

# Lesson 1: R Basics

# This Lesson's Goals

Make an R Project

Commit to Git

Push to Bitbucket

Read in and manipulate data

Make a figure and save to PDF

Create an R Markdown document

variable

	<b>group</b>	<b>type</b>	<b>rt</b>
<b>1</b>	monolingual	<i>NA</i>	910.7722
<b>2</b>	monolingual	<i>NA</i>	887.0629
<b>3</b>	monolingual	<i>NA</i>	886.0760
<b>4</b>	monolingual	<i>NA</i>	906.1512
<b>5</b>	monolingual	<i>NA</i>	897.7662

data frame

<b>396</b>	bilingual	low	1097.7236
<b>397</b>	bilingual	low	1096.9753
<b>398</b>	bilingual	low	1106.9358
<b>399</b>	bilingual	low	1103.2768
<b>400</b>	bilingual	low	1105.4625

levels of  
a variable

# There are lots of ways to do the same thing in R

data frame	data
variable	group
two levels	monolingual, bilingual

```
data_bl = data[data$group == "bilingual",]
```

```
data_bl = subset(data, group == "bilingual")
```

```
data_bl = data %>%  
  filter(group == "bilingual")
```

**dplyr**

**dplyr**

data\_b1



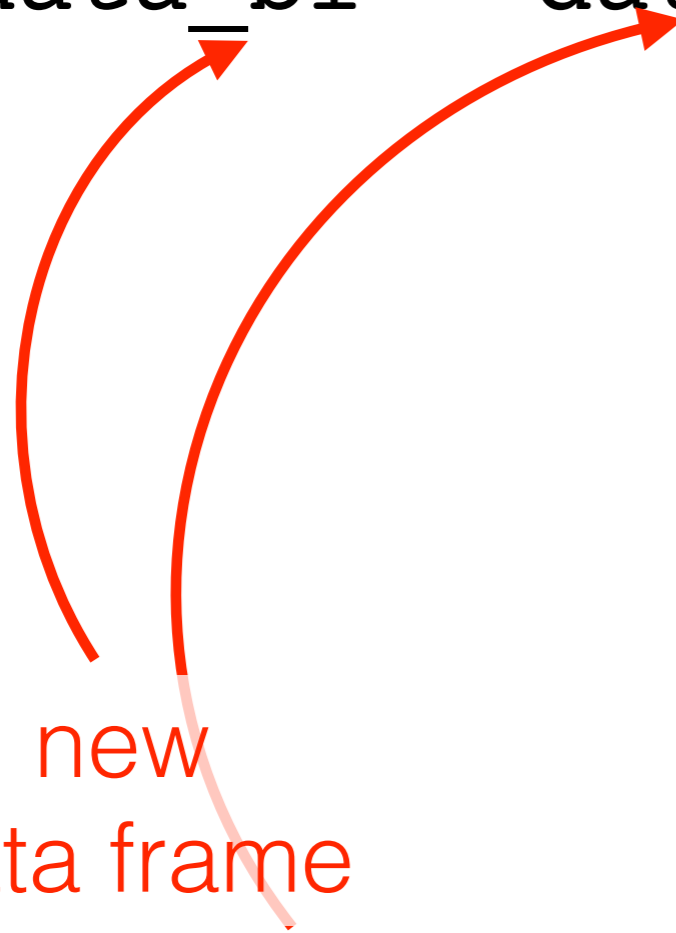
new  
data frame

**dplyr**

`data_b1 = data`

new  
data frame

original  
data frame



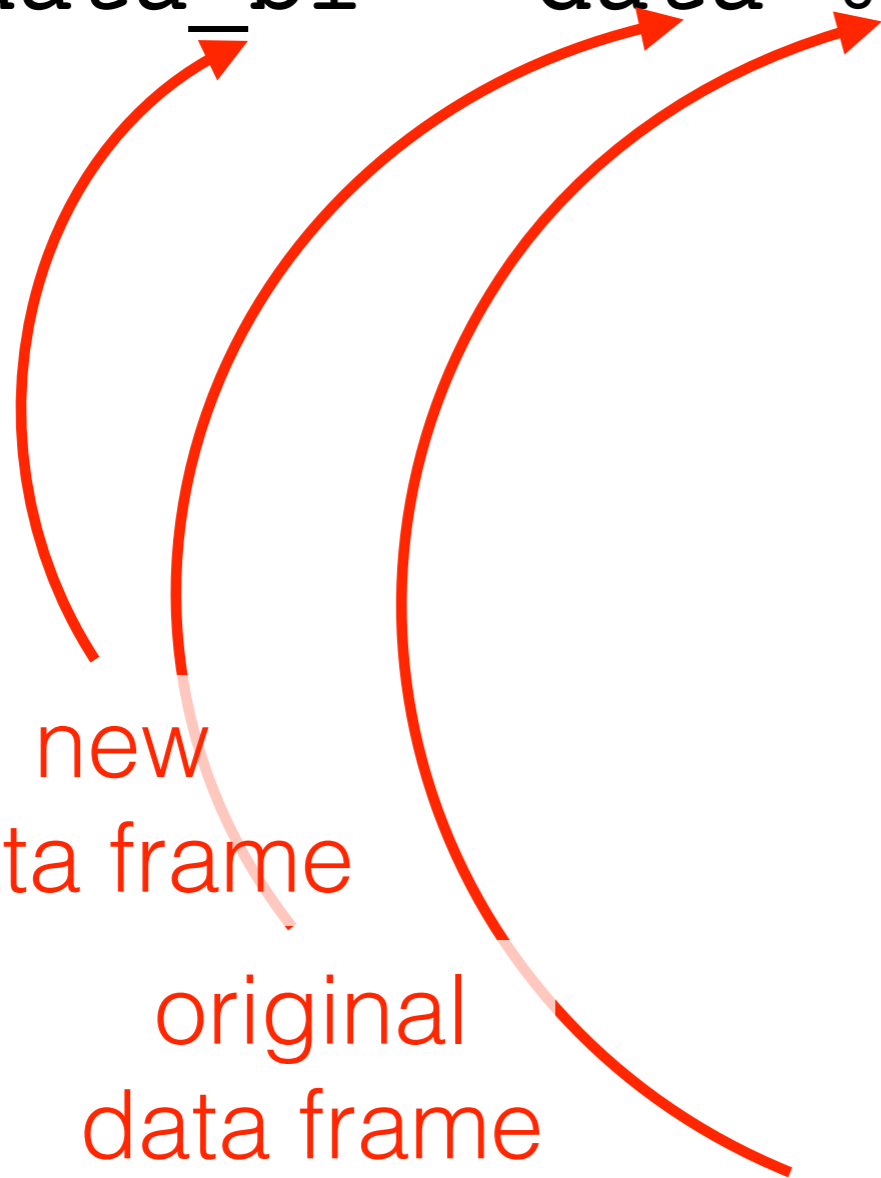
# dplyr

```
data_b1 = data %>%
```

new  
data frame

original  
data frame

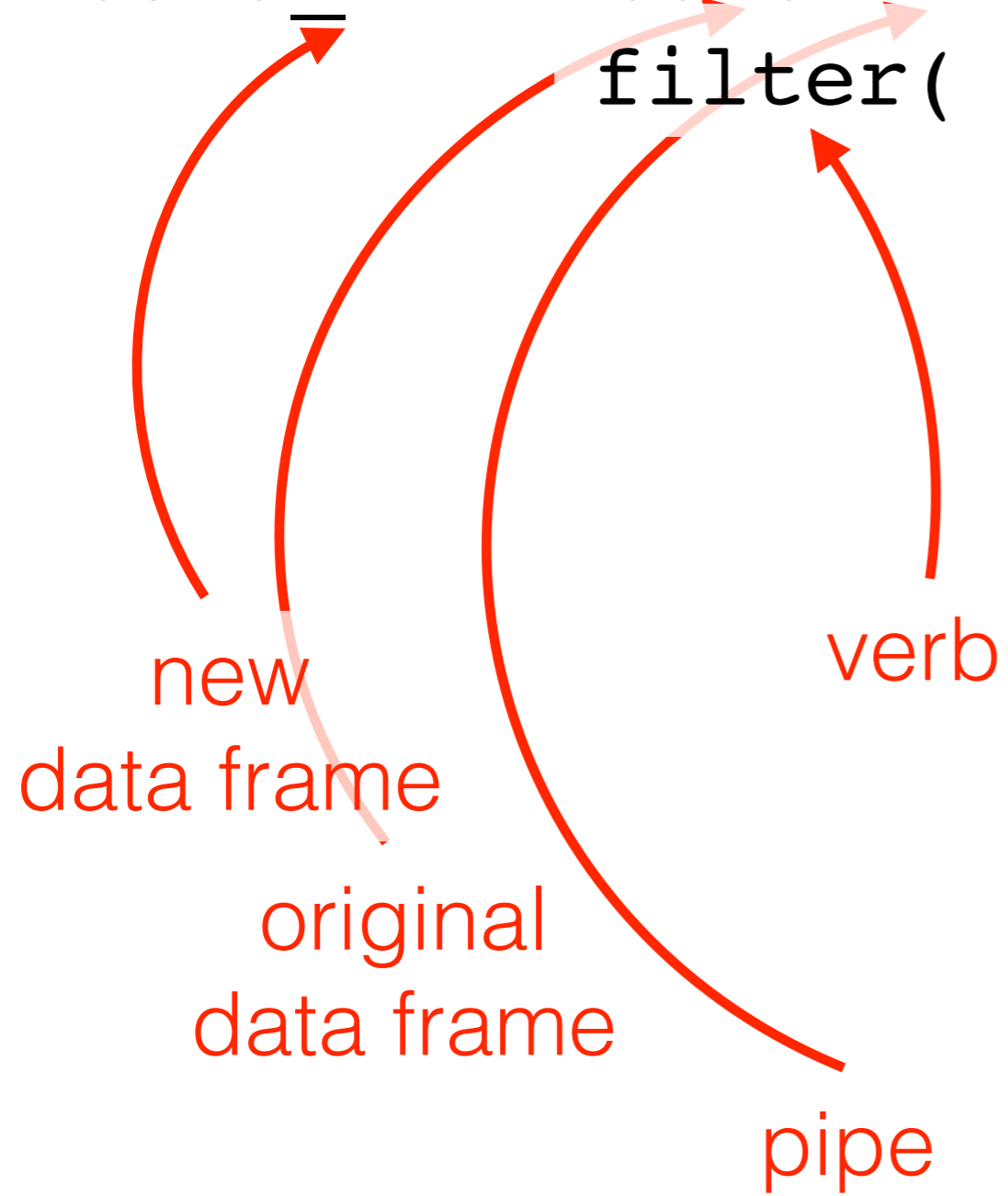
pipe





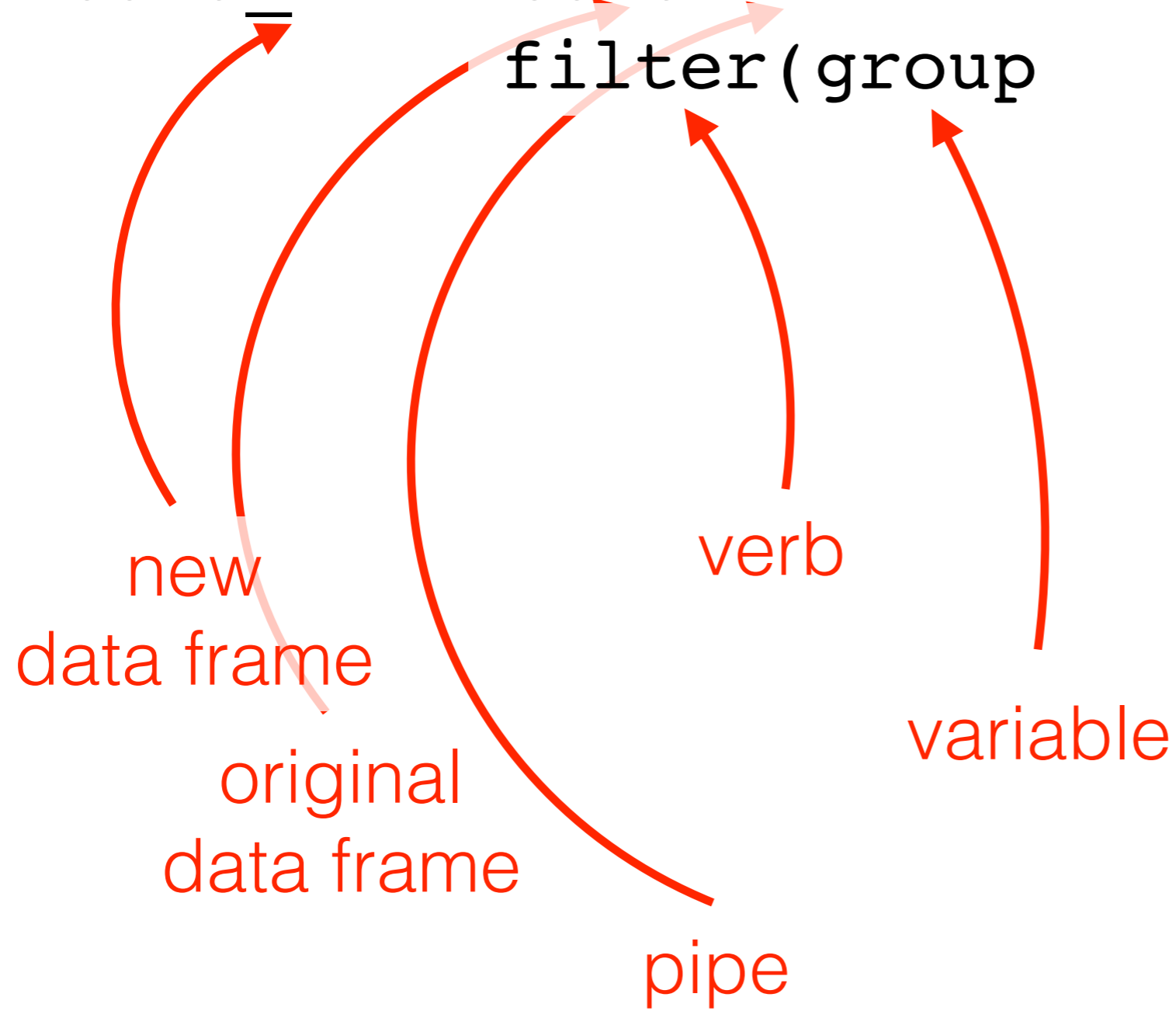
# dplyr

```
data_b1 = data %>%  
  filter( )
```



