decksh reference



Keywords

Structure	Text	Lists	Graphi	CS	Braces	Arrows
deck edeck slide eslide canvas def edef func grid import include	text btext ctext etext rtext arctext textblock textblockfile textfile textcode	list blist nlist clist li elist	acircle arc circle curve ellipse hline line pill	polygon polyline rect rrect square star vline	lbrace rbrace ubrace dbrace lbracket rbracket dbracket ubracket	arrow rcarrow lcarrow dcarrow
I mages	Charts	Loop	Assignr	nents	Math	Data
image cimage	dchart legend	for efor	polar polarx polary random	area format substr vmap	cosine sine sqrt tangent	data edata content

Keywords and arguments

keyword		arguments							
		mandatory				opti	ional		
text	"stri	ng"	X	у	n	"font"	"color"	op	
text	"hello,	world"	80	50	2				hello, world
text	"hello,	world"	80	40	2	"serif"			hello, world
text	"hello,	world"	80	30	2	"serif"	"red"		hello, world
text	"hello,	world"	80	20	2	"serif"	"red" 5	0	hello, world

Structure

```
// This is a comment
                                                       comment
                 deck
                     x=20 // define x 	inline comment y=80
      variables
        slide I text "first" x y 2
deck
                    eslide
                   slide "black" "white"
  include "file.dsh"

ctext "hello, w
circle 50 0 100
for x=20 80 10
  circle x 75
                                                       ctext "hello, world" 50 25 10
                                                       circle 50 0 100 "blue"
                                                          circle x 75 2
                      eslide
                                                       efor
                 edeck
```



Defining and using variables

name is thing x = 3.14159265 number

s = "hello" string

y = x another variable

x = a + b binary operation

x *= 10 assignment operator

text s x y 2 variable use

Binary operators

x = a + b

addition

x = a - b

subtraction

x = a * b

multiplication

x = a / b

division

Assignment operators

x += 10

x -= 10

x *= 10

x /= 10

increase x by 10

decrease x by 10

multiply x by 10

divide x by 10

Special Assignments

```
coordinates (p_x, p_y)
p=(expr, expr)
                                     polar coordinate (p x, p y)
p=polar cx cy r theta
                                     polar coordinate (x)
x=polarx cx cy r theta
                                     polar coordinate (y)
y=polary cx cy r theta
v=format string expr
                                     number formatting
v=substr string begin end
                                     substring
                                     random number
v=random v1 v2
v=vmap data v1 v2 v3 v4
                                     range map
v=area expr
                                     area
v=cosine expr
                                     cosine
v=sine expr
                                     sine
v=sqrt expr
                                     square root
v=tangent expr
                                     tangent
```

Variables and Assignments

```
// assign 10 to x
                 x = 10
     Using variables
                                // assign 80.45 to y
                  y=80.45
                  size=x/5
                              // x divided by 5 to size
                  s="Hello" // s has the string value 'Hello'
                  text s x y size // Use the variables
   Binary operations
                  a=100+200.7 // addition
                                  // subtraction
                  a = x - 10
                                  // multiplication
                  a=x*10
                  a=x/y
                                  // division
Assignment operations
                                  // increase x by 10
                  x + = 10
                                   // decrease x by 10
                  x = 10
                                   // multiply x by 10
                  x*=10
                                   // divide x by value of y
                  x/=y
```

Colors, fonts, opacity, gradient

Colors	Fonts		Opacity	(0-100)
"steelblue"	"sans"	Sans Serif	100	
"#4682b4"	"serif"	Serif	50	
"rgb(70,130,180)"	"mono"	Monospace	25	
"hsv(207,61,71)"	"symbol"	※※※※	10	

"red/blue/90"



(applies to rect and square only)

Color Index

name	hex	RGB	name	hex	RGB
aliceblue	#f0f8ff	rgb(240,248,255)	coral	#ff7f50	rgb(255,127,80)
antiquewhite	#faebd7	rgb(250,235,215)	cornflowerblue	#6495ed	rgb(100,149,237)
aqua	#00ffff	rgb(0,255,255)	cornsilk	#fff8dc	rgb(255,248,220)
aquamarine	#7fffd4	rgb(127,255,212)	crimson	#dc143c	rgb(220,20,60)
azure	#f0ffff	rgb(240,255,255)	cyan	#00ffff	rgb(0,255,255)
beige	#f5f5dc	rgb(245,245,220)		#00008b	rgb(0,0,139)
bisque	#ffe4c4	rgb(255,228,196)	darkcyan	#008b8b	rgb(0,139,139)
black	#000000	rgb(0,0,0)	darkgoldenrod	#b8860b	rgb(184,134,11)
blanchedalmond	#ffebcd	rgb(255,235,205)	darkgray	#a9a9a9	rgb(169,169,169)
	#0000ff	rgb(0,0,255)	darkgreen	#006400	rgb(0,100,0)
blueviolet	#8a2be2	rgb(138,43,226)	darkgrey	#a9a9a9	rgb(169,169,169)
brown	#a52a2a	rgb(165,42,42)	darkkhaki	#bdb76b	rgb(189,183,107)
burlywood	#deb887	rgb(222,184,135)	darkmagenta	#8b008b	rgb(139,0,139)
cadetblue	#5f9ea0	rgb(95,158,160)	darkolivegreen	#556b2f	rgb(85,107,47)
chartreuse	#7fff00	rgb(127,255,0)	darkorange	#ff8c00	rgb(255,140,0)
chocolate	#d2691e	rgb(210,105,30)	darkorchid	#9932cc	rgb(153,50,204)

