$7$^$9!#F1MM$K3<!85G^2pJQ?t%b!<%I$G$O!"**xrange**, **yrange**, **zrange** $,<4$NHCOO$r41M}$7!"**urange** $H **yrange** $,G^2pJQ?t$NHCOO$r41M}$7$^$9!#

6K:BI8%b!<%IGO!"**rrange** $OIA2h$5lkF07B$NHCOO$r7hDj7^$9!#<rmin> $OF07B$X$NDI2C$ND j?tH7$F:nMQ$7!"0lJ}<rmax> $OF07B$r@Z$j<N$F$k(clip) h&$K:nMQ$7!"<rmax> $r1[$($?F07B$KBP9kE@$OIA2h$5l^$;$s!#**xrange** $H **yrange** $O1F6A$5l^$9!#$3li$NHCOO$O!"%0%i%U$, r(t)-rmin $N%0%i%U$G!"L\@9jN8+=P7K$O=$l$>$l rmin $r2C$($?$h$&$JbNG"k+Nh$&$K%;%C%H5l$^$9!#

A4FNHCOO$OItJ,E*$K!"$^$?$OA4BNE*$K<+F0=L<\$5l^9,!"%G!<%?NIA2hGJ1l$P!"%Q%i%a!<%?JQ?t$N<+F0=L<\5!G=$OOUL#$,$J$$$G7g$&!#

HC0O$O **plot** $N%3%^%s%I%i%$%s>eGb;XDjG-$^$9!#%3%^%s%I%i%$%s>e$GM?$($il?HC0O$OC1$K$=$N **plot** %3%^%s%IG@$1;H$o$l!"**set** %3%^%s%I$G@_Dj5l$?HC0O$O$=$N8e$NIA2h$G!"%3%^%s%I%i%$%s$GHC0O$r;XDj$7$F$$$J$$$b$NA4$F$G;H$ol^$9!#$3lO **splot** $bF1$8$G$9!#

Nc:

x $NHC0O$r%G%U%)%k%HNCMK7^$9:

```
set xrange [-10:10]
```

y $NHC0O$,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$7!":GBgCM$OJQ9$7$^$;$s:

```
set xrange [*:]
```

x $N:G>.CM$r<+F0=L<\$H7^9,!"$=$N:G>.CM$O0 0J>e$K7^$9!#

```
set xrange [0<*:]
```

x $NHC0O$r<+F0=L<\$H7^9,!">.5/Fb10 $+$i50 $NHC0O$rJ];}7^$9(<B:]$O$=$lhjBg$-$/JkG7g&):

```
set xrange [*<10:50<*]
```

<+F0=L<\$G:GBgHC0O$r-1000 $+$i1000!"9JoA[-1000:1000]Fb$G<+F0=L<\$7$^$9:

```
set xrange [-1000<*:*<1000]
```

x $N:G>.CM$r-200 $+$i100 $N4V$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 }
          {{no}logscale}
          { rangelimited }
          { textcolor <colorspec> }
set 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<4KD1kN+!"6-3&KD1kN+$r;X<($7$^$9!#<4$,6-3&$KHF$b6a$$>l9g!"**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$/$+3OB&KIA/$+$r@ZjJQ($^$9! #

L\@9jN9o$_$N%5%$%:$O **scale** $GD4@0$G$-$^$9! #<minor> $N;XDj$,>JN,$5$1$?>19g$O!"$=$1$O 0.5*<major> KJj^$9! #%G%U%)%k%H$N%5%$%:$O!"BgL\@9j, 1.0 $G>.L\@9$j$, 0.5 $G!"$3$1$O **scale default** $G8F$S$@$;$^$9! #

rotate $O!"J8;zNs$r 90 EY2sE>5;$F=PNO$5$;$h$&$H7^$9! #$3$1$O!"J8;zNs$N2sE>$r%5%]!<%H7F$$k=PNO%I%i%$%P(terminal) GO<B9T$5$1$^$9! **#norotate** O3$1$r%-%c%s%;%k7^$9! **#rotate by** <**ang**> $O3QEY<ang> $N2sE>$r9T$J$$^9,!"$3$1$O$$/D+$N=PNO7A<0(terminal) $G%5%]!<%H$5$1$F$$^$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$i!"B?J, **set border** G=N?aN6u4Vr"1kI,MW$,$"kG7g$&! #

<offset> $O x,y $+$^$?$O x,y,z $N7A<0$G;XDj7^9,!"$=$1$K:BI87O$rA*Br7F!"$=$NA0$K **first**, **second**, **graph**, **screen**, **character** $N$$:1+rD1k3HbG$-$^$9! #<offset> $O9o$_J8;z$N%G%U%)%k%H$N0LCV$+$iN:1rI=$7!"%G%U%)%k%H$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$7$7k2L$r@8$`$h$&$K!"<4$H2sE>3Q$K0MB8$7$?0LCV$K<+F0E*$KB7$($i1^9,!"5$$K$$iJ1lP!"L@<(E*$K **left**, **right**, **center** $N%-!<%o!<%I$Khj0LCV7($rJQ99$G$-$^$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=<($5$1$k>uBV$G$"$1lP!"$=$1$O%G%U%)%k%H$N6-3&!"$^$?$O<4$rI|85$7!"$=$&$GJ1lP2?b7$^$;$s!#$=$NA0$K;XDj7?L\@9jN4V3V!"0LCV($H8+=P$7)$OJ];}$5$1$^$9! #

L\@9jN0LCV$O!"%G%U%)%k%H!"$^$?$O%*%W%7%g%s **autofreq** $,;XDj$5$1$F$$$1$P<+F0E*$K7W;;$5$1$^$9! #

L\@9jN0LCVNNsO!"L\@9jN4V3VN_!"$^$?$O3+;OOLCV$H4V3V$H=*$j$N0LCV!"$N$$:1+$r;XDj$9k3H,G-$^$9(0J2<;2>H: **xtics series (p. 187)**)!#

L@<(E*$J0LCV$N%j%9%H$rM?$(k3HG!"8D!9$NL\@9$j$N0LCV$r8DJL$K;XDj$9k3HbG-$^$9! #3F0LCVKO!"$=$1KBP9$k8+=P$7%i%Y%k$r;XDj$9k3HbG-$^$9! #0J2<;2>H: **xtics list (p. 188)**!#

7+$7;XDj$7Fb!"I=<($5$1kN$O"$/$^GIA2hHOO$NbN$@$1$G$9! #

L\@9jN8+=P7N=q<0($^$?$O>JN,)$O **set format** $G@)8f$5$1$^$9! #$?$@$7$=$1$O **set xtics** (<label>) $N7A<0$NL@<(E*$J8+=P$7J8;zNs$,4^$^1F$$$J$>19g$@1G$9! #

(8+=P$7IU$1$5$1$J$$) >.L\@9jO!"**set mxtics** %3%^%s%I$G<+F0E*$KDI2C9k$++!"$^$?$OOLCV$r<jF0$G **set xtics ("" <pos> 1, ...)** $N7A<0$GM?$($k3HbG$-$^$9! #

9o$_$N8+$?L\(@~<o!"I}Ey) $O!"$=1r<4$N>e$KIA$/>19g$G$"$CFb!"6-3&@~KhCF7hDj$5$1$^$9(0J2<;2>H: **set border (p. 115)**)!#

Xtics series

=q<0:

```
set xtics <incr>
set xtics <start>, <incr>, <end>
```

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$7J1lP!"$=$1$OL58BBg$H$_$J$5$1$^$9! #<incr> OIiNCM$b2DG=$G$9! #<start> $H<end> $NN>J}$,;XDj$5$1$F$$$J$>19g!"<start> $O-!g!"<end> $O+!g$H$_$J$5$1!"L\@9jO<incr> $N@0?tG\$N0LCV$KI=<($5$1$^$9! #<4$,BP?t<4$N>19g!"L\@9$j$N4V3V(A}J,) $O!"G\?t$H7F;HMQ$5$1$^$9! #

Ii$N <start> $d <incr> $r! "?tCM$N8emK; XDj9k$H(Nc$ ($P **rotate by <angle>** H+ **offset <offset>** $N8e$m)! "gnuplot $N9=J82r@O4o$O! "$=$NCM$+$i$=$NIi$N <start> $d <incr> NCMN0z$-; ;$r9T$*$&H9$k4V 0c$$$rHH7^$9! #$3$1$r2sHr9kKO! "$=$Nh&$J>19g$O! "**0-<start>** $d**0-<incr>** Nh$&$K; XDj7F$/$@ $5$$! #

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$H; X<(DI$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=1>$1-5,1,5 $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
```

Xtics list

=q<O:

```
set xtics {add} ("label1" <pos1> <level1>, "label2" <pos2> <level2>, ...)
```

L@<(E*$J("label" <pos> <level>, ...) $N7A<0$O! "G$0U$NL\@9jN0ICV! "$"$k$$$O?t; zGJ$$8+=P7N@8@.$b 2DG=$K7^$9! #$3$N7A<0$G$O! "L\@9$j$O0ICV$N?t; z$N=g$KM?$($kI,MWO"j^$;$s! #3FL\@9jO0ICV(pos) $H 8+=P$7(label) $r; }$A$^$9$,! "8+=P$7$OI,?\$GO"j^$;$s! #

8+=P7O0zMQId$G0O$s$@J8; zNs$+! "$^$?2$QJ8; zNsCM$N?t<0$G$9! #$=$lKO! ""%3f clients" Nh$&$K$=$N0ICV$r ?t; z$KJQ49$9$k=q<0J8; zNs$rF~$lFb9=$$^$;$s$7! "6uJ8; zNs"" Gb9=$$^$;$s! #hj>\$7$$>pJsKD$$F $O! "0J2<;2>H: **set format (p. 130)**! #b7! "J8; zNs$r; XDj$7J1lP! "%G%U%)%k%H$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\@9jOgnuplot $,<+F0E*$K@8@.7^9,! "%f! <%6$,L@<(E*$K; XDjbG$-$^$9! #%l%Y%k$, 2 0J>e$NL\@9 jO! "%f! <%6$,L@<(E*$K; XDj7J1lPJi:! "<+F0@8@.$NL\@9$jhj$b9b$$M%@hEY$r; }$A$^$9! #3F%l%Y%k$N L\@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! #

DI>oL@<(E*$J(<jF0$N) L\@9$j0ICV$,M?$($il?>19g! "<+F0E*$K@8@.$5lkL\@9jO; Hol$^$;$s! #5U$K! "**set xtics auto** Nh$&$JbN$,; XDj$5l?>19g$O! "0JA0$K<jF0$G@_Dj$7$?L\@9$j$O>C$5lF7^7^$9! #$3$N<jF0 $NL\@9$j$H<+F0E*$JL\@9jr6&B8$5$;kK$O%-! <%o! <%I **add** $r; HMQ$7F/$@$5$$! #3l$OI2C$9$kL\@9$j$N %9%?%$k$NA0$K=q$+$J1l$P$$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!#

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$$$FIC?t$KJQ49$7$^$9!#<4KBP9$k0LCV$d<4$NHO0O$b **timefmt** $G2r<a$5lkF|;~$G!"0zMQId$G0OsGM?$($^$9!#<start>, <incr>, <end> 7A<0$r;H$&>19g!"<incr> $OICC10L$GM?$($J1l$P$$$1$^;$s!#F~NO%G!<%?$N2r<a$K$O **timefmt** $r;H$CF/$@$5$$!#<4$NHO0O$HL\@9jN0LCV$O!"**set xdata time** $GJQ99$5l^$9!#

=PNO: <4$NL\@9$j%i%Y%k$O!"**set format** $+**set xtics format** $N$$:l+$G;XDj$5l?!"JL$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$3HGJQ99G-$^$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")
```