# dplyr

```
data_b1 = data %>%  
  filter(group )
```



# dplyr

```
data_bl = data %>%
```

```
  filter(group == "bilingual")
```

new  
data frame

original  
data frame

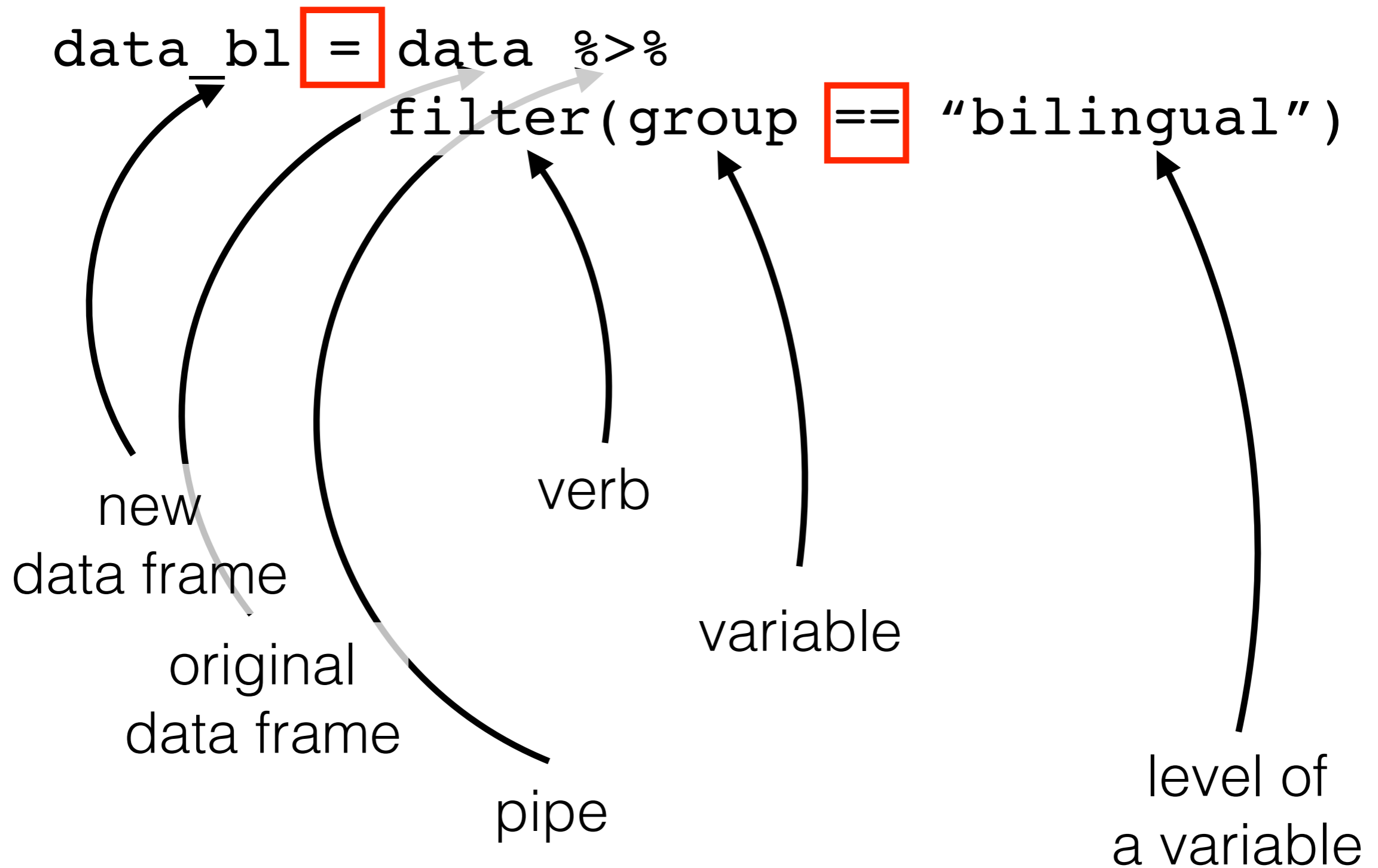
pipe

verb

variable

level of  
a variable

# dplyr



= is used to assign (<- also used)  
== is a marker of relationship (e.g. <, >)

```
> dim(data)
```

```
[1] 400 3
```

