

# Introduction to R

## Simple plots

Arni Magnusson

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# Outline

- 1 Types - plot, barplot, hist, boxplot
- 2 Interface - vectors, formula, special object
- 3 Annotation - points, lines, text
- 4 Details - axis, symbol, color, size, multipanel

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# Plot types

```
plot(x, y)  
    plot(cars$speed, cars$dist)
```

```
barplot(x)  
    barplot(cars$dist)
```

```
hist(x)  
    hist(cars$dist)
```

```
boxplot(x)  
    boxplot(cars$dist)
```

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# Plot interface

```
plot(x, y)
```

```
plot(cars$speed, cars$dist)
```

```
plot(y~x, data=obj)
```

```
plot(dist~speed, data=cars)
```

```
plot(obj)
```

```
plot(cars) # data frame
```

```
cars.lm <- lm(dist~speed, data=cars)
```

```
par(mfrow=c(2,2))
```

```
plot(cars.lm) # lm
```

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# Plot annotation

```
points(x, y)
```

```
lines(x, y)
```

```
abline(a, b)
```

```
abline(obj)
```

```
abline(h)
```

```
abline(v)
```

```
text(x, y, label)
```



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## Plot details

<code>main</code>	<code>xlab</code>	<code>ylab</code>	label
<code>xlim</code>	<code>ylim</code>		axis limits
<code>lty</code>	<code>lwd</code>		line
<code>pch</code>			symbol
<code>col</code>			color
<code>cex</code>			size
<code>type</code>			type

# Colors

In S-Plus, the user specified a color using a [number](#):

```
barplot(1, col=6)
```

In R, it's easiest to specify a color by its [name](#):

```
barplot(1, col="darkgreen")
```

To show all recognized color names:

```
colors()
```

# Multipanel

## Rows and columns

```
par(mfrow=c(2, 3))
```

```
plot(0, main=1)
```

```
plot(0, main=2)
```

```
plot(0, main=3)
```

```
plot(0, main=4)
```

```
plot(0, main=5)
```

```
plot(0, main=6)
```

# Help page

Complete list of all graphical parameters

?par

## Example

```
plot(c(1,10), c(1,100),  
     main="title", xlab="x", ylab="y",  
     xlim=c(0,20), ylim=c(0,120),  
     pch=3, lwd=5, col="orange", cex=2)
```

```
lines(c(5,15), c(50,60), lty=2, lwd=5, col="purple")
```

```
text(10, 20, "here", col="brown")
```

```
?par
```