3liCN>J}Hb "Dec 1", "Dec 3", "Dec 5", $NL\@9$j$r@8@.$7$^$9$,!"2HVL\$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!#

%^%C%W>e$K%i%Y%k$rCV$/$J$I!"<4$NL\@9jH$OO[$J$k>l=j$GEY/J,/IC$N=PNO$r9kKO!"strptime $KAjBPE*;~4V=q<0;XDj%tH %tM %tS $r;HMQ$G$-$^$9!#0J2<;2>H: **time_specifiers (p. 131)**, **strptime (p. 32)**!#

Xtics logscale

BP?t<4$K1h$&9o$_$KBP7F **logscale** B0@-$r@_Dj$9kH!"9o$_$N4V3V$O8x:9$GOJ$/!"8xHf$H2r<a5l$^$9!#Nc:

```
# y=20 y=200 y=2000 y=20000 $K9o$_Ns$r:n@.
set log y
set ytics 20, 10, 50000 logscale
```

y=50000 $O2*10^x $N?tNs$K$O4^$^lJ$$$N$G!"$=3K$O9o$_OD$+$J$$$3HKCm0U7F$/$@$5$$!#logscale B0@-$,L58z$N>19g!"<4$NA}J,$O!"$?$H$(BP?t<4$G$"$CFb8x:9H7$F07$ol^$9!#Nc:

```
# y=20 y=40 y=60 ... y=200 $K9o$_$r:n@.
set log y
set yrange [20:200]
set ytics 20 nologscale
```

logscale B0@-$O!"%3%^%s%I **set log** $G<+F0E*$K@_Dj5lkN$G!"2 $DL\$NNcNh$&$J<4$N9o$_4V3V$K6/@)E*$K7?$$>19gGJ1l$P!"DL>o$O3N%-!<%o!<%IOI,MW"j^$;$s!#

Xtics rangelimited

3N%*%W%7%g%s$O!"<+F0E*$K@8@.5l$k<4$NL\@9jN8+=P7H!"IA2h5l$?%G!<%?$G<B:]$KM?$(il$kHCO0$KBP1~9kIA2h6-3&$NN>J}$r@)8B7^$9!#$3lOIA2hKBP9$k8=:_$NHCO0@)8BHOL54X78G"k3HKCm0U7F$/$@$5$$!#Nc$($P%G!<%?"file.dat" $N%G!<%?$,9Y$F $2 < y < 4$ $NHCO0$K$"$kH9kH!"0J2<$N%3%^%s%I$O!":8B&$NIA2h6-3&(y <4) $Oy $NHCO0OA4BN([0:10]) N3$NItJ,([2:4]) N_$,IA2h$5$l!"$3$NHCO0([2:4]) $N<4$NL\@9jN$_$,:nil$kIA2h$r@8@.7^$9!#$D$^$j!"IA2h$Oy $NHCO0OA4BN([0:10]) $K3HBg$5l^9,!":8$N6-3&$O0 $+$i2 $N4V!"4 $+$i10 $N4V$O6uGrNN0hHJj^$9!#$3$N%9%?%$k$O!"HCO0OH%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^$9!#8eJ}8_4@-$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$NHCO0O$NI3KCV/$+$r7hDj7^$9!#<frac> KO!"xy J?LL$Hz $N0lHV2<$N0LCVHN:9$N!"z<4$NHCO0OA4BNKBP9$k3d9g$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 $NHCO0O$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. 193)**!#

Xzeroaxis

%3%^%s%I **set xzeroaxis** $Oy = 0 $ND>@~$rIA$-$^$9!#>\:Y$K4X7F$O!"0J2<;2>H: **set zeroaxis (p. 193)**!#

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. 183)**!#

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. 184)**!#

Y2mtics

%3%^%s%I **set y2mtics** $Oy2 (1&) <4$NL\@9jr1G/$N3F7n$KJQ99$7$^$9!#>\:Y$O!"0J2<;2>H **set xmtics (p. 184)**!#

Y2range

%3%^%s%I **set y2range** $Oy2 (1&) <4$NI=<(5l$k?bD>HO0O$r@_Dj7^$9!#%3%^%s%I%*%W%7%g%s$N9YFN@bL@KD$$$F$O!"0J2<;2>H **set xrange (p. 185)**!#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. 193)**!#

Ydata

%3%^%s%I **set ydata** $Oy <4$N%G!<%?$r;~7CNs(F|;~) 7A<0$K@_Dj7^$9!#0J2<;2>H **set xdata (p. 183)**!#

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. 184)**!#

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?bD>HOOO$r@_Dj$7$^$9!#>\:Y$O!"0J2<;2>H **set xrange (p. 185)**!#

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. 193)**!#

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. 183)**!#

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. 193)**, **set xyplane (p. 190)**!#

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. 183)**!#

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$^$+$J) ?tCM8m:9$NogCMH7Fb;Hol$F$$$^$9!#%G%U%)%k%H$N **zero** NCMO1e-8 $G$9!#1e-3 (= E57?E*$J%S%C%H%^%C%W%G%#%9%W%l%$$N2rA|EY$N5U?t) hjBg$-$$ **zero** NCMO@_Dj$9Y$-GO$J$$$G7g$&$,!"**zero** $r0.0 $H@_Dj$9kNOOULL#NJ$$$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. 173)**!#

@~$N7?$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. 184)**!#

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. 185)**!#

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$C%+%i! <%\%C%/%9<4$N8+=P7r@_Dj7^$9! #0J2<;2>H:**set xlabel (p. 184)**!#

Cbmtics

%3%^%s%I**set cbmtics** $C%+%i! <%\%C%/%9<4$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$5$lkCMNHO0O$r@_Dj$7$^$9!#$=$NHO0O30NCMKBP7F$O!":G$b6a$$8B3&NCMN?'$,;HMQ$5l^$9!#

%+%i!<%\%C%/%9<4 (cb-<4) $, **splot** $G<+F0=L<\$5lF$$$k>l9g$O!"$=$N%+%i!<%\%C%/%9$NHO0O$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$O!"0J2<;2>H: **set xrange (p. 185)**!#0J2<$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%'%k$KD>$A$K%3%^%s%IJ8;zNs$rEO7?$$>l9g$O!"4X?t **system** $+!"%7%g!<%H%+%C%H! $r;HMQ$7F/$@$5$$!#0J2<;2>H:**system (p. 200)**!#

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=$N2<!85$X$N<M1F)!#$=lO!"**plot** %3%^%s%I$N3<!85HG$G$9!#**splot** $O!"$=l>$lC10l$N x, y, z <4$rDs6!$9k@1G!"**plot** $GMQ0U$5lF$$$kBh2<4 x2, y2 Nh$&$JbNO"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$5l?L>A0IU$-%G!<%?%V%m%C%/$N%G!<%?$r=hM}$7$^$9!#%G!<%?%U%!%$%kL>$O!"DL>o0zMQId$G0O$s$@J8;zNs$H7FM?$($^$9!#4X?t$O1 K\$N?t<0G9$,!"G^2pJQ?t%b!<%I (parametric) GO3 DN?t<0NAHH7FM?$($^$9!#

%G%U%)%k%HGO!"**splot** $OIA2h$5lk%G!<%?$N2<$K40A4$J xy LL$rIA$-$^$9!#z $N0lHV2<$NL\@9jH xy J?LL$N0ICV4X78$O **set xyplane** $GJQ99$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. 190)**!#

splot %3%^%s%I$NHO0O$N;XDj$N=q<0$O **plot** $N>l9g$HF1$8$G$9!#G^2pJQ?t%b!<%I (parametric) GJ1l$P!"HO0O;XDj$O0J2<$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!#

=q<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?$(illP!"$=$l$Oz H7$F;Hol!"%V%m%C%/HV9f$,y H7$F!"$=7Fx 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!<%?$$$bH,I,MWHJj^$9!#0J2<$b;2>H: **splot grid_data (p. 198)**!#

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!<%?$F~NO$r!"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] $NHO0O$N@0?t$G$9!#3djEvFil$k y :BI8$O[0:NROWS-1] $NHO0O$N@0?t$G$9!#3l$O!"%F%~%9%H%G!<%?$KBP7F$O%G%U%)%k%H$G9,!"%P%$%J%j%G!<%?$KBP7F$O=q$&GO$"$j$^$;$s!#Nc$dDI2C%-!<%o!<%IKD$$$F$O2>H: **matrix uniform (p. 196)**!#

2 $DL\$N7A<0$O!"Hs0lMM$J3J;R$G!"x, y :BI8$OL@<(7F$$$k$H2>Dj$9kbNG!"F~NO%G!<%?$N:G=i$N9T$r y :BI8!":G=i$NNs$r x :BI8$H$_$J7^$9!#%P%$%J%j%G!<%?KBP7FO!"1 9TL\$N:G=i$NMWAG$O!"Ns?tGJ1l$P$$