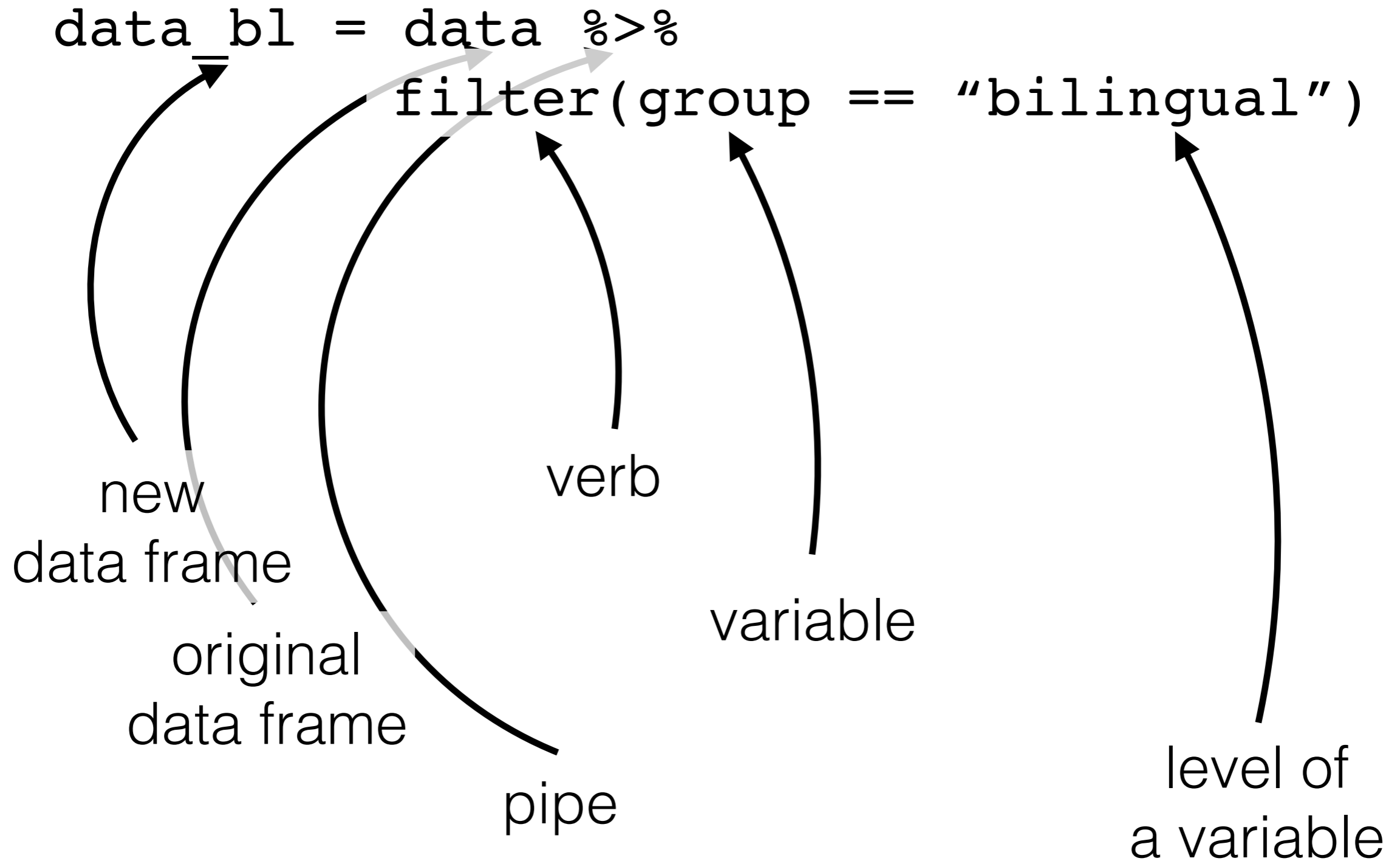
	group	type	rt
1	monolingual	NA	910.7722
2	monolingual	NA	887.0629
3	monolingual	NA	886.0760
4	monolingual	NA	906.1512
5	monolingual	NA	897.7662
6	monolingual	NA	896.8191
7	monolingual	NA	894.3545
8	monolingual	NA	916.2004
9	monolingual	NA	893.8449
10	monolingual	NA	901.0659

```
> dim(data_bl)
```

```
[1] 200 3
```

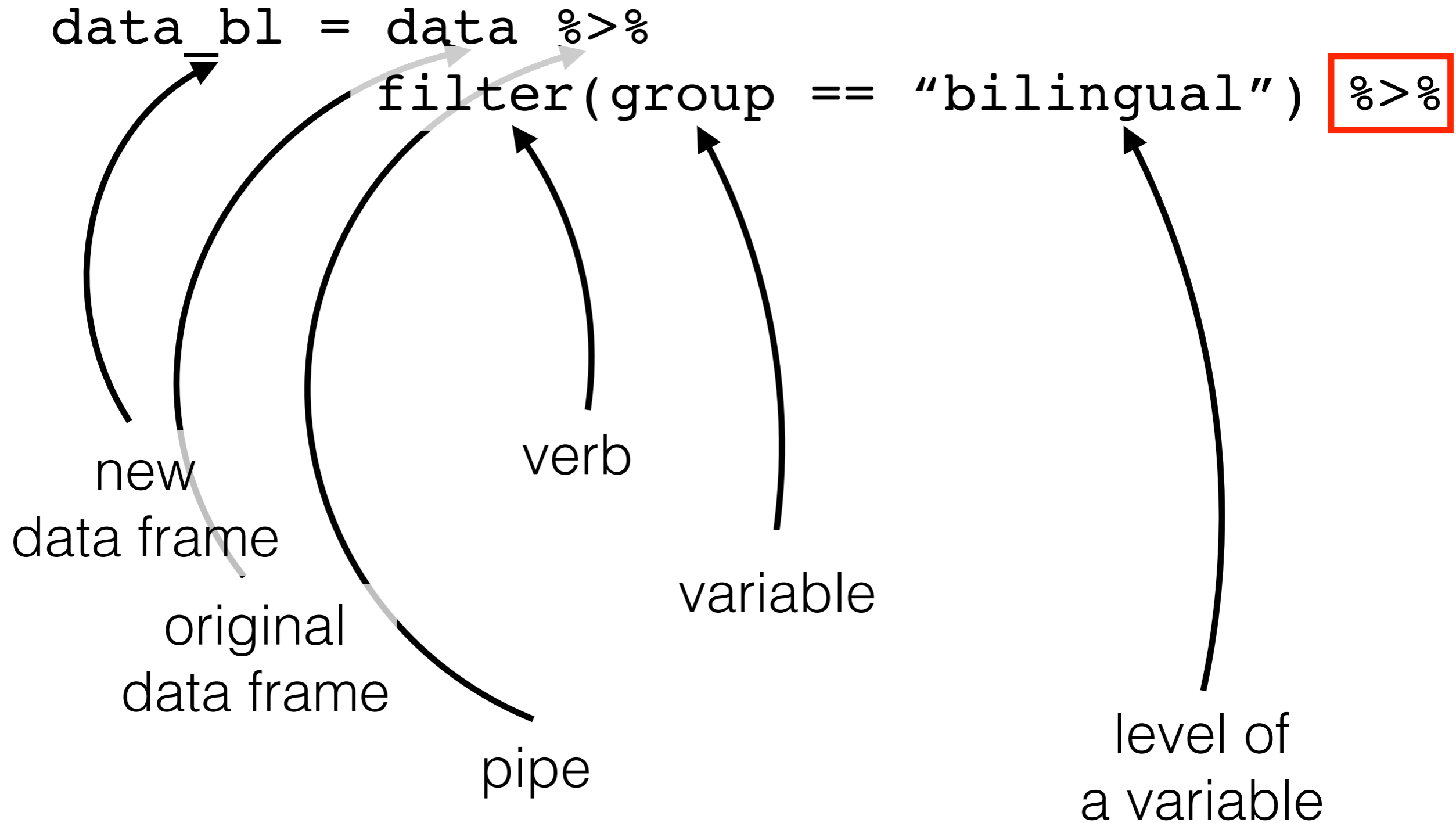
	group	type	rt
1	bilingual	high	931.8969
2	bilingual	high	953.4020
3	bilingual	high	934.2860
4	bilingual	high	961.9091
5	bilingual	high	960.9247
6	bilingual	high	950.0086
7	bilingual	high	952.1351
8	bilingual	high	956.1235
9	bilingual	high	949.9857
10	bilingual	high	959.9516