Color Index (2)

name	hex	RGB	name	hex	RGB
darkred	#8b0000	rgb(139,0,0)	fuchsia	#ff00ff	rgb(255,0,255)
darksalmon	#e9967a	rgb(233,150,122)	gainsboro	#dcdcdc	rgb(220,220,220)
darkseagreen	#8fbc8f	rgb(143,188,143)	ghostwhite	#f8f8ff	rgb(248,248,255)
darkslateblue	#483d8b	rgb(72,61,139)	gold	#ffd700	rgb(255,215,0)
darkslategray	#2f4f4f	rgb(47,79,79)	goldenrod	#daa520	rgb(218,165,32)
darkslategrey	#2f4f4f	rgb(47,79,79)	gray	#808080	rgb(128,128,128)
darkturquoise	#00ced1	rgb(0,206,209)	green	#008000	rgb(0,128,0)
darkviolet	#9400d3	rgb(148,0,211)	greenyellow	#adff2f	rgb(173,255,47)
deeppink	#ff1493	rgb(255,20,147)	grey	#808080	rgb(128,128,128)
deepskyblue	#00bfff	rgb(0,191,255)	honeydew	#f0fff0	rgb(240,255,240)
dimgray	#696969	rgb(105,105,105)	hotpink	#ff69b4	rgb(255,105,180)
dimgrey	#696969	rgb(105,105,105)	indianred	#cd5c5c	rgb(205,92,92)
dodgerblue	#1e90ff	rgb(30,144,255)		#4b0082	rgb(75,0,130)
firebrick	#b22222	rgb(178,34,34)	ivory	#fffff0	rgb(255,255,240)
floralwhite	#fffaf0	rgb(255,250,240)	khaki	#f0e68c	rgb(240,230,140)
forestgreen	#228b22	rgb(34,139,34)	lavender	#e6e6fa	rgb(230,230,250)

Color Index (3)

name	hex	RGB	name	hex	RGB
lavenderblush	#fff0f5	rgb(255,240,245)	lightsteelblue	#b0c4de	rgb(176,196,222)
lawngreen	#7cfc00	rgb(124,252,0)	lightyellow	#ffffe0	rgb(255,255,224)
lemonchiffon	#fffacd	rgb(255,250,205)	lime	#00ff00	rgb(0,255,0)
lightblue	#add8e6	rgb(173,216,230)	limegreen	#32cd32	rgb(50,205,50)
lightcoral	#f08080	rgb(240,128,128)	linen	#faf0e6	rgb(250,240,230)
lightcyan	#e0ffff	rgb(224,255,255)	magenta	#ff00ff	rgb(255,0,255)
lightgoldenrodyellow	#fafad2	rgb(250,250,210)	maroon	#800000	rgb(128,0,0)
lightgray	#d3d3d3	rgb(211,211,211)	mediumaquamarine	#66cdaa	rgb(102,205,170)
lightgreen	#90ee90	rgb(144,238,144)		#0000cd	rgb(0,0,205)
lightgrey	#d3d3d3	rgb(211,211,211)	mediumorchid	#ba55d3	rgb(186,85,211)
lightpink	#ffb6c1	rgb(255,182,193)	mediumpurple	#9370db	rgb(147,112,219)
lightsalmon	#ffa07a	rgb(255,160,122)	mediumseagreen	#3cb371	rgb(60,179,113)
lightseagreen	#20b2aa	rgb(32,178,170)	mediumslateblue	#7b68ee	rgb(123,104,238)
lightskyblue	#87cefa	rgb(135,206,250)	mediumspringgreen	#00fa9a	rgb(0,250,154)
lightslategray	#778899	rgb(119,136,153)	mediumturquoise	#48d1cc	rgb(72,209,204)
lightslategrey	#778899	rgb(119,136,153)	mediumvioletred	#c71585	rgb(199,21,133)