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. 196)**!#

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!<%?$H:G=i$N9T$O y :BI8$r;}A^$9!#F~NO%G!<%?$H: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$5l^$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** $N8IN)@~$KJQ4 9$5$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 $O!"**array**, **record**, **format**, **filetype** JI$N general %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$N general %P%$%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" $C0J2<$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$9kH!"$=$N6JLL$ON"JV$7$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$$k$@$1$G$9!#7+$7!"Ey9b@~$rF3$/$N$KMQ$$$ilk6JLL$NLVL\$O!"BP1~9kE@$rNsE*$KA*s$G7k$V$?$a!"ITB7$$N3J;R%G!<%?JP9k6JLL$NIA2h$X$N1F6A$OM=A[G-$^$;$s!#$=lO%1!<%9P%$%1!<%9N8@M}$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$$^$9!#3F%G!<%?E@$O!"4X?tNCMrI>2A9k3H(0J2<;2>H **set isosamples (p. 135)**)!"$^$?$O%G!<%?U%!%$%krFI_9~$\$3$H(0J2<;2>H **splot datafile (p. 195)**)KhCF@8@.5l$^$9!#"8IN)@~" $H$$&8@MU$O4X?t$KBP7F$b!"%G!<%?$KBP7Fb=$NLVL\$N@~$rI=$9bNH7$FMQ$$$il^$9!#LVL\$O!"I,$:$7$b x, y $K4X$9$kD9J}7A$GJ/Fbh/!"u,v $GG^2pJQ?tI=<(5$lFb9=oJ$$$3HKCm0U7F2<$5$$!#0J2<;2>H **set isosamples (p. 135)**!#

7+$7!"**gnuplot** O=Nh$&&J7A<0$rI,$:$7bI,MWHO7$^$;$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$8G"lP!"1 8IN)@~$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$"y-8IN)@~$NE@$H!"$=$l$KBP1~$9kNYNy-8IN)@~>e$NE@$N4V$N@~J,$Klh$C$F$Nz $ND%NO$r7WB,7^$9!#$hCF!"x-8IN)@~$K!"y-8IN)@~$H$N8rE@$HOJiJ$$$h$&&$JI8K\E@$,$"kh$&&$J6JLLKBP7FO!"**splot** $NEy9b@~$O$=$Nh&&$JI8K\E@$rL5;k9k3HKJj^$9!#0J2<$r;n7F$_$F2<$5$$:

```
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$$$kh&&$J3J;R>u$G!<%?U%)!<%^%C%H$K9$k$+!"$"$k$$$O(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$+$1il$^$9!#0J2<;2>H **set xrange (p. 185)**!#$=$N>pJs$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>l9g$O!"BP>]$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@C9k>l9g$O!"3FJQ?tL>$K"_x", "_y" $H$$$&@\Hx<-$rDI2C$7$^$9!#Nc$($P STATS_min_x $O!"1 $DL\$NNs$N%G!<%?$N:G>.CM$G!"STATS_min_y $O2 $DL\$NNs$N%G!<%?$N:G>.CM$r0UL#$7$^$9!#3N>l9g!"E@$O xrange $H yrange $NN>J}$G8!:9k3HGU$k$$$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$N%G!<%?E@$NIJPI8=`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!<%?$N2r@C@lMQ$G$9!#

STATS_correlation	x $Hy $NITJPA-j4X78?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$,$=$N2r@C$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$NE}7W>pJs$rJ#Ns$K07$&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-$^$9! #3N@)8B$O! ">-Mh$N%P! <%8%g%s$G4KOB$5lkG7g&! #

System

=q<O:

```
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$7$^$9! #4X?tH7$F**system("command")** $r8F$S=P7?>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=P7F$$k>19g$O! "$=$N%&$A$N0l$D$N%W %m%0%i%'$,%(%i! <$r=P$7Fb! ""@.8y" rJV92DG=@-$,$"k3HKCm0U7F$/$@$5$$! #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%F%9%H$7I=< ($7$^$9! #

=q<O:

```
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-8zKJ$k%G%)%k%H$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$7$^$9!#$=$N%G%U%)%k%H$,2?$G$"$CFb!"gnuplot O=lrFbItJQ?t GNUTERM $KJ]B8$7$F$$$^$9!#%3%^%s%I **unset terminal** $O!"$=$N=i4|=i4|=PNO7A<0$KI|5"$7!"$3lO!"**set terminal GNUTERM** H9k3HHF1$8$G$9!#$7$+$7!"GNUTERM $,=PNO7A<0L>$N8e$K terminal %*%W%7%g%s$b4^sG$$$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** $O!"%P!<%8%g%s5.2 GO8eJ}8_49@-N?aK;D7F$"$j$^$9$,!"'>-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$$k9YFN%f!<%6JQ?t$r4^$'?7$7$$%U%!%$%k$r:n@.7^9,!":G8e$NFit Fb$G;HMQ7J$+$C$?JQ?t$KO9YF"#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($+$C3J$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%!%$%k ".Xdefaults" F1b$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%$$OGr9uIA2h$r<u$1IU1k)
'-clear'	?7$7$IA2h$rI=<($9$kA0$K(=V4VE*$K)2hLI$r>C5n
'-raise'	3FIA2h8e$KIA2h%&%#%s%I%&$r:GA0LL$X=P$9
'-noraise'	3FIA2h8e$KIA2h%&%#%s%I%&$r:GA0LL$X=P$9$3$HO7$J$$
'-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 $OIA2h%9%?%$%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%$$KBP7F$O!"**gnuplot** $O0J2<$N%j%=!<%9($3$3GO$=$N%G%U%)%k%HNCMr<(7^$9)!"$^$?$OGr9u3,D4(greyscale) $N%j%=!<%9$r;2>H7^$9!#%j%=!<%9$NCM$O%7%9%F%'>e$N BE rgb.txt %U%!%$%k$K=q$+$l$F$$$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$$O%+%i!<$dGr9u3,D4 (grayscale) %G%#%9%W%l%$>e$NGr9u IA2hK*1kCM$G$9!#%+%i!<%G%#%9%W%l%GO$=$liN%G%U%)%k%HNCMO$[$HsI0 (<B@~) $G!"**axisDashes** N_$,%G%U%)%k%H$G'16' $NE@@~$HJC$F$$$^$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$$2DG=@-b"k3HKCm0U7F$/$@$5$$!#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%]!<%H7F$$$^$9!#**libcaca** $N$$/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$$$^$9!#"x11" %P%C %/%(%s%I$O!"libcaca $N%P!<%8%g%s0.99.beta17 $+$i unicode $r%5%]!<%H$7$F$$$^$9!#**libcaca** $N%P!<%8%g%s$K

hCFO! "IT@5$J 8 bit Ns$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$9! #L@$k$GX7J?'$OE@LG7^$9! #%^%&%9A`:n$G$O=$>~%-! <$O%5%]! <%H$7$^$;$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<0:

```
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%0%i%U$r=PNO$7$^$9$,! "%F%-%9%HJ8; zNs$O%0%i%UNCfKF~lkNGOJ$/! "LaTeX KEO7$^$9! #0J2<$G? ($lJ%*%W%7%g%sKD$$F$O! "0J2<; 2>H: **pdfcairo (p. 237)**! #

eps $H **pdf** $O! "%0%i%U=PNO$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=$$$^$;$s! #0LCV9g$o $;$r40A4$K9T$&KO! "\rule{}{} $hM-MQ$G7g$&! #0J2<$b; 2>H: **pslatex (p. 244)**! #J#?t9TKEOk%i%Y%k$r@8@.$9$k>l9g! "\shortstack $r; HMQ$7F/$@$5$$! #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! #$3li$NJQ99$9$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$F@_Dj$G$-$^$9:

```
\newif\ifGPblacktext
\GPblacktexttrue
```

6I=jE*$J@_Dj$O! "Bg0hE*JCM,$J$$>l9gKN$_8zNO$r; }A^$9! #

=PNO7A<0cairolatex $r; H$&>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$O%i%U$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@.$7$^$9!#$=$N HTML %Z!<%8$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$$$O0lHE*$JURL $r;XDj$9k3HGJQ9XG-$^$9!#%0%i%U%r%j%b!<%H%/%i%$%"%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!"$=l,IA2h9k canvas MWAG$N id $NN>J}$O!"0J2<$NU8;zNs$Q%i%a!<%?$+$i<hil$^$9!#Nc$($P0J2<$N%3%^%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 $bF I$_9~$^$J1l$P$$$1$^$;$s!#>e$N%h$&$K@8@.7?!"3N fishplot $r<h$j3':G>.$NHTML %U%!%$%k$O0J2<$N%h$&$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 $Njavascript %k!<%A%s$G$=$lir;2>H9k3HbG$-$^$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%U%)!<%^%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<O:

```
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$JE@@~%Q%?!<%s$r;XDj7^$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~$9k3HOG-$^$;$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>.$5l?j9k3HKJj$^$9!#2>Dj5l$F$$kI}$rJQ9$9kK$O!"**width** %*%W%7%g%s$r;HMQ7F$/$@$5$$!#

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$l$^$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$(il$^$9!#

CGM $N%5%$:(size)

CGM %0%i%U$N%G%U%)%k%H$N%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 $O(3($NIA2h$N$?$a$K) Metapost $H9bEY$KM;9g$7!"9bIJ<A$J PDF J8=q$r@8@.$9$k$?$a$N TeX $N%^%/%m%Q%C%1!<%8$G$9!#$3$N=PNO7A<0$O!"Metafun %=!<%9$r@8@.$7$^$9$,!"$3$l$O<jF0$GJT=8$G$-!"30It$+$i$[$H$s$I$N$3$H$r$"$J$?$,@_Dj$G$-$^$9!#

ConTeXt + gnuplot %b%8%e!<%k$NJ?6QE*$J%f!<%6$K$O!"$3$N%Z!<%8$rFI$`$h$j$b!"**Using ConTeXt** $r;2>H$9$k$+!"ConTeXt $N gnuplot %b%8%e!<%k$N%^%K%e%"%k$r;2>H$9$k$3$H$r?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$$%0%i%U (**input**) GO!"%*%W%7%g%s$O%0%i%U%5%$%:$rA*Br$9$k **size**!"$9YF$N%i%Y%k$rG\N(<fontscale> $G?-=L$9$k **fontscasle**!"$*hS font %5%$%:$N$_0UL#$r;}$A!"B>$N%*%W%7%g%s$O7Y9p$J/L5;k5lkN$_$G!"$=$liO$=$N%0%i%U%#C%/rFI_9~$`.tex %U%!%$%k$NJ}$G@_Dj7F$/$@5!#85$NJ8=q$N%U%)%s%H$,12pt GOJ>19g$O!"E,@Z$J%U%)%s%H%5%$%:$r;XDj9k3Hr6/$/?d>)7^$9!#$=lKhj!"gnuplot $,%i%Y%kMQ$KIl/$i$$$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$$$$G7g$&! #($3lK4X9k0lHLE*$J; EAH$_$O! "$3$N%*%W%7%g%s$r3FIA2h%9%?%$%kKh$KJL! 9$K; XDj$G$-$kh& gnuplot $,%5%]!<%H$9Y$-$@$H; W$$^$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$7$^$9$,! "$3lOConTeXt MKIV N_$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!$C0J2<$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
```