# dplyr



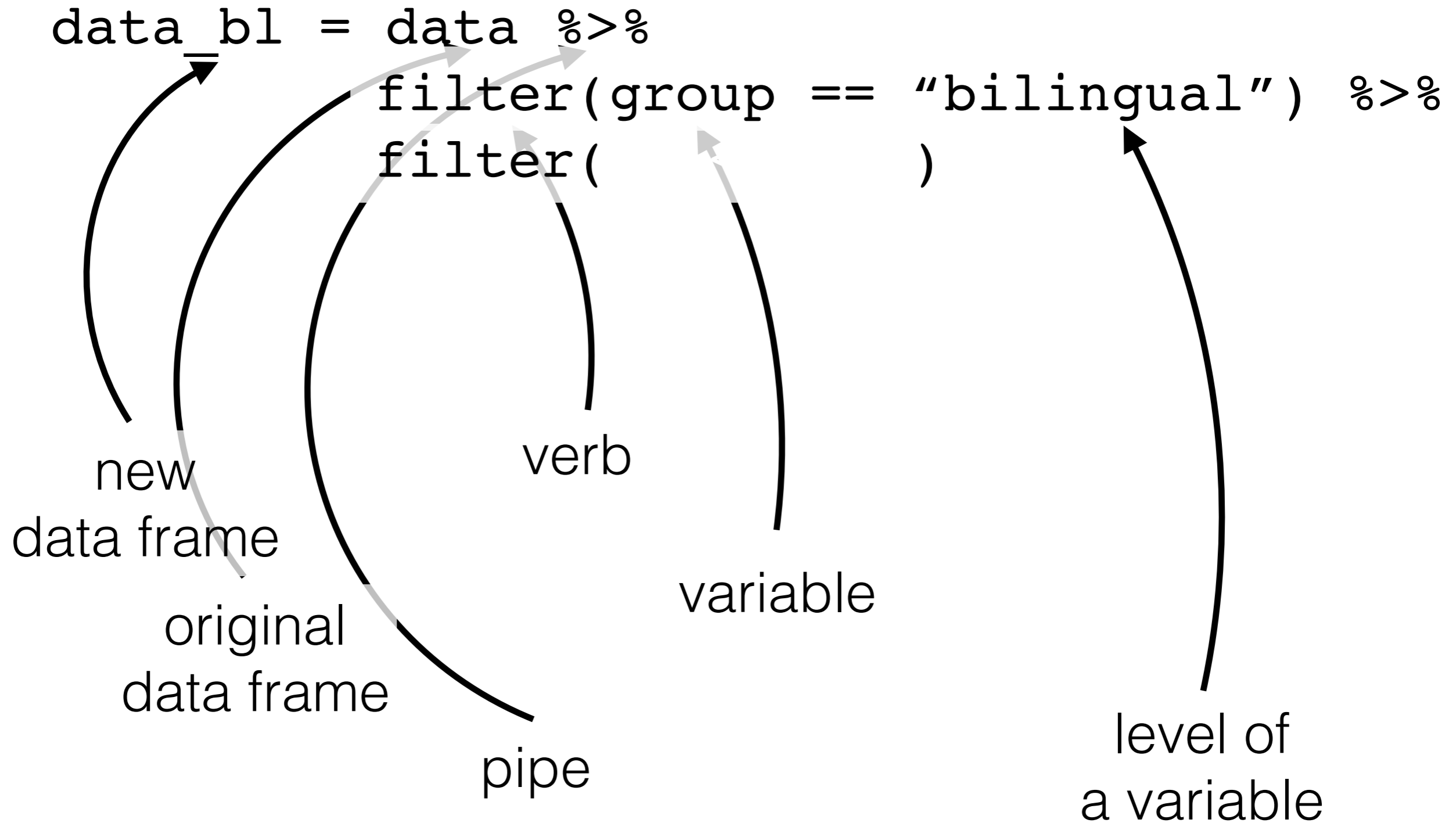
= is used to assign (<- also used)  
== is a marker of relationship (e.g. >, <)

# dplyr



= is used to assign (<- also used)  
== is a marker of relationship (e.g. >, <)