Color Index (4)

name	hex	RGB	name	hex	RGB
	#191970	rgb(25,25,112)	papayawhip	#ffefd5	rgb(255,239,213)
mintcream	#f5fffa	rgb(245,255,250)	peachpuff	#ffdab9	rgb(255,218,185)
mistyrose	#ffe4e1	rgb(255,228,225)	peru	#cd853f	rgb(205,133,63)
moccasin	#ffe4b5	rgb(255,228,181)	pink	#ffc0cb	rgb(255,192,203)
navajowhite	#ffdead	rgb(255,222,173)	plum	#dda0dd	rgb(221,160,221)
	#000080	rgb(0,0,128)	powderblue	#b0e0e6	rgb(176,224,230)
oldlace	#fdf5e6	rgb(253,245,230)	purple	#800080	rgb(128,0,128)
olive	#808000	rgb(128,128,0)	red	#ff0000	rgb(255,0,0)
olivedrab	#6b8e23	rgb(107,142,35)	rosybrown	#bc8f8f	rgb(188,143,143)
orange	#ffa500	rgb(255,165,0)	royalblue	#4169e1	rgb(65,105,225)
orangered	#ff4500	rgb(255,69,0)	saddlebrown	#8b4513	rgb(139,69,19)
orchid	#da70d6	rgb(218,112,214)	salmon	#fa8072	rgb(250,128,114)
palegoldenrod	#eee8aa	rgb(238,232,170)	sandybrown	#f4a460	rgb(244,164,96)
palegreen	#98fb98	rgb(152,251,152)	seagreen	#2e8b57	rgb(46,139,87)
paleturquoise	#afeeee	rgb(175,238,238)	seashell	#fff5ee	rgb(255,245,238)
palevioletred	#db7093	rgb(219,112,147)	sienna	#a0522d	rgb(160,82,45)

Color Index (5)

name	hex	RGB	name
silver	#c0c0c0	rgb(192,192,192)	whitesmoke
skyblue	#87ceeb	rgb(135,206,235)	yellow
slateblue	#6a5acd	rgb(106,90,205)	yellowgreen
slategray	#708090	rgb(112,128,144)	
slategrey	#708090	rgb(112,128,144)	
snow	#fffafa	rgb(255,250,250)	
springgreen	#00ff7f	rgb(0,255,127)	
steelblue	#4682b4	rgb(70,130,180)	
tan	#d2b48c	rgb(210,180,140)	
teal	#008080	rgb(0,128,128)	
thistle	#d8bfd8	rgb(216,191,216)	
tomato	#ff6347	rgb(255,99,71)	
turquoise	#40e0d0	rgb(64,224,208)	
violet	#ee82ee	rgb(238,130,238)	
wheat	#f5deb3	rgb(245,222,179)	
white	#ffffff	rgb(255,255,255)	

hex RGB #f5f5f5 rgb(245,245,245) #ffff00 rgb(255,255,0) #9acd32 rgb(154,205,50)

Neutrals

name	hex	RGB	name	hex	RGB
aliceblue	#f0f8ff	rgb(240,248,255)	dimgray	#696969	rgb(105,105,105)
antiquewhite	#faebd7	rgb(250,235,215)	dimgrey	#696969	rgb(105,105,105)
azure	#f0ffff	rgb(240,255,255)	floralwhite	#fffaf0	rgb(255,250,240)
beige	#f5f5dc	rgb(245,245,220)	gainsboro	#dcdcdc	rgb(220,220,220)
bisque	#ffe4c4	rgb(255,228,196)	ghostwhite	#f8f8ff	rgb(248,248,255)
black	#000000	rgb(0,0,0)	gray	#808080	rgb(128,128,128)
blanchedalmond	#ffebcd	rgb(255,235,205)	grey	#808080	rgb(128,128,128)
brown	#a52a2a	rgb(165,42,42)	honeydew	#f0fff0	rgb(240,255,240)
burlywood	#deb887	rgb(222,184,135)	ivory	#fffff0	rgb(255,255,240)
chocolate	#d2691e	rgb(210,105,30)	lavender	#e6e6fa	rgb(230,230,250)
cornsilk	#fff8dc	rgb(255,248,220)	lavenderblush	#fff0f5	rgb(255,240,245)
darkgray	#a9a9a9	rgb(169,169,169)	lightgray	#d3d3d3	rgb(211,211,211)
darkgrey	#a9a9a9	rgb(169,169,169)	lightgrey	#d3d3d3	rgb(211,211,211)
darksalmon	#e9967a	rgb(233,150,122)	lightslategray	#778899	rgb(119,136,153)
darkslategray	#2f4f4f	rgb(47,79,79)	lightslategrey	#778899	rgb(119,136,153)
darkslategrey	#2f4f4f	rgb(47,79,79)	linen	#faf0e6	rgb(250,240,230)