$3$1$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$7$^$9!#3l$O!"%?!<%_%J%k=PNOFb$XD>@\ SVG %0%i%U2hA|rKda9~$'$3Hr%5%]!<%H7F$$$^$9!# http://domterm.org $r;2>H$7F/$@$5$$!#

svg =PNO7A<0$N%X%k%W$rFIsG$/$@$5$$!#

Dumb

%@%'C<Kv(**dumb**) %I%i%$%P$O!"ASCII J8;z$r;HMQ$7$F%-%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$7!"%G%U%)%k%H$O79 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$O2,1 $G!"$3lO6&DL$N%9%/%j!<%s%U%)%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%9rA^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;HMQ$9k+KhCF!"**dumb** =PNO7A<0$O!"0J2<$N%7!<%1%s%9$r=PNO$7$^$9(6uGr$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$$^9,!"3l$rJQ9%$kKO%I%i%$%P%=!<%9%U%!%$%k$r=$@5$9$kI,MW$,$"j^$9!#Gr9u$N=PNOAuCV$r;H$&>19g!"$=$liN?'$O@~$NB@5N0c$$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$$^$9!#$=lr;H$&$K$O!""eepic.sty" $H"epic.sty"!"$*h$S"tpic" \special L?Na72$r%5%]!<%H7^$9!#H$9$k%W%j%s%?%I%i%$%P$,I,MW$G$9!#$b$7!"$"J?$N;H$&%W%j%s%?%I%i%$%P$,$=$liN"tpic" \special L?Na$r%5%]!<%H$7$F$$J$>19g$G$b!""eepicemu.sty" $r;H$&3HG=liN&AN$$/D+$r;H$(kh&KJj^$9!#dvips $H dvipdfm $O"tpic" \special $r%5%]!<%H$7$F$$^$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$$$H!"?'!9$JB@$5$N<B@~$N$_$,;Ho1$^$9!#'dashed' $H'color' $O01J}$N$_$,0UL# $r;}$A!"'color' $,;XDj$5$1$?>19g!"'dashed' $OL5;k$5$1$^$9!#'rotate' $OK\Ev$K2sE> (90 EY) $5$1$?J8;zNs $r;HMQ$9kh$&$KJj$^$9!#;XDj7J$>19g$O!"1 J8;z 1 J8;z!">e$K@Q$_>e2F$$/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' $O point %9%?%$%kGN%0%i%UIA2h$N0u$H7F\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$N%5%$%:$r;HMQ$7$^$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%$%:$N5-9f$N;HMQ!"$G$9!#<fontsize> $Opicture 4D6-Fb$G$N%U%)%s%H%5%$%:$r;XDj$9$k?t;z$G$9!#C10L$O pt (%]%$%s%H) $G!"10 pt O[$\3.5 mm $G$9!#%U%)%s%H%5%$%:$r;XDj7J$>19g!"A4$F$N%0%i%UFb$NJ8;z$O\footnotesize $K @_Dj$5$1$^$9!#

CmOU: 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$$G$/$5$!#%0%i%U$N3Q$,6a$9$.$k$HE@@~$O<B@~Nh$&$KJj$^$9!#($3$1$, tpic specials $N0lHIE*$JLdBjJN$+!"eepic.sty $ddvips/dvipdfm $N%P%0$,860xJN$+$O;dKOo+j^$;$s!#) %G%U%)%k%H$Neepic %0%i%U$NBg$-$5$O5x3 %$%s%A$G!"$3$1$Oteminal %*%W%7%g%s$N**size** $GJQ992DG=$G$9!#?t$" kCfG!"E@(point) $O!"LaTeX $N%3%^%s%I"\Diamond", "\Box" JI$r;HC$FIA$+$1$^$9!#$3$1iN%3%^%s %I$O8=:_$OLaTeX2e $N%3%"$K$OB8:_$;$:latexsym %Q%C%1!<%8$K4^$^$1$F$$$^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$$!#latexsym NBeojK amssymb %Q%C%1!<%8$r;H$&3H$b2DG=$G$9!#LaTeX $K4X$9$kA4$F$N%I %i%$%P$OJ8;zNs$NG[CV$N(B)8f$KFCJL$JJ}K!$rDs6!7^$9:'{'$G;O$^$kJ8;zNs$O!"'}'$GJD8kI,MW$,$"j^$9 $,!"$=$NJ8;zNsA4BN$,?eJ?J}8~Kb?bD>J}8~Kb%;%s?%j%s%0$5$1$^$9!#[' $G;O$^$kJ8;zNs$N>19g$O!"OLCV$N ;XDjr9$kJ8;zNs(t,b,l,r N&$A2 D^$G) $,B3$-!"<!$K']{'!"J8;zNsK\BN!"$G:G8e$K'}' H7$^9,!"3NJ8 ;zNs$OLaTeX $, LR-box H7$F@07A7^$9!#'\rule{}{}' $r;H$(P5i$KNI$$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$,!"$=$&$G$J$$$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%$7F$$$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$$8_49@-N?aKepslatex =PNO$QJQ99$5$1$^7?! #IA2h%5%$%:$O 5 x 3 %$%s%A$+$i5 x 3.5 %$%s%AXHJQ99$5$1! "J8; zI}$O=>Mh$O%U%)%s%H%5%$%:$N 50% $H8+$J7F$$$^7?$,! "8=:_$O 60% $HI>2A$7$F$$$^$9! #$h$jB?$/$NPostscript $N@~<o$d5-9f$b; H$o1^$9! #0JA0$N>uBVK[$\Ey$7$>uBV$K9kKO%*%W%7%g%s **oldstyle** $r; XDj$7F/$@$5$! #(<B:]$KO4$/$o$:$+$J0c$$,; 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. 244)**! #$=$7F=$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$$$^$9! #**level1** %*%W%7%g%s$O! "$3$1$i$N5!G=$r6a; w9k PostScript Level1 $GBeMQ$7! "PostScript Level 2 %3! <%I$r01@Z; HMQ$7$^$;$s! #$3$1$O8E$$%W%j%s%?$d! "Adobe Illustrator $N8E$$%P! <%8%g%sJIGI,MWKJk$+$b$7$1$^$;$s! #$3$N%U%i%0 **level1** $O=PNO$5$1$? PostScript %U%!%$%k$N"$k019T$r<j$GJT=8$9k3HG! "8e$+$i6/@)E*$K PostScript Level 1 5!G=$r ON/OFF K9k3HbG-$^$9! #level 2 $N%3! <%I$,4^$^$1$F$$k>19g! ">e$N5!G=$O8=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$9kH$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! <%I2=9k$+$r@)8f7^$9! #2r@OE*$J?'$N@.J,4X?t (**set palatte functions** $G@_Dj$5$1$k) $O! "postscript =PNO$G$O79$-$N@~7AJd40$rMQ$$$F%3! <%I2=$5$1$^$9: $^$:?'$N@.J,4X?t$, <samples> 8D$NE@$GI8K\2=$5$1! "$=$7F=1i$NE@$O! "7k2LH7$F@~7AJd40$H$NUP:9$, <maxdeviation> 0JFb$K<}$^kh$&$K:o=|$5$1$^$9! #$[$HsIA4FNM-8z$J%Q%l%C%H$G! "%G%U%)%k%H$N<samples> =2000 $H<maxdeviation>=0.003 NCMr$=$N$^$^; H$&$N$,NI$$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$1$i$r%f! <%6$,; XDj7?bN$KJQ99$7$^$9! #%G%U%)%k%HGOX $HY $N%5$%:$NC10L$O%$%s%A$H$_$J$5$1$^$9$,! "B>$NC10L(8=:_$Ocm N_) $b; H$&3HOG$-$^$9! #IA2h$N BoundingBox (PostScript %U%!%$%k$N3OOH) $O! "%5%$%:$,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 $+$i 1.0 KJj^$9! #Cm0U: $3$1$O! "0JA0$O! "=PNO7A<0GN@_Djhj$b! "%3%^%s%I **set size** $G@_Dj$7$?J}$,$$$$! "$H8@$C$F$$$?3HNUJQ99$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$$0lCV9go;$,2DG=$G7g$&! #0J2<$b; 2>H: %I%i%$%P **pslatex (p. 244)** $K4X$9$k@bL@! #J#?t9T$N8+=P7r :n@.9kKO\shortstack $r; HMQ$7F/$@$5$$! #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>$N=PNO7A<0NbNH$O>/$70cCF$$$^$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%INbN,; Ho1! "eps %U%!%$%k$NL>A0O=$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 $N%U%!%$%kO! "JQ99J7$K pdflatex KhCF$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$F%U%)%s%H$NUQ99KO LaTeX %3%^%s%I$r ; H$CF/$@$5$$! #Nc$ ($P%U%)%s%H%5%$%:H7$FLaTeX J8=qCf$G12pt $r; H$&>19g$O! "%*%W%7%g%s'"" 12' $r; H $$^$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%!%$%kN %U%!%$%kL>KO"-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$N%U%)%s%H$N_$,JQ99$5$1$^$9!#?t<0$N%U%)%s%H$bJQ99$7$?$$>19g$O!""gnuplot.cfg" %U%!%$%k+$^$?$O **header** %*%W%7%g%s$r;H$&I,MW$,$"$j$^$9$,!"$3$1$K$D$$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$$$k>19g$O!"$=lO@8@.$5$1$kLaTeX J8=q$N%W%j%"%s%V%k$K<h$j9~$^$1$^$9!#$=$l$OCDI2C$N@_Dj$r9T$J$&$N$K;H$ ($^$9!#Nc$ ($P!"J8=q$N%U%)%s%H$rTImes-Roman, Helvetica, Courier $HJQ99$7!"("mathptmx.sty" $G07$olF$$$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~$^$1$^$9!#hC$F!""gnuplot.cfg" $G9T$Jo1$k@_Dj$N$$/D+$r **header** $r;H$C$F>e=q$-9k3H$,$G$-$^$9!#