# dplyr

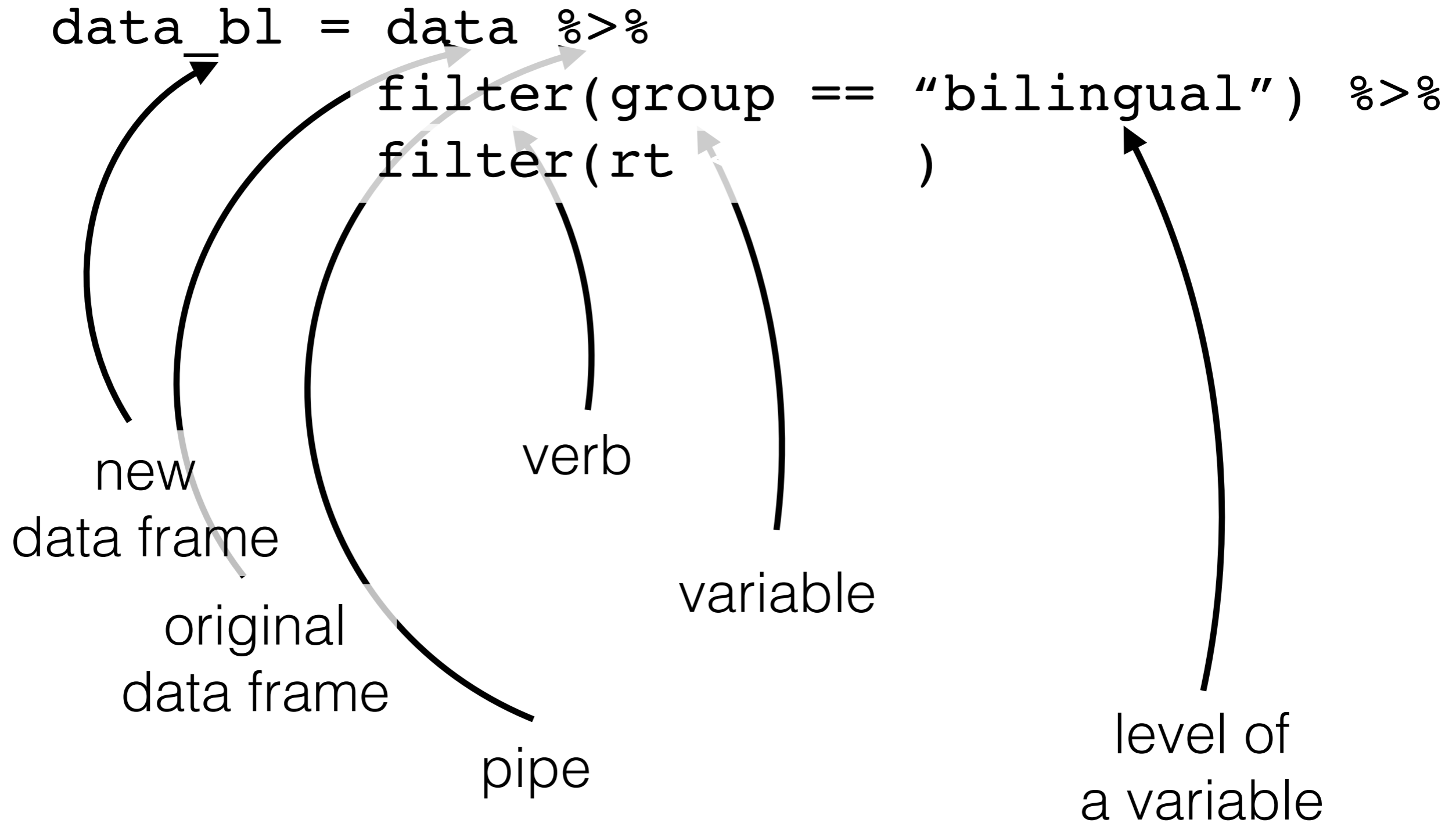


`=` is used to assign (`<-` also used)

`==` is a marker of relationship (e.g. `>`, `<`)

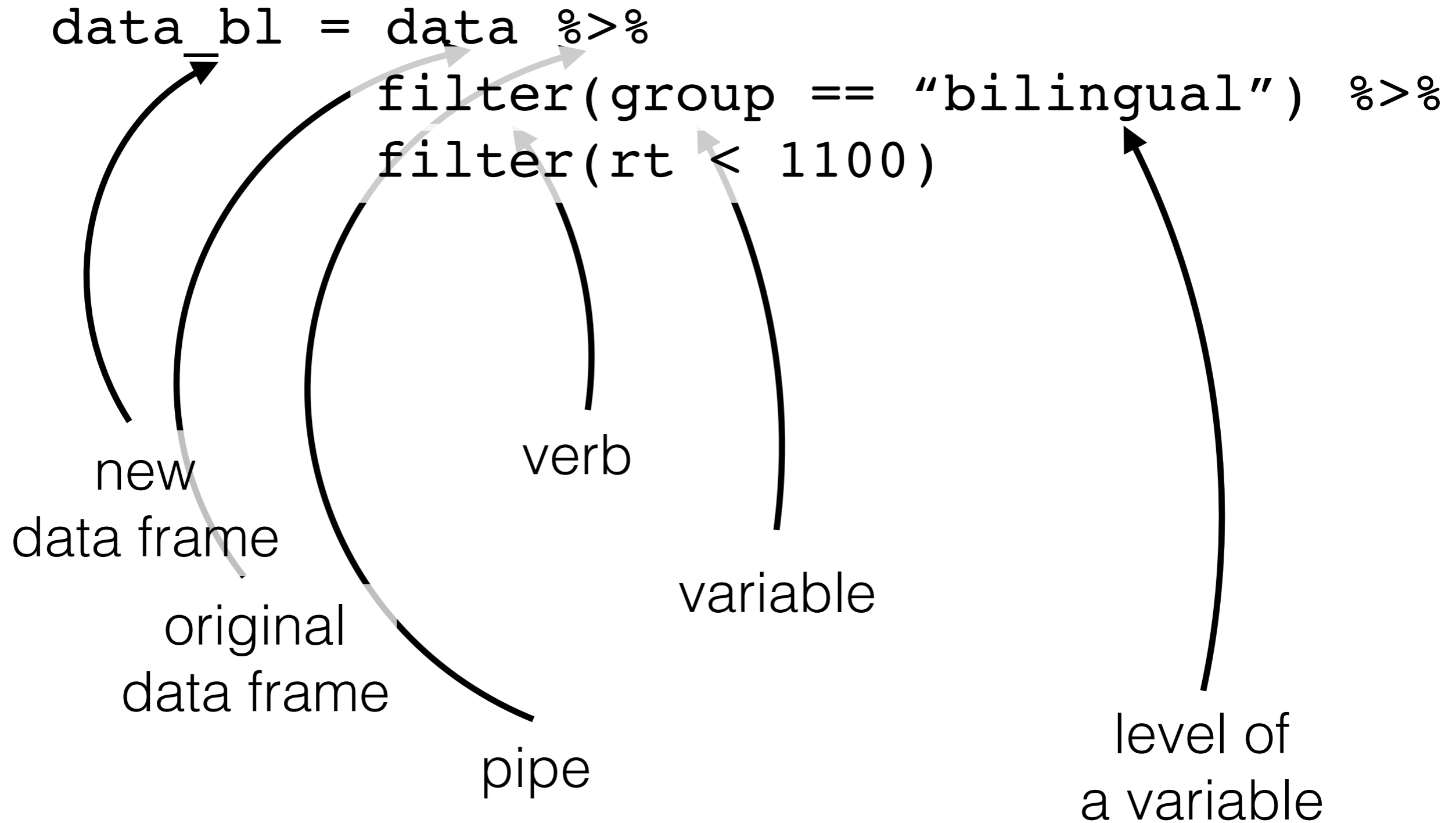


# dplyr



= is used to assign (<- also used)  
== is a marker of relationship (e.g. >, <)

# dplyr



= is used to assign (<- also used)  
== is a marker of relationship (e.g. >, <)

```
> dim(data)
```

```
[1] 400 3
```

	group	type	rt
1	monolingual	NA	910.7722
2	monolingual	NA	887.0629
3	monolingual	NA	886.0760
4	monolingual	NA	906.1512
5	monolingual	NA	897.7662
6	monolingual	NA	896.8191
7	monolingual	NA	894.3545
8	monolingual	NA	916.2004
9	monolingual	NA	893.8449
10	monolingual	NA	901.0659

```
> dim(data_bl)
```