Neutrals (2)

name	hex	RGB	name
mintcream	#f5fffa	rgb(245,255,250)	slategrey
mistyrose	#ffe4e1	rgb(255,228,225)	snow
moccasin	#ffe4b5	rgb(255,228,181)	tan
navajowhite	#ffdead	rgb(255,222,173)	wheat
oldlace	#fdf5e6	rgb(253,245,230)	white
papayawhip	#ffefd5	rgb(255,239,213)	whitesmoke
peachpuff	#ffdab9	rgb(255,218,185)	
peru	#cd853f	rgb(205,133,63)	
rosybrown	#bc8f8f	rgb(188,143,143)	
saddlebrown	#8b4513	rgb(139,69,19)	
salmon	#fa8072	rgb(250,128,114)	
sandybrown	#f4a460	rgb(244,164,96)	
seashell	#fff5ee	rgb(255,245,238)	
sienna	#a0522d	rgb(160,82,45)	
silver	#c0c0c0	rgb(192,192,192)	
slategray	#708090	rgb(112,128,144)	

hex	RGB
#708090	rgb(112,128,144)
#fffafa	rgb(255,250,250)
#d2b48c	rgb(210,180,140)
#f5deb3	rgb(245,222,179)
#ffffff	rgb(255,255,255)
#f5f5f5	rgb(245,245,245)

Reds

name	hex	RGB	name
coral	#ff7f50	rgb(255,127,80)	palevioletred
crimson	#dc143c	rgb(220,20,60)	pink
darkmagenta	#8b008b	rgb(139,0,139)	plum
darkred	#8b0000	rgb(139,0,0)	red
deeppink	#ff1493	rgb(255,20,147)	thistle
firebrick	#b22222	rgb(178,34,34)	tomato
fuchsia	#ff00ff	rgb(255,0,255)	
hotpink	#ff69b4	rgb(255,105,180)	
indianred	#cd5c5c	rgb(205,92,92)	
lightcoral	#f08080	rgb(240,128,128)	
lightpink	#ffb6c1	rgb(255,182,193)	
lightsalmon	#ffa07a	rgb(255,160,122)	
magenta	#ff00ff	rgb(255,0,255)	
maroon	#800000	rgb(128,0,0)	
orangered	#ff4500	rgb(255,69,0)	
orchid	#da70d6	rgb(218,112,214)	

hex RGB #db7093 rgb(219,112,147) #ffc0cb rgb(255,192,203) #dda0dd rgb(221,160,221) #ff0000 rgb(255,0,0) #d8bfd8 rgb(216,191,216) #ff6347 rgb(255,99,71)

Greens

name	hex	RGB	name
aquamarine	#7fffd4	rgb(127,255,212)	olive
chartreuse	#7fff00	rgb(127,255,0)	olivedrab
darkgreen	#006400	rgb(0,100,0)	palegreen
darkkhaki	#bdb76b	rgb(189,183,107)	seagreen
darkolivegreen	#556b2f	rgb(85,107,47)	springgreen
darkseagreen	#8fbc8f	rgb(143,188,143)	teal
forestgreen	#228b22	rgb(34,139,34)	yellowgreen
green	#008000	rgb(0,128,0)	
greenyellow	#adff2f	rgb(173,255,47)	
lawngreen	#7cfc00	rgb(124,252,0)	
lightgreen	#90ee90	rgb(144,238,144)	
lightseagreen	#20b2aa	rgb(32,178,170)	
lime	#00ff00	rgb(0,255,0)	
limegreen	#32cd32	rgb(50,205,50)	
mediumseagreen	#3cb371	rgb(60,179,113)	
mediumspringgreen	#00fa9a	rgb(0,250,154)	

#808000 rgb(128,128,0)
#6b8e23 rgb(107,142,35)
#98fb98 rgb(152,251,152)
#2e8b57 rgb(46,139,87)
#00ff7f rgb(0,255,127)
#008080 rgb(0,128,128)
#9acd32 rgb(154,205,50)

Blues

name	hex	RGB	name	hex	RGB
aqua	#00ffff	rgb(0,255,255)		#0000cd	rgb(0,0,205)
	#0000ff	rgb(0,0,255)	mediumslateblue	#7b68ee	rgb(123,104,238)
cadetblue	#5f9ea0	rgb(95,158,160)	mediumturquoise	#48d1cc	rgb(72,209,204)
cornflowerblue	#6495ed	rgb(100,149,237)		#191970	rgb(25,25,112)
cyan	#00ffff	rgb(0,255,255)		#000080	rgb(0,0,128)
	#00008b	rgb(0,0,139)	paleturquoise	#afeeee	rgb(175,238,238)
darkcyan	#008b8b	rgb(0,139,139)	powderblue	#b0e0e6	rgb(176,224,230)
darkslateblue	#483d8b	rgb(72,61,139)	royalblue	#4169e1	rgb(65,105,225)
darkturquoise	#00ced1	rgb(0,206,209)	skyblue	#87ceeb	rgb(135,206,235)
deepskyblue	#00bfff	rgb(0,191,255)	slateblue	#6a5acd	rgb(106,90,205)
dodgerblue	#1e90ff	rgb(30,144,255)	steelblue	#4682b4	rgb(70,130,180)
lightblue	#add8e6	rgb(173,216,230)	turquoise	#40e0d0	rgb(64,224,208)
lightcyan	#e0ffff	rgb(224,255,255)			
lightskyblue	#87cefa	rgb(135,206,250)			