Epson_180dpi

Cm0U: gnuplot $,–with-bitmap-terminals $G:n$i1?>19gN_;H$ ($^$9!#3N%I%i%$%P$O (%W%=%s%W%j%s%?$N$$/D+H=1KN';w9kbN$r%5%]!<%H$7$^$9!#

epson_180dpi $H **epson_60dpi** O=1>$1 180dpi (%I%C%H/%$%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@.$5$l$kfig =PNO$N=q<0%P!<%8%g%s$r@_Dj7^$9!#8=:_$O!"%P!<%8%g%s3.1 $H3.2 N_$,%5%]!<%H$5lF$$^$9!#

thickness $O%G%U%)%k%H$N@~$NB@$5$r@_Dj$7!";XDj5lJ1lP1 KJj^$9!#B@$5$NJQ99$O!"**plot** %3%^%s%I$N **linetype** NCMK100 G\$N?t$r2C$(k3HG<B8=G-$^$9!#F1MM$K!"(%G%U%)%k%H$N?<5KBP9k)3FIA2hMWAG$N?<$5NCMO <linetype> $K1000 G\$N?t$r2C$(k3HG@)8fG-$^$9!#hCF=$N?<$5$O <layer>+<linetype>/1000 KJ$j!"@~$NB@5O(<linetype>%1000) /100 HJj^9,!"$=$NCM$,0 $N>19g $O%G%U%)%k%H$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%$%P$GD I2C9k3HbG$-$^$9!#5-9f$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>19g) $^$?$O8=:_$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> $,1000 hjBg$-$$>19g!"?<5O <layer> +<pointtype>/1000-1 KJj^$9!#<pointtype>%1000 $,100 hjBg$-$$>19gEIjD$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$OGGI (General Graphics Interface) %W%m%8%'%/%HMQ$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$9k3HOG-$^$;s,!"%b!<%I mode %*%W%7%g%s$r;H$C$F!"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$5K"$kgd %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=Ji$P! "8D! 9$N%U%l!<%`$G0l$DA0$N%U%l!<%`$H0c$&ItJ,N_$,%"%K%a!<%7%g%s%U%!%$%k$KJ]B8$5l^$9! #$3lO%U%!%$%k%5%$%:$r>.$5$/$7F/l^9,! "F)L@2=5 !G=$r; HMQ$7$F$$$k>19gKOF/$+$J$$$+b7l^$;$s! #

$3$1$iN>J}$N:GE,2=Oh$j>.$5$%5$%:$N=PNO%U%!%$%k$r:n$m$&$H9kbNG9$,!"B?J,$=$N8:>/NL$O!"D9$%"%K%a!<%7%g%s$+$^$?$O%U%1!<%`%5%$%:$,$H$F$b>.$5$J>19g$K$N$_0UL#$,$"$kDxEY$G$7$g$&!#%*%W%7%g%s **nooptimize** $O$3$1$i$N8z2L$r$$$:$1$bL58z$K$7$^$9!#3F%U%1!<%`$O!"8D!9$N%+%i!<%^%C%W(%W%i%$%Y!<%H%+%i!<%^%C%W)$r;H$$!"4]4HJ]B8$5$1$F$$$-$^$9!#0l$DCm0U$7F*$-$^9,!":GE,2=$5$1$F$$J$%"%K%a!<%7%g%s%U%!%$%k$O30It%f!<%F%#%j%F%#$r;HCF8e=hM}9k3H$,$G$-$^$9$7!"$=$N8e=hM}KhCF gnuplot $N:GE,2=$hjb>.5J%U%!%$%k$,:ni1k+b7$1$^$;$s!#%G%U%)%k%HGO **nooptimize** $G$9!#

=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=|$/$3H,G-!"$=$N7k2LH7F=$N2hA|%5%$%:$O>.$5$/$J$j^$9!#%G%U%)%k%H$O **nocrop** $G$9!#

```
Nc
     set terminal gif medium size 640,480 background '#ffffff'
```

3NNc$O medium %5%$%:$N!"Bg$-$5JQ99ITG=$G2sE>G-$J$$$AH$_9~$_%U%)%s%H$r;HMQ$7!"F)L@2=$5$1$J$$$GX7J?'H7$FGr(16?J?t$N24bit RGB)$r;HMQ$7$^$9!#

```
     set terminal gif font arial 14 enhanced
```

$3$1$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)**!#$3$1$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"
```

$3$1$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$N%U%1!<%`$O!"I8=`%G%b%U%!%$%k=8K"$k%9%/%j%W%H%U%!%$%k animate2.dem KhCF@8@.$5$1$^$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** $NC10I$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** $G:n$i1k pic %U%!%$%k$NA4FN:BI8$O x+gnuplotx, y+gnuploty $N7A$GM?$($i1^$9!#%G%U%)%k%H$G$O x, y NCMO0 $G$9!#$$$/D+$N%U%!%$%kKBP7F=$N x,y $r0 $H@_Dj$7$F$$$k9T$r:o=|$9$1$P!"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$$ (legacy) =PNO7A<0$G$9!#**grass** %I%i%$%P$O GRASS COM}>pJs%7%9%F%`$N%f!<%6$, **gnuplot** $rMxMQ$9$k$3$H$r2DG=$K$7$^$9!#>\$7$$>pJs$K$D$$$F$Ograssp-list@moon.cecer.army.mil $KO"Mm$r<h$C$F$/$@$5$$!#%Z!<%8$O GRASS %0%i%U%&%#%s%I%&$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$O%R%e!<%l%C%H%Q%C%+!<%I (Hewlett Packard) <R$N HP 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** $O 75, 100, 150, 300 $N$$:l+$N2rA|EY (DPI; dots per inch) $G!"**comp** $O "rle" $+"tiff" $G$9!#B>$N@_Dj$r9kH=lO%G%U%)%k%HNCMKJj$^$9!#%G%U%)%k%H$O 75 dpi $G05=L$OJ7$G$9!#9b2rA|EYGN%i%9%?%i%$%:$O$?$/5s$N%a%b%j$rI,MWH7$^$9!#

Hpgl

hpgl %I%i%$%P$O HP7475A %W%m%C%?Nh$&$JAuCVMQ$N HPGL =PNO$r9T$J$$$^$9!#$3lO2 DN@_Dj2DG=$J%*%W%7%g%s$r;}A^$9:$=lO%Z%s$N?t$H **eject** %*%W%7%g%s$G!"'"eject" $OIA2h8e$K%W%m%C%?%K%Z!<%8$rGS=P$5$;$kh&;X<($7%G%U%)%k%H$G$O6 DN%Z%s$r;H$$!"IA2h8e$N%Z!<%8$NGS=P$O9T$J$$$^$;$s!#

9q:]E*J8;z%;%C%H ISO-8859-1 $H CP850 $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$7$^$9!#3l$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$^$9$,!"$=li$O0J2<$K<(7?=g=x$G;XDj$7J1lP$$$1$^$;$s:

=q<O:

```
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*$JIA2h%5%$%:$G!"$=lO0J2<$N&$A$N$$:l+$G$9:**letter** $OI8=`$N(8 1/2" X 11") =PNO!"**legal** $O(8 1/2" X 14") =PNO!"**noextended** $O(36" X 48") =PNO(letter %5%$%:Hf)!"**extended** $O(36" X 55") =PNO($[$\legal %5%$%:Hf)!"**color** $OJ#?t$N%Z%s(9JoA%+%i!<) IA2hMQ$G<number_of_pens> $O%+%i!<=PNO$G;HMQ5l$k%Z%s$NK\?t(9JoA?'?t) $G$9!#**monochrome** $O1K\$N%Z%s(Nc$($P9u)$NIA2h$G$9!#**solid** $OA4$F$N@~$r<B@~GIA-!"**dashed** $O0[$J$kE,@@~$d:?@~%Q%?!<%s$G@~$rIA$-J,$1$^$9!#<font> $O**stick**, **univers**, **cg_times**, **zapf_dingbats**, **antique_olive**, **arial**, **courier**, **garamond_antigua**, **letter_gothic**, **cg_omega**, **albertus**, **times_new_roman**, **clarendon**, **coronet**, **marigold**, **truetype_symbols**, **wingdings** $N$$:l+$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!#

3liN%*%W%7%g%s$N$$/D+NAH_9~$^$l$?%5%]!<%H$O!"%W%j%s%?$K0MB8$9k3HKCm0U7F$/$@$5$$!#Nc$($PA4FN%U%)%s%H$O62$i$/HP Laserjet IV GO%5%]!<%H5l$F$$$kG7g&$,!"HP Laserjet III $HDesignjet 750C GO2,3(Nc$($Punivers, stick) $,%5%]!<%H$5lF$$$kN_G7g&!#$^$?!"laserjet $OGr9u$N=PNOAuCVJN$G!"$=liGO%+%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$O%W%j%s%?$G07ol$^$9NG!"%F%-%9%HJ8;zNs$KE,@Z$JJ8-bit J8;z%3!<%I$rF~$lk@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 $G:n$il?>l9gN_;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!#$3li$N%I%i%$%PGO!"2rA|EY$NA*Br$,2DG=$G$9!#

=q<O:

```
set terminal hpljii | hpdj {<res>}
```

$3$3$G**res** $O75, 100, 150, 300 $N$$:l+$N2rA|EY(DPI; dots per inch) $G!"%G%U%)%k%H$O75 $G$9!#9b2rA|EYGN%i%9%?%i%$%:$O$?/$5sN%a%b%jrI,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 $G:n$il?>l9gN_;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<O:

```
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$rG[CV9k3H$b2DG=$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$G7g$&!#%G%U%)%k%H$O **rounded** (4]$a) $G$9!#

%U%)%s%H$NA*Br$N>\:Y$O!"$d$dJ#;($G$9!#0J2<$KF1$80UL#$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$$!#

=PNGIA2h%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$O! "0ICV$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$$0ICV9go;$,2DG=$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:lJ$$$G$/$@$5$$! #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$_$CDd;_$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
```