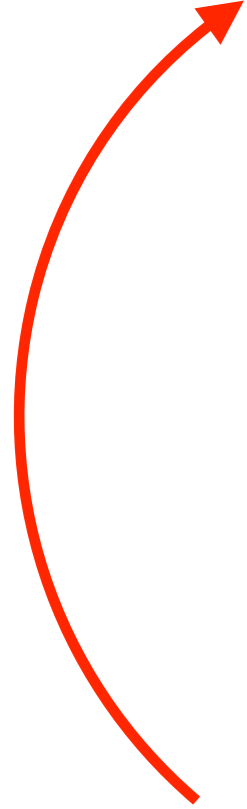
```
[1] 153 3
```

	group	type	rt
1	bilingual	high	931.8969
2	bilingual	high	953.4020
3	bilingual	high	934.2860
4	bilingual	high	961.9091
5	bilingual	high	960.9247
6	bilingual	high	950.0086
7	bilingual	high	952.1351
8	bilingual	high	956.1235
9	bilingual	high	949.9857
10	bilingual	high	959.9516

**ggplot2**

**ggplot2**

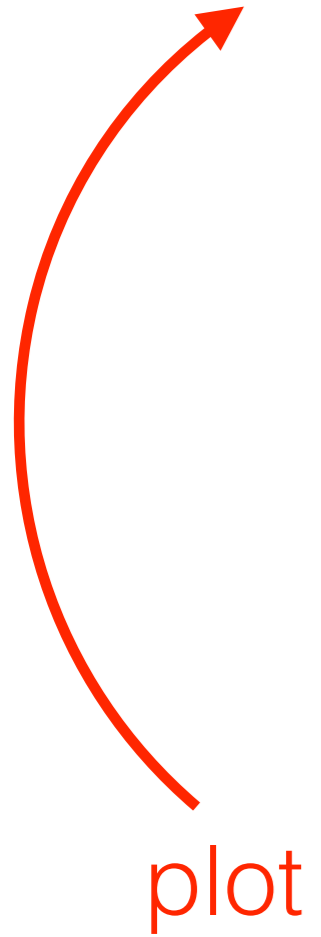
data.plot



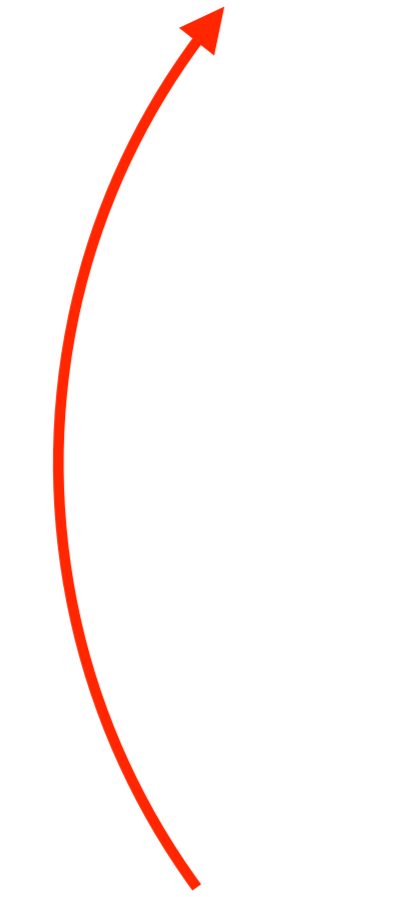
plot

# ggplot2

```
data.plot = ggplot( )
```



plot

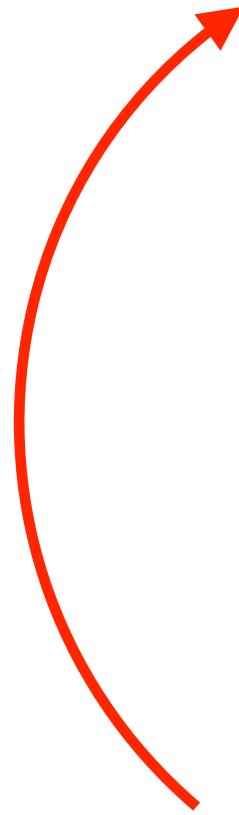


initializes  
plot

# ggplot2

```
data.plot = ggplot(data
```

```
)
```



plot



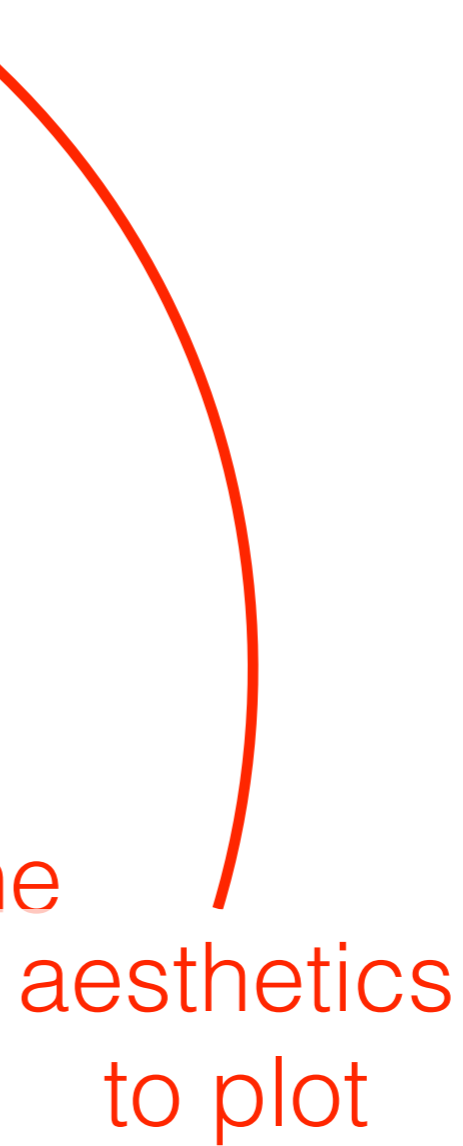
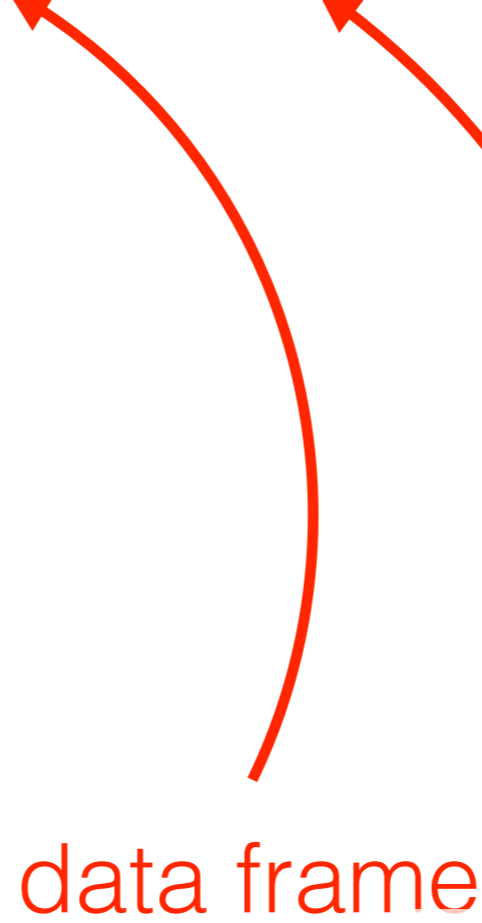
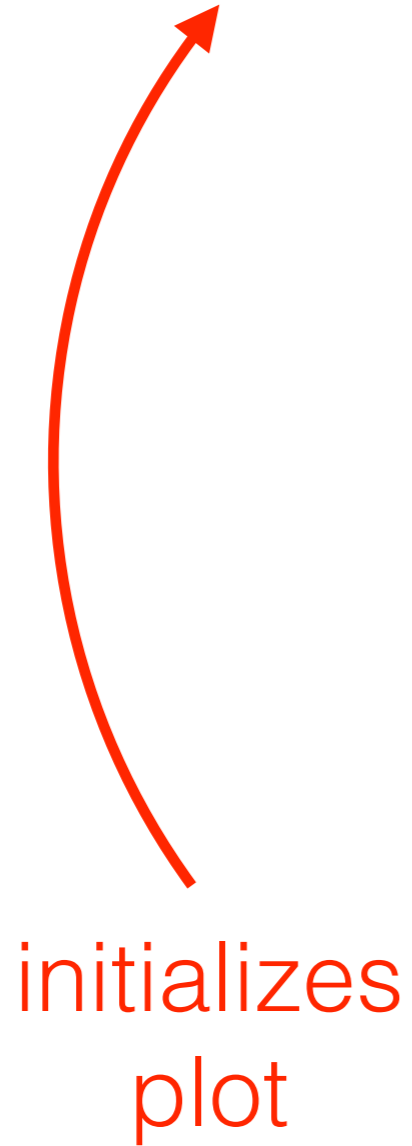
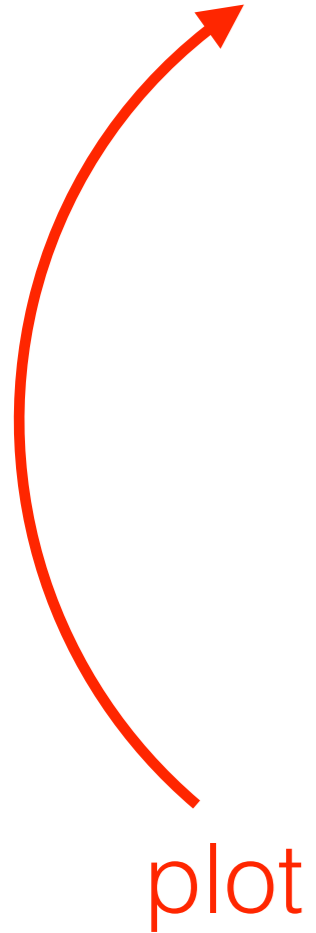
initializes  
plot



data frame

# ggplot2

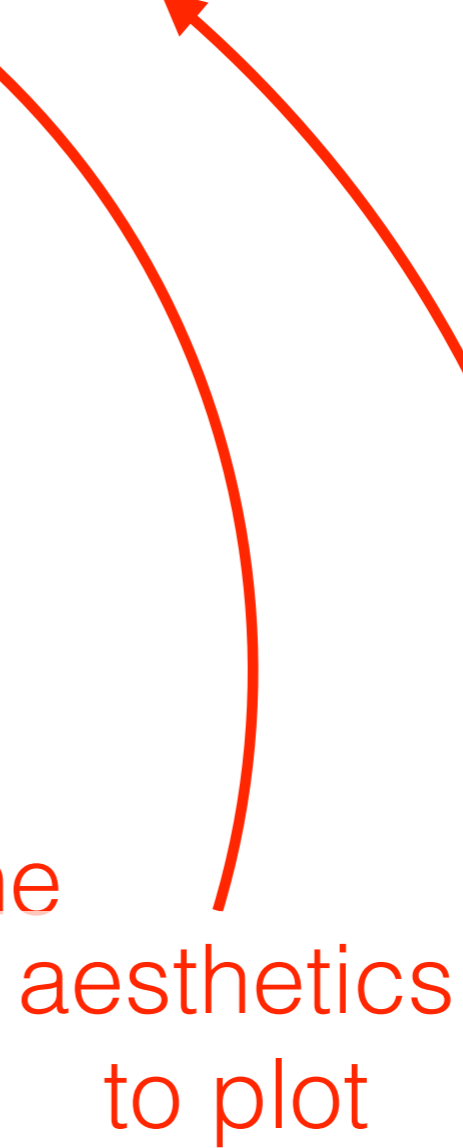
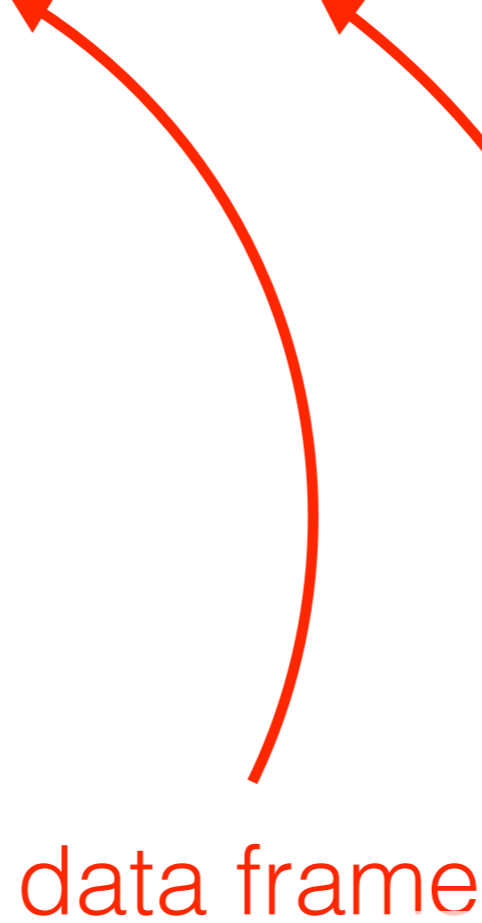