#b0c4de rgb(176,196,222)

#66cdaa rgb(102,205,170)

lightsteelblue

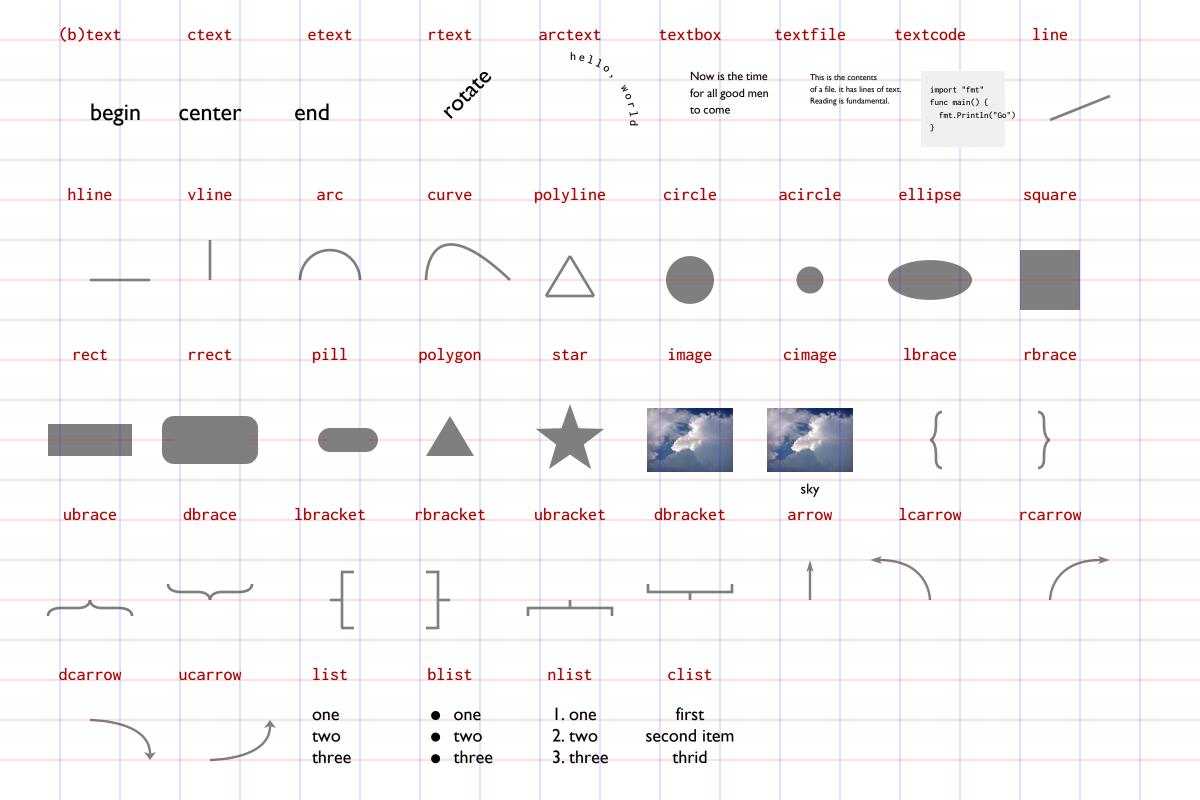
mediumaquamarine

Violets

name	hex	RGB
blueviolet	#8a2be2	rgb(138,43,226)
darkorchid	#9932cc	rgb(153,50,204)
darkviolet	#9400d3	rgb(148,0,211)
	#4b0082	rgb(75,0,130)
mediumorchid	#ba55d3	rgb(186,85,211)
mediumpurple	#9370db	rgb(147,112,219)
mediumvioletred	#c71585	rgb(199,21,133)
purple	#800080	rgb(128,0,128)
violet	#ee82ee	rgb(238,130,238)

Yellows

name	hex	RGB
darkgoldenrod	#b8860b	rgb(184,134,11)
darkorange	#ff8c00	rgb(255,140,0)
gold	#ffd700	rgb(255,215,0)
goldenrod	#daa520	rgb(218,165,32)
khaki	#f0e68c	rgb(240,230,140)
lemonchiffon	#fffacd	rgb(255,250,205)
lightgoldenrodyellow	#fafad2	rgb(250,250,210)
lightyellow	#ffffe0	rgb(255,255,224)
orange	#ffa500	rgb(255,165,0)
palegoldenrod	#eee8aa	rgb(238,232,170)
yellow	#ffff00	rgb(255,255,0)



Textual Elements

description	keyword	mandatory	optional
Left-aligned	text	"" x y fontsize	font color op link
Centered	ctext	"" x y fontsize	font color op link
End-aligned	etext	"" x y fontsize	font color op link
Rotated	rtext	"" x y angle fontsize	font color op link
Text on an arc	arctext	"" x y rad a1 a2 fontsize	font color op link
Block text	textblock	"" x y w fontsize	font color op link
Block text from file	textblockfile	"file" x y w fontsize	font color op link
File contents	textfile	"file" x y fontsize	font color op spacin
Code listing	textcode	"file" x y w fontsize	font color

text "..." x y fontsize font color op link

abc

abc

text "abc" 20 20 4

text "abc" 75 20 7 "mono" "maroon"



ctext "..." x y fontsize font color op link

abc

abc

ctext "abc" 20 20 4

ctext "abc" 80 20 7 "mono" "maroon"

hello, world (x,y)

etext "..." x y fontsize font color op link

abc

abc

etext "abc" 20 20 4

etext "abc" 80 20 7 "mono" "maroon"

(x,y)

rtext "..." x y angle fontsize font color op link

abc

abc

ctext 20 20 30 3 ctext 50 20 90



arctext "..." x y radius a1 a2 fontsize font color op link

arctext "What is up" 25 20 10 180 90 3 "mono" arctext "This is curvy" 75 30 10 180 360 3 "mono"

(x,y) "Where justice is denied, where poverty is enforced, where ignorance prevails, and where any one class is made to feel that society is an organized conspiracy to oppress, rob and degrade them, neither persons nor property will be safe."

textblock "..." x y w fontsize font color op link

"Where justice is denied, where poverty is enforced, where ignorance prevails, and where any one class is made to feel that society is an organized conspiracy to oppress, rob and degrade them, neither persons nor property will be safe."

"Where justice is denied, where poverty is enforced, where ignorance prevails, and where any one class is made to feel that society is an organized conspiracy to oppress, rob and degrade them, neither persons nor property will be safe."

textblock "..." 10 35 30 2

textblock "..." 50 35 10 1 "sans" "maroon"

(x,y) This is the contents
of a file. it has lines of text.
Reading is fundamental.

textfile "..." x y fontsize font color op link

This is the contents of a file. it has lines of text. Reading is fundamental.

```
import "fmt"
func main() {
  fmt.Println("Go")
}
```

textfile "example.txt" 10 35 2

textfile "hw-go" 55 35 1.6 "mono" "maroon"

```
import "fmt"
func main() {
  fmt.Println("Go")
}
```

textcode "..." x y w fontsize font color

```
import "fmt"
func main() {
  fmt.Println("Go")
}
```

```
import "fmt"
func main() {
  fmt.Println("Go")
}
```

textcode "hw-go" 10 35 25 1.0

textcode "hw-go" 55 35 40 1.6 "maroon"

Graphical Elements

doscription	konnard	mandatany	optional
description	keyword	mandatory	optional
Line	line	x1 y1 x2 y2 lw	color op
Horizontal line	hline	x y w	lw color op
Vertical line	vline	x y h	lw color op
Elliptical arc	arc	x y w h a1 a2	lw color op
Quadratic Bezier	curve	bx by cx cy ex ey	lw color op
Circle	circle	x y w	color op
Area circle	acircle	x y area	color op
Ellipse	ellipse	x y w h	color op
Square	square	x y w	color op
Rectangle	rect	x y w h	color op
Rounded rectangle	rrect	x y w h radius	color
Pill shape	pill	x y w h	color
Polygon	polygon	"x1 x2xn" "y1 y2yn"	color op
Polyline	polyline	"x1 x2xn" "y1 y2yn"	lw color op
N-sided star	star	x y sides inner outer	color op



line x1 y1 x2 y2 lw color op



line 10 20 30 20

line 40 20 60 30 0.5

line 70 20 95 30 1.5 "maroon"



hline x y w lw color op

hline 15 20 10

hline 40 20 20 1

hline 70 20 20 5 "maroon" 20



vline x y w lw color op





arc x y w h a1 a2 lw color op



arc 20 20 15 15 0 180

arc 50 20 15 15 0 90 1 arc 80 20 5 5 0 180 5 "maroon"



curve bx by cx cy ex ey lw color op









circle x y w color op







circle 80 20 5 "maroon" 20



circle x y area color op







ellipse x y w h color op





square x y w color op









rect x y w h color op





rrect x y w h radius color op







pill x y w h color



pill 20 20 10 5





polygon x1 x2...xn" "y1 y2...yn color op







polyline x1 x2...xn" "y1 y2...yn lw color op







star x y sides inner outer color op







Images

description	keyword	mandatory	optional
Image	image	"file" x y w h	scale "link"
Captioned image	cimage	"file" "caption" x y w h	scale "link" capsize
		If h = 0, w specifies the image width in terms of canvas width.	The scale value is a percentage from 1-100, and link is a URL. capsize is the text size of the caption



image x y w h scale link





image "follow.jpg" 75 25 640 480 30



cimage x y w h scale link



sky



sky

cimage "cloudy.jpg" "sky" 75 25 640 480 30 "" 1.5

Lists

description	keyword	mandatory	optional
Plain list	list	x y fontsize	font color op spacing
Bullet list	blist	x y fontsize	font color op spacing
Numbered list	nlist	x y fontsize	font color op spacing
Centered list	clist	x y fontsize	font color op spacing

list x y fs
(x,y) li "first"
li "second"
li "third"
elist

list x y fontsize font color op spacing

```
list 20 30 2.5
                                     list 85 30 2.5 "serif" "maroon" 100 1.0
                 one
                                                                                  one
                                                                                  two
   li "one"
                                         li "one"
                                                                                  three
                two
   li "two"
                                         li "two"
   li "three"
                                         li "three"
                 three
elist
                                     elist
```

```
blist x y fs
(x,y) li "first"
    li "second"
    li "third"
    elist
```

blist x y fontsize font color op spacing

```
nlist x y fs
(x,y) li "first"
li "second"
li "third"
elist
```

nlist x y fontsize font color op spacing

clist x y fs
(x,y) li "first"
li "second"
li "third"
elist

clist x y fontsize font color op spacing

```
first one
                                                                                       first
clist 30 30 2.5
                                           clist 90 30 2.5 "serif" "maroon" 100 1.0
                                                                                       next
    li "first one"
                                               li "first"
                                                                                     and last
                         next
   li "next"
                                               li "next"
    li "and last"
                                               li "and last"
                       and last
elist
                                           elist
```

Arrows

description	keyword	mandatory	optional
Straight	arrow	x1 y1 x2 y2	lw aw ah color op
Left curved	lcarrow	bx by cx cy ex ey	lw aw ah color op
Right curved	rcarrow	bx by cx cy ex ey	lw aw ah color op
Up curved	ucarrow	bx by cx cy ex ey	lw aw ah color op
Down curved	dcarrow	bx by cx cy ex ey	lw aw ah color op



arrow x1 y1 x2 y2 lw aw ah color op



arrow 10 20 30 20

arrow 40 20 60 30 0.5 arrow 70 20 95 30 1.5 6 6 "maroon"



lcarrow bx by cx cy ex ey lw aw ah color op



lcarrow 30 20 30 35 15 35

lcarrow 70 20 70 35 55 35 1 5 5 "maroon"



rcarrow bx by cx cy ex ey lw aw ah color op





rcarrow 15 20 15 35 30 35

rcarrow 50 20 50 35 70 35 1 5 5 "maroon"



ucarrow bx by cx cy ex ey lw aw ah color op





ucarrow 15 20 30 20 30 35

rcarrow 50 20 70 20 70 35 1 5 5 "maroon"



dcarrow bx by cx cy ex ey lw aw ah color op





dcarrow 15 35 30 30 20

dcarrow 50 35 70 35 70 20 1 5 5 "maroon"

Braces and Brackets

description	keyword	mandatory	optional
Left brace	lbrace	x y height bw bh	lw color op
Right brace	rbrace	x y height bw bh	lw color op
Up brace	ubrace	x y width bw bh	lw color op
Down brace	dbrace	x y width bw bh	lw color op
Left bracket	lbracket	x y width height	lw color op
Right bracket	rbracket	x y width height	lw color op
Up bracket	ubracket	x y width height	lw color op
Down bracket	dbracket	x y width height	lw color op



lbrace x y height bw bh lw color op





rbrace x y height bw bh lw color op





ubrace x y width bw bh lw color op









dbrace x y width bw bh lw color op





lbracket x y width height lw color op





rbracket x y width height lw color op





ubracket x y width height lw color op





dbracket x y width height lw color op



Loop, Built-ins, Data, Function and Grid

description	keyword	mandatory
Loop	for v=	begin end [increment] efor
Coordinate	p=	(x,y)
Polar coordinate (x)	x=polarx	x y radius angle
Polar coordinate (y)	y=polary	x y radius angle
Polar coordinates	value=polar	x y radius angle
Area	value=area	expression
Formatted text	value=format	fmt expression
Substring	value=substr	string begin end
Random number	value=random	min max
Square Root	value=sqrt	expression
Value mapping	value=vmap	data min1 max1 min2 max2
Define function	def	name arg1 argn edef
Import function	import	"file"
In-line data	data	"file" edata
Objects on a grid	grid	"file" x y hspace vspace edge

for v=begin end [increment]
...items to repeat using v
efor

for v=begin end increment ...efor







px=polarx x y radius theta
py=polary x y radius theta

cpx=60
cpy=20
px1=polarx cpx cpy 10 30
py1=polary cpx cpy 10 30
line cpx cpy px1 py1
circle cpx cpy 1 "gray"
circle px1 py1 2 "maroon"





p=polar x y radius theta

```
cpx=60
cpy=20
point=polar cpx cpy 10 30
line cpx cpy point_x point_y
circle cpx cpy 1 "gray"
circle point_x point_y 2 "maroon"
```



value=area expression

```
m1=100
m2=200
a1=area m1
a2=area m2
circle 60 20 a1 "maroon"
circle 80 20 a2
```

value=format fmt expression

```
v1=100.3
v2=200.234
title=format "%.2f Million (USD)" v1
subtitle=format "Total value: %.2f" v1+v2
ctext title     80 30 4 "sans" "maroon"
ctext subtitle 80 20 3 "sans" "gray"
```

100.30 Million (USD)

Total value: 300.53

value=substr string begin end

```
now="Now is the time for all good men"

$1=$ubstr now 0 14

$2=$ubstr now 16 18

$3=$ubstr now 24 end

$ctext $1 70 34 3

$ctext $2 70 24 3

$ctext $3 70 15 3
```



min

max

value=random min max

rx1=random 5 30
ry1=random 15 35
circle rx1 ry1 3 "maroon"

rx2=random 40 60
ry2=random 15 35
circle rx2 ry2 3 "green"

rx1=random 75 95
ry1=random 15 35
circle rx3 ry3 3 "blue"

$$a=10$$
 $b=71$
 $x=sqrt 4$
 $y=sqrt a$
 $y=3.1622776$
 $x=sqrt a+b$

value=sqrt number or expression

```
a_squared=10*10
b_squared=20*20
c=sqrt a_squared + b_squared
w=70+10
h=15+20
polygon "70 w 70" "15 15 h"
clabel=format "c = %.1f" c
text clabel 76 25 2
```





value=vmap data min1 max1 min2 max2

```
yrmin=1776
yrmax=2021
smin=60
smax=90
vp=vmap 1945 yrmin yrmax smin smax
line    smin 20 smax 20 0.5 "gray" 20
circle smin 20 1
circle smax 20 1
circle vp 20 2 "maroon"
```

import "doit.dsh"

```
contents of "doit.dsh"

def doit fx fy fs ft
    ctext ft fx fy fs "serif" "purple"
edef

edef

ctext ft fx fy fs "serif" "purple"

ctext ft fx fy fs "serif" "purple"

ctext ft fx fy fs "serif" "purple"
```

import "file"

calling the function call again

```
doit 50 30 5 "calling the function"
doit 50 20 4 "call again"
```

data "file.d" ← data file
first 20
second 100 data values
third 200
edata

data "file" ... edata





grid "file" x y hspace vspace limit



Charts

description	keyword	arguments
Charts	dchart	options "file" (see next page)
Chart Legends	legend	"text" x y size font color

Chart Types

-bar	true	bar chart
-wbar	false	word bar chart
-hbar	false	horizontal bar chart
-donut	false	donut chart
-dot	false	dot chart
-lego	false	lego chart
-line	false	line chart
-pgrid	false	proportional grid
-pmap	false	proportional map
-bowtie	false	bowtie chart
-fan	false	fan chart
-radial	false	radial chart
-scatter	false	scatter chart
-slope	false	slope chart
-vol	false	volume (area) chart

Chart Elements

-csv	false	read CSV files
-frame	false	show a colored frame
-fulldeck	true	generate full deck markup
-grid	false	show gridlines on the y axis
-note	true	show annotations
-pct	false	show computed percentage
-rline	false	show a regression line
-solidpmap	false	show solid pmap colors
-spokes	false	show spokes in radial chart
-title	true	show the title
-val	true	show values
-xlast	false	show the last x label
-xstagger	false	stagger x axis labels
-yaxis	false	show a y axis
-chartitle	override title in data	specify the title
-datacond	low,high,color	conditional data colors
-hline	value,label	label horizontal line at value
-valpos	t=top, b=bottom, m=middle	value position
-xlabel	default=1, 0 to suppress	x axis label interval
-yrange	min,max.step	specify the y axis label range

Position and Scaling

-top	80	top of the chart
-bottom	30	bottom of the chart
-left	20	left margin
-right	80	right margin
-min	data min	set the minimum data value
-max	data max	set the maximum data value

Measures and Attributes

-bgcolor	white	background color
-barwidth	computed from data size	barwidth
-color	lightsteelblue	data color
-csvcol	labe I, label2	specify csv columns
-datafmt	%. I f	data format for values
-dmin	false	use data minimum, not zero
-framecolor	rgb(127,127,127)	frame color
-lcolor	rgb(75,75,75)	label color
-linewidth	0.2	linewidth
-ls	2.4	linespacing
-noteloc	c=center, r=right, l=left	annotation location
-pmlen	20	pmap label length
-psize	30	diameter of the donut
-pwidth	3	width of the donut or pmap
-rlcolor	rgb(127,0,0)	regression line color
-textsize	1.5	text size
-xlabrot	0	xlabel rotation (deg.)
-vcolor	rgb(127,0,0)	value color
-volop	50	volume opacity %

dchart types



























dchart options "file"



dchart -left=10 -right=30 -top=35 -bottom=20 "test.d"

dchart -left=55 -right=85 -top=35 -bottom=20 -bar=f -line "test.d"



legend x y fontsize font color

■ Item on the chart

■ Thing