0ICV$rL@<(E*$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 $r%G%U%)%k%H$H$7F;HMQ$7$^$9$,! "$=l,G-J1lP 640x480x16 (I8=`$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$$$F$O! "C10L$,;XDj5l$F$$$J$$$P=$N%G%U%)%k%H$O'cm' HJj^$9!#$9YF$ND9$5KO! "0J2<$NC10L$r;HMQG-$^$9: 'cm', 'mm', 'in' $^$?$O'inch', 'pt', 'pc', 'bp', 'dd','cc' (LuaTeX in $O%$%s%A(1in=2.54cm), pt $O%]%$%s%H(72.27pt=1in), pc $O%Q%$+(1pc=12pt), bp $O%S%C%0%]%$%s%H(72bp=1in), dd $ODidot %]%$%s%H(26.6dd=1cm), cc $OCicero (1cc=12dd))!#?tCM$HC10L$N4V$K6uGr$rF~lF$O$$$^;$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$J3OOHKJSj^$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@$KJSj$^$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$$^9,!"$=$l$,DI>o$Ngnuplot $N5sF0$G$9!#$3$N%*%W%7%g%s$r;HMQ9k$H!"$o$:$+$KHsBP>N$J9o$_I}$r:nk+b7l^$;$s!#originreset' Nh$&$K!"3N%*%W%7%g%s$rmultiplot $dpm3d IA2h$G;HMQ9k$H!"I1IET9g$J7k2L$r>7$/62l,$"$j$^$9!#$=$lKBeo$kJ}K!$H7F!"9YFNmargin $r0 $H@_Dj$7$?>e$G*%W%7%g%s'noclip' $r;HMQ$9$k!"$H$$$&<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$9kH!"%f!<%6$ND j5A$7$?gnuplot $NLp(arrow) $N%9%?%$%k$rTikZ NLpN%9%?%$%k$K3djEvF$^$9!#3l$O!"Lp$ND j5A$N3QNCMr'8mCF;HMQ$9k'3HGJ5lF$$$^$9!#Nc($P!"3Q'7' KhkLpN%9%?%$%k$OTikZ %9%?%$%k'gp arrow 7' $K3d$jEvFi$l!"B>$KM?$($il?CMO9YFL5;k5l$^$9!#%G%U%)%k%H$NTikZ =PNO7A<0$O9YFNLpKBP7$F%9%F%k%97A$NLp@h$r;HMQ$7$^$9!#%G%U%)%k%H$N gnuplot Nh$&$K9kKO!"%*%W%7%g%s'gparrows' $r;HMQ$7F/$@$5$$!#

'cmykimages' GO!"%$%s%i%$%s2hA|%G!<%?KBP7$FRGB %+%i!<%b%G%k$NBeoj$KCMYK %b%G%k$r;HMQ7^9,!"B>N9YF$N?'(@~$N?'JI) $O!"$=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;k$5l^$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&$KJ}j$^$9!#DVI %U%!%$%k!"$*$h$SS=N8e$NPostScript %U%!%$%k$r@8@.9kKO!"PNG %U%!%$%k$rEPS %U%!%$%k$K!"UL$KJQ49$9kI,MW,$"$j$^$9!#3l$ONc($PImageMagick $N**convert** $G9T$($^$9!#F)L@=%S%C%H%^%C%W2hA|$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$K!"2hA|$rEIjDY5l?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;k$5l^$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!Wj$H$($^$9!#Nc$($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$$$Cs=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$r%I%-%e%a%s%H$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$$$F%5%]!<%H5l$^$9!#8=>uGOComputer Modern Roman %U%)%s%H%;%C%H$,F~NO$G9,!"%f!<%6OI,MWJ%U%)%s%H$r2?$G$b<+M3$KA*V3H,G-$^$9!#$?$@7=$NA*s$@%U%)%s%H$NMETAFONT %=!<%9%U%!%$%k$;H$($k>uBV$KJC$F$$$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-$$($(5x3 %$%s%A) NG!"memmax NCM,>/J/Hb150000 G"$kMETAFONT $r;H$&I,MW$,$"kG$7g$&!#Unix GO!"$=$l$OL>obigmf $H$$$&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$&$+$i! #$=7F3l$OTeX $N%a%b%j$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$$(legacy) =PNO7A<0$G$9! #**mif** %I%i%$%P$OFrame Maker MIF %U%)!<%^%C%H(version 3.00) $N=PNO$r@8@.7^$9! #$3lO15*10 cm $N%5%$%:$NMIF %U%l!<%`$r=PNO$7! "F1$8%Z%s$G=q$+$l$k%0%i%U$N4pK\MWAG$OF1$8MIF %0%k!<%W$K%0%k!<%W2=$5$l$^$9! #**gnuplot** $N1 %Z!<%8$K$*1$k%0%i%U$N4pK\MWAG$O0l$D$NMIF %U%l!<%`$KA2h5l! "$$/D+$NMIF %U%l!<%`$O0l$D$NBg$-$JMIF %U%l!<%`Fb$K=8ail^$9! #J8;zNs$G;Hol$kMIF %U%)%s%H$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$&$3H,G-$^;$s!#3l$O!"8E$$%0%i%U%U%!%$%k!"$"$k$$$OTeX GOFC<15-9fH7$F2r<a$5lF7^$&**$**$d%** Nh$&$J0lHIE*$JJ8;zr?$/5$s;H$&%U%!%$%kN?aKMQ0U$5lF$$$^$9!#

%*%W%7%g%s **tex** $O!"TeX $G=hM}$9$kJ8;zNs$r=PNO9kh&$K@_j$7$^$9!#

%*%W%7%g%s **latex** $O!"LaTeX $G=hM}$9$kJ8;zNs$r=PNO9kh&$K@_j$7$^$9!#3lKhCFTeX GO;H($J$$$1lI LaTeX GO;H(kb$N!"Nc$($PJ,?t$r\frac $G=q$$$?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@_j$9k+!"$"$k$$$O**mpost -tex=<LaTeX** $N<B9T%W%m%0%i%'L>> **...** H9k3HrK:lJ$$$G$/$@$5$$!#$=$&GJ$$$H metapost $O%F%-%9%H$N=hM}$KTeX $r;H$*$&$H7F<:GT7F7^$&$G7g$&!#

TeX K*lk%U%)%s%H%5%$:$NUQ99$O?t<0$K$O8z2L$,J/!"$=$Nh&$JUQ99$r9TJ&HF$b4JC1$JJ}K!$O!"Bg0hE*$K3HBgN((magnification factor) $r@_j$9$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>$N%5%$:$G=q$-$?$>19gO3lr;HMQ7F$/$@$5$$!#$?$@;DG0J3HKA4FN?t<0$,F1$8%5%$:$KJCF7$^$$^{9},!"7+$7!"0J2<$NMP=PNO$NJT=8$K4X9k@bL@$r;2>H$7F/$@$5$$!#**mag** $O**notex** $N85$GbF/$-^{9},!"$=lr9TJ&0UL#$,$J$$$/$i$$(0J2<$K=R$Y$k)%U%)%s%H%5%$:%*%W%7%g%sO&$^$/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** $b postscript %U%)%s%H$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($P ghostscript JI$G;2>HG-$kh&KJj^$9!#I8=`GO 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!#

MetapostN2hA|$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$$$kG7g&!#7+$7!"Metapost =PNO$r$=$N$^$^PostScript %$%s%?%W%j%?$KAwCF$b!"%0%i%UFb$NJ8;z$O=PNO$5lJ$$$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$$$F!":G=i$N%0%i%U$N%U%!%$%k$O!"Nc$ ($P figure.0, 2 $DL\$CNc $ ($P figure.1 Nh$&$JL>A0KJj^$9!#$hCF!"3 $DL\$N%0%i%U$rJ8=q$K<h$j9~$`$?$aK"J?$,$7Jl$lP $$$l$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$$$& 3HG7g&!#3N=PNO$r2DG=$J8B$je:No$K9k$?$a$N!"$+Jj$NEXNO$,J'ol$^$7$?!#Metapost 8@8l$K4X$9 k=$&$$C$?CN<1$N$*$+2G!"%G%U%)%k%H$N@<o$d?'$OG[Ns **lt**[] $d**col**[] $rJT=8$9k3HGJQ9G-kh$&$K$J j^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** $r JT=8$9k3HG!"%i%Y%kJ8;z%U%)%s%HKBP9$kBg0hE*$JUQ9$,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$N=@Fp@-$r H/4xG-kG7g&!#$?$@$7!"Metapost $K plainTeX GJ$/LaTeX $r<B9T$5$;$kh&!"E,@Z$JMP @_DjJQ?t $r@_Dj$9k3HrK:lJ$$G$/$@$5$$!#

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$$%i%$%V%i%jPDFlib (GmbH Munchen) $r;HMQ$7$^$9!#$"$J$?,!"PDFlib $N>&MQ %i%$%;%s9$r;}$C$F$$$kNGJ1lP!"$=$7F=l,Ds6!9kFCJL$J5!G=$rI,MWH9kNGJ1l$P!"$3lN Beoj$K cairopdf =PNO7A<0$r;HMQ9kJ}$,$$$$G7g$&!#gnuplot GO!"wxt $d qt Nh$&$JBPOC7?=PNO7A<0 GN:n6HCf$K PDF %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$O12) $G$9! #INh&$J%U%)%s%H$,; H$ ($F! "?7$7$%U%)%s%H$r%$%s%9%H! <%k$9 kK$O! "$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) $r M-8z$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! "$3$1$r%f! <%6$N; XDj$9kbNX JQ99$7$^$9! #%G%U%)%k%H$N X, Y %5%$%:$NC10L$O%$%s%A$G$9,! "B>$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<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&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}$O0.5 %] %$%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! "$3$1$r%f! <%6$N; XDj$9kbNX JQ99$7$^$9! #%G%U%)%k%H$N X, Y %5%$%:$NC10L$O%$%s%A$G$9,! "B>$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$N0.0 $+$i1.0 $K BP1~$7$^$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! "pdfcairo =PNO7A<0GO'Sans' $,; HMQ$5l^$9! #FontSize $O%]%$%s%HC10LGN%U%)%s%H%5%$%:$G$9! #; XDj$7J>19g$O! " pdfcairo =PNO7A<0$G$O12 %]%$%s%H%5%$%:$NI8='%U%)%s%H$,; HMQ$5l^$9! #$7$+$7! "3N=PNO7A<0$N%Q%i%a!< %?fontscale $N%G%U%)%k%H$O0.5 JN$G! "8+$+1N%U%)%s%H%5%$%:$O! "PDF =PNO$r%U%k%5%$%:$G8+$?>19ghj $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$O! "DI>o$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$$!#>\:YKD$$$F$O!"0J2<; 2>H: **encoding (p. 127)**!#

pango $O!"unicode %^%C%T%s%0$G$J$$%U%)%s%HKBP7FOM=4|$;$L7k2L$rM?$(k+b7l^$;$s!#Nc$($P Symbol %U%)%s%HKBP7FO!"pdfcairo =PNO7A<0$O!"U8; z%3!<%I$r unicode $KJQ49$9k?aK http://www.unicode.org/ $GDs6!$5lk%^%C%T%s%0$rMxMQ$7$^$9!#J*!"'the Symbol font" $O!"Acrobat Reader $H0l=o$K"SY____.PFB" H7$FG[I[$5lF$$$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-$^$;$s!#=PNO$rhjN1$/$9k?aK3N%l%s%@%j%s%0$O!"%"%s%A%(%$%j%"%9!"%*!<%P!<%5%s%W%j%s%0$N2 DN5!9=$r; }CF$$$^$9!#%"%s%A%(%$%j%"%9$O!"?eJ?$d?bD>GJ$$@~$r3j$i$+$KI=<(7^$9!#%*!<%P!<%5%s%W%j%s%0$O!"%"%s%A%(%$%j%"%9HAH$G%T%/%;%khj$b>.$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,IA2h5l$kOS/2 %W%l%<%s%F!<%7%g%s^%M!<%8%c&&#%s%I%&$rDs6!$7$^$9!#$=$N%&#%s%I%&$O:G=i$N%0%i%U,IA2h5l$?$H$-$K3+$+$l$^$9!#3N%&#%s%I%&$OOu:~!"%/%j%C%W\!<%I$X$N%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$9kH!"3F%0%i%U$O=$l$>$l<+?H$N&&#%s%I%&$r; }$A!"$=N9YF$N&&#%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$N%U%)%s%HL>$O1 J8; 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%$%s%9%?%s%9L>H7Fb; Hol!"$=$l$OI2C$N?t0z?t$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$rM?$($^$9!#9JoA!"3liOMM!9$JIA2h%3%^%s%I$GMW5a5lkCMK$+$1;5l$^$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!"3N%*%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=|$/$3H,G-!"$=$N7k2LH7F=$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$Omedium %5%$:$N!"Bg$-$5JQ99ITG=$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
```

3l$O!"24 %S%C%H/%T%/%;%k$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$O!"$"$J?$,;HMQ$7$F$$k 'locale' $K4p$E$-$^$9!#B>$NJ8;z%3!<%IK7$?$>19g$O!"$"$J?$,INJ8;z%3!<%I$r;H$C$F$$$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$$%U%)%s%HKBP7FOM=4|$;$L7k2L$rM?$(k+b7l^$;$s!#Nc$ ($P Symbol %U%)%s%H$KBP7F$O!"pngcairo =PNO7A<0$O!"U8;z%3!<%I$r unicode $KJQ4 9$9k?aK http://www.unicode.org/ $GDs6!$5lk%^%C%T%s%0$rMxMQ$7$^$9!#J*!"'the Symbol font" $O!"Acrobat Reader $H0l=o$K"SY____.PFB" H7$FG[I[$5lF$$$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$$^9,!"3l$OO[$J$kJ8;z%C%H$KJJCF$$ $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%9%H!<%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. 244)

landscape **portrait** **eps** **enhanced** **(p. 27)** **blacktext**

PostScript (duplex)

simplex **duplex**

"<**fontname**>" PostScript PostScript postscript ObliqueSymbol ("Symbol-Oblique")

default **landscape**, **monochrome**, **dl 1.0**, **lw 1.0**, **defaultplex**,**enhanced**, "Helvetica", 14pt PostScript **color** **monochrome** **palette** **colorspec**

dashlength **dl** <DL> (0) **linewidth** **lw** <LW>

PostScript Level 1 PostScript Level 2 PostScript Level 2 PostScript Level 1 PostScript Level1 PostScript Level 2 Adobe Illustrator **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** <samples> <maxdeviation>

PostScript EPS (Encapsulated PostScript) PostScript PostScript PostScript **eps** EPS **enhanced** **blacktext** **colortext** **colourtext** **font** "fontname{,fontsize}" **fontscale** <scale> **clip** **noclip** **dashlength** **dl** <DL> **linewidth** **lw** <LW> **rounded** **butt** **palfuncparam** **set palette functions** <samples> <maxdeviation> **landscape** **portrait** **eps** **enhanced** **blacktext** **colortext** **colourtext** **font** "fontname{,fontsize}" **fontscale** <scale> **clip** **noclip** **dashlength** **dl** <DL> **linewidth** **lw** <LW> **rounded** **butt** **palfuncparam** **set palette functions** <samples> <maxdeviation>

PostScript EPS (Encapsulated PostScript) PostScript PostScript PostScript **eps** EPS **enhanced** **blacktext** **colortext** **colourtext** **font** "fontname{,fontsize}" **fontscale** <scale> **clip** **noclip** **dashlength** **dl** <DL> **linewidth** **lw** <LW> **rounded** **butt** **palfuncparam** **set palette functions** <samples> <maxdeviation>

PostScript =2000 =0.003

PostScript EPS (Encapsulated PostScript) PostScript PostScript PostScript **eps** EPS **enhanced** **blacktext** **colortext** **colourtext** **font** "fontname{,fontsize}" **fontscale** <scale> **clip** **noclip** **dashlength** **dl** <DL> **linewidth** **lw** <LW> **rounded** **butt** **palfuncparam** **set palette functions** <samples> <maxdeviation>

PostScript 10 PostScript **monochrome** **palette** **colorspec** **dashlength** **dl** <DL> **linewidth** **lw** <LW> **rounded** **butt** **palfuncparam** **set palette functions** <samples> <maxdeviation>

PostScript 5 x 3.5 **size** X Y

%:$NC10L$O%$%s%A$H$_$J5l$^$9$,!"B>$NC10L(8=:_$Ocm N_) $b;H$&3HOG$-$^$9!#IA2h$N BoundingBox (PostScript %U%!%$%k$N3OOH) $O!"%5%$%:$,JQ99$5l?2hA|$rCzEY4^$`h&$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!GO BoundingBox $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>@\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. 242)**!#**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$N0lMw$H LaTeX $N%U%)%s%H$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. 242)** $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$rGr9uNbNK9kJ}K!O*o+jG7g$&!#F1MM$K!"@~$N?'!"J8;zN?'!"@~$NB@$5(weight)!"5-9f$N%5%$%:$b!"K\Ev$K4JC1$K=q-4(ilkG7g$&!#%?%$%H%k$d8+=P$7JI$NJ8;zNs$N8m?"$d!"%U%)%s%H$NJQ99$bJT=82DG=$G7g$&!#G$0UNbNNG[CV$bJQ99$G$-$^$9$7!"bAms!"G$0U$NbN$rDI2C$7$?$j!":o=|7?jbG-$^$9$,!"$=li$N=$@5$OPostScript 8@81$N?<$CN<1$,I,MWG7g&!#

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$r postscript =PNOFb$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$7$^$9: ASCII 7A<0$N Type 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$JMQE$SN?aK!"%Q%$%W$b;H$($kh&KJCF$$^$9(%Q%$%W$r%5%]!<%H$7$F$$$kOS >e$G)!#%U%!%$%kL>$r"<"$G;O$a!"$=$N8e$K%W%m%0%i%'8F$S=P$7$rD12C$7$^$9!#$=$N%W%m%0%i%\PNO$OI8=\PNO$X$Npfa %G!<%?$GJllP$$$;$s!#7k2L$H7Fpfa %U%!%$%k$r!"Nc$(P0J2<$Nh&K7$F"%/%;%9$G$-$k3HKJj^$9:**set fontfile "< cat garamond.pfa"**!#

Type 1 %U%)%s%H$r<h$j9~$'$?3H$O!"Nc$(P LaTeX 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!<%PKCV+lF$$$^$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$$^$9($3N?a!"J8;zNsKO cmr10.pfb NBeojK sfrm1000.pfb $r;H$&Y$-$G$9)!#TeX %U%)%s%H$N;HMQK!$O$$/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$-$$ Unicode %(%s%H%j%]%$%s%H($D$^$j Latin1 =89g30N9YF) $NJ8; z$r5-=R9kNK; Hol$kL>A0$r@)8f7^$9! #0lHI$K! "unicode J8; z$O01U$NL>A0$r; }$?$:! "$=lO unicode <1JIHV9f7+; }A^$;$s! #7+$7! "Adobe $O! "$" $kH0O0$NJ8; z(3HD%%i%F%sJ8; z! "%.%j%7%cJ8; zEy) $KL>A0$r3djEvF$k?d>)5,B'$r; }CF$$$^$9! #%U%)%s%H$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. 242)**!#

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. 244)**!#$=$7F=$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** $OE@@~$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@.5l$k PostScript %3!<%I$O!"FC$K%U%#%k%?%j%s%0$dfilledcurves Nh$&$JG3$\$3$JNN0h$N%Q%?!<%sEIjDV7K*$$$F!"PostScript Level 2 H7$F>R2p$5lF$$$k8@8l5!G=$r;H$$$^$9!#PostScript Level 2 $N5!G=$O>r7oE*$KJ]8n$5lF$$$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$$$^$9!#**level1** %*%W%7%g%s$O!"3liN5!G=$r6a;w$9$k PostScript Level1 $GBeMQ$7!"PostScript Level 2 %3!<%I$r0l@Z;HMQ$7$^$;$s!#$3lO8E$$%W%j%s%?$d!"Adobe Illustrator $N8E$$%P!<%8%g%sJIGI,MWKJk$+$b7l$^$;$s!#$3$N%U%i%0 **level1** $O=PNO$5l? PostScript %U%!%$%k$N$"$k0l9T$r<j$GJT=8$9$k3H$G!"8e$+$i6/@)E*$K PostScript Level 1 5!G=$r ON/OFF K9k3HbG-$^$9!#level 2 $N%3!<%I$,4^$^$l$F$$$k>l9g!">e$N5!G=$O8=ol$J$$$+!"3N%U%i%0$,%;%C%H$5l?>l9g!"$"$k$$$O PostScript %$%s%?%W%j%?%W%m%0%i%`$, level 2 0J>e$N PostScript $r2r<a$9kH$O8@$oJ+C?>l9g$K7Y9pJ8$KCV-49oj^$9!#**level3** %*%W%7%g%s$O!"%S%C%H%^%C%W2hA|$N PNG 2=$N5!G=$rM-8z$K7^$9!#$=lKhj=PNO%5%$%:$r$+$J$j:o8:$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 $N30OH) $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^$9!#2r@OE*$J?'$N@.J,4X?t (**set palatte functions** $G@_Dj$5lk) $O!"postscript =PNO$G$O79$-$N@~7AJd40$rMQ$$$F%3!<%I2=5l$^$9: $^$:?'$N@.J,4X?t$, <samples> 8D$NE@$GI8K\2=5l!"$=$7F=li$NE@$O!"7k2LH7$F@~7AJd40$H$NJP:9$, <maxdeviation> 0JFb$K<}$^kh$&$K:o=|5l$^$9!#$[$HsIA4FNM-8z$J%Q%l%C%H$G!"%G%U%)%k%H$N <samples> =2000 $H <maxdeviation>=0.003 NCMr$=$N$^$^;H$&$N$,NI$$$G7g$&!#

PostScript =PNO$N%G%U%)%k%H$NBg$-$5$O10 %$%s%A x 7 %$%s%A$G$9!#EPS =PNO$N%G%U%)%k%HNBg-5O5 x 3.5 %$%s%A$G$9!#%*%W%7%g%s **size** O3li$r%f!<%6$,;XDj7?bN$KJQ99$7$^$9!#%G%U%)%k%HGO X $H Y $N%5%$%:$NC10L$O%$%s%A$H$_$J5l$^$9$,!"B>$NC10L(8=:_$O cm N_) $b;H$&3HOG$-$^$9!#IA2h$N BoundingBox (PostScript %U%!%$%k$N30OH) $O!"%5%$%:$,JQ99$5l?2hA|$rCzEY4^$`h&$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!GO BoundingBox $OJQ99$5l:$K;D$CF7$^$$!"%9%/%j!<%s:BI8$,<B:]$NIA2h$N8B3&$KBP1~7F$$$^$;$sG7$?!#

rotate $,;XDj$5lk$H y <4$N8+=P7,2sE>5l$^$9!#<font_size> $O4uK>$9$k%U%)%s%H$N(%]%$%s%HC10L$G$N)Bg$-5G$9!#

auxfile $,;XDj$5lk$H!"%I%i%$%P$O PostScript %3%^%s%I$r!"LaTeX %U%!%$%k$KD>@\=PNO9kBeoj$K!"Jd=u%U%!%$%k$K=q$-=P9h$&$KJj$^$9!#3l$O!"dvips $,$=lr07$($J$$$/$i$$Bg$-$$%0%i%UG"$k>l9g$KM-MQ$G$9!#Jd=u PostScript %U%!%$%k$NL>A0$O!"**set output** %3%^%s%I$GM?$(il$k TeX %U%!%$%k$NL>A0$+$iF3$+lkbN$G!"$=lO$=$N:G8e$N **.tex** $NItJ,(<B:]$N%U%!%$%kL>$N:G8e$N3HD%;R$NItJ,) $r **.ps** GCV-49$($?bN!"$^$?$O!"TeX %U%!%$%k$K3HD%;R$,$J$$$JiP **.ps** $r:G8e$KIU$1B-$7$?$bNKJj$^$9!#**.ps** %U%!%$%k$O\special{psfile=...} $H$$$&L?Na$G **.tex** %U%!%$%k$K<h$j9~$^$l$^$9!#**multiplot** %b!<%I0J30GO!"<!$NIA2h$r9TJ&A0K=$N=PNO%U%!%$%k$r%/%m!<%:$9kN$rK:$l$J$$$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$$$^$9!#$3lO postscript eps =PNO7A<0$K9g$o$;$?JQ99$G$9!#2C$($F!"J8;zI}$O!"0JA0$N epslatex =PNO7A<0$O%U%)%s%H%5%$%:$N50% $H8+$J7^7?$,!"8=:_$O60% $HI>2A$7$F$$$^$9!#=>Mh$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?bD>J}8~Kb%;%s%?%j%s%0$5$l$^$9!#(b) '[' $G;O$^$kJ8;zNs$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$&!#

$3$3$K5-=R$5lF$$$J$$%*%W%7%g%s$O **Postscript terminal** NbNHF10lG9NG!"$=$li,2?$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&K9$0$K?-=L5l$^$9!#**qt** =PNO7A<0$O%U%)%s%H!"@~I}$b4^aFIA2hA4BN$r?-=L$7$^$9$,!"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) $r%i%Y%k$B>$NJ8;zNs$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%*%W%7%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$$$^$9!#:G8e$N2 DG $O!"256 ?'$Nsixel %+%i!<$r4]!9;HMQ$9$k **truecolor** %b!<%I$b%5%]!<%H%7%^9,!"G[I[5l$F$$$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$$$kh&$J>19g! "B>$NSVG %0%i%U%X$N; 2>H$H$N>WFM$rHr1k$?$a$K01OU E*$JL>A0$,I,MW$KJj$^$9! #$=$N>19g$O%*%W%7%g%s **name** $r; H$C$F8GM-$NL>A0$r3NJ]$7F/$@$5$$! #

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$9Y-G7$g&!#

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$$$F!"**set term tikz** $O**set term lua tikz** $N>JN,7A$G$9!#\:Y$O0J2<;2>H**term lua (p. 229)**!#=PNO7A<0$N%*%W%7%g%s$rI=<(5;kK$O!"**set term tikz help** $r;HMQ$7F/$@$5$$!#

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-49$($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$O!"=PNO%5%$%:$O 800 x 600 %T%/%;%k$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?'$NJd4V$,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%U$N$_$NI=<(HJj^9,!"%*%W%7%g%sH7$F **-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$$/D+$NJ}K!$r%5%]!<%H7F$$$^$9!#0J2<;2>H: **windows printing (p. 255)**!#windows =PNO7A<0$O!"%/%j%C%W%\!<%I$dEMF %U%!%$%k$rDL7FB>$N%W%m%0%i%`$H$N%G!<%?$N8r49$r%5%]!<%H$7$F$$$^$9!#0J2<;2>H: **graph-menu (p. 255)**!#EMF %U%!%$%k$r@8@.$9%k$K$O!"**emf** =PNO7A<0$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%&$rWindows %W%j%s%?%I%i%$%P$G%W%j%s%H%"%&%H!#%W%j%s%?$H3HBgN($NA*Br$,2DG=!#0J2<$b;2>H: **windows printing (p. 255)**!#

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=:_$OHs?d>)$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;HMQ7!"$hCFDI>c$O:G$b9bB.$G$9!#0u:~$dJ]B8!"%/%j%C%W%\!<%IX$N%3%T!<KO GDI+ $r;HMQ$7$^$9!#3l$O!"$=N&A$K%G%U%)%k%H$N%P%C%/(%s%IHJkG7g$&$,!"8=:_O^$@;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!#$3lOIA2h$rm/$/9k3H$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%&$G;H$&%U%)%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$rA*Br!#%F%-%9%H%&%#%s%I%&$+$i3l$r9T$J$&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$OL5;k5l$^$9!#%^%/%m3%^%s%I$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$7$J$$[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$O!"%f!<%6%1!<%7%g%s%G!<%?%G%#%l%/%H%jKCV-$^$9!#**wgnuplot.ini** %U%!%$%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. 256)**!#

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. 255)**!#

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$H! "IA2h%0%i%U$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$ODL>o$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$k?$a$K"$J$?$N Symbol %U%)%s%H$r8!:w$7! "$=$7$F 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%$%s%9%H! <%k%7$F! "Microsoft $N Symbol %U%)%s%H$r:o=|7J$$H$$1$J$$+b7l^$;$s! #"windings" $N%h$&$JB>$NHsI8=`%U%)%s%HGbF0:n9k3H,Js9p5l$F$$^$9!#

IA2h$N%l%s%@%j%s0$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

ButtonPress

```
  set term x11 window "220001e"
```

enhanced (p. 27))

gnuplot

close

reset

-persist

close

close

gnuplot_x11

GNUPLOT_DRIVER_DIR

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$CD>AK8zNO$r;}$A$^$9NG! "4{$K5/F0$7$F$$$k%I%i%$%P$N5sF'0$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$J:FIA2h$r9T$$^9N$G! "OHFb$r$h$je:No$K;H$CF/l^$9! #%j%5%$%:$N4V$N:FIA2hKh$k@x:_E*$JCPU XNIi2Y$,?4G[$GJ>19g! "3N%*%W%7%g%s$OIaDL$OK>$^$7$$bNG$9! #:FIA2h$O! "%[%C%H%-!<'e' $d'replot' %3%^%s%I%G<jF'0$G<B9T$9%k3H$b2DG=$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$N@5<0L>$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$GM-MQ$G7g$&!#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** $OCH>J,$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
```

$3$1iK4X9k%3%^%s%I%i%$%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$O!"gnuplot %P!<%8%g%s5 HCBg$-$/$:$l$F$$$^$9!#E,@Z$J visual %/%i%9$H?'?t$rA*Br9kNO!"X11 %"%W%j%1!<%7%g%sKHCF61$?7$/!"AgCHLq2pJ3HG$9!#$=lO X11 $,0[$J$k?<EY (depth) $N6 DN visual 7?$r%5%]!<%H7F$$$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;}$D visual %/%i%9>e$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!#$3$N$h$&$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`7m3AiNU}$rA*Br$9Y-G"kh$&$J>19g$G$9!#

X %5!<%P$NG=NC$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$O e-mail $G gnuplot-bugs %a!<%j%s%0%j%9%HXAwk$+!"$^$?$O SourceForge $N gnuplot %&%'%V%5%$%HK=$NJs9p$rEj9F7F$/$@$5$$!#$=$N:]!"$"$J$?$,;HMQ7F$$$k gnuplot $N%P!<%8%g%s$N40A4$J>pJs!"$=7F2DG=JiP=$N%P%0$r<B>Z9k%F%9%H%9%/%j%W%HrAwCF/$@$5$$!#0J2<;2>H: **seeking-assistance (p. 20)**!#

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

do $d **while** %k!<%W$NCf3g8IFb$G%$%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$5l?:BI8$O 24 ;~$G@^jJV7$^$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$N7+$jJV$7(iteration) $O!"G^2pJQ?t$N6J@~KBP7FO5!G=7^$;$s!#

X11 =PNO7A<0: UTF-8 %U%)%s%H$NA*Br$,:FqG$9!#$9YF$N x11 IA2h%&%#%s%I%&$KBP7F!"0lEYKO 1 DN%+%i!<%Q%l%C%HN_$,M-8z$G$9!#$3lO!"0[Jk%Q%l%C%H$r;HMQ$9$kIA2h$r4^s@ multiplot GO x11 >eGO@5$7$/I=<(5l$J$$$3Hr0UL#7^$9!#

Qt =PNO7A<0: 3 <!85GNB?3Q7A$d6JLL$N2sE>OCY/Jk2DG=@-$,$"j^9,!"3l$O Qt $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$7$+AcsHF0$+$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$7!"%S%G%*%+!<%I$d 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$K4^$^lk setlocale() $rMQ$$$F9T$&$N$G!"%m%1!<%k$NM-8z@-$d!"%m%1!<%k5!G=$N%5%]!<%H$N%l%Y%k(Nc$($P?t;z$N 3 7eKh$N6h@Z$jJ8;zJI) JI$O!"$"J?$N%3%s%T%e!<%?$,Ds6!9k9q:]2=$N%5%]!<%H$NEY9g$$$K0MB8$7$^$9!#

Part VI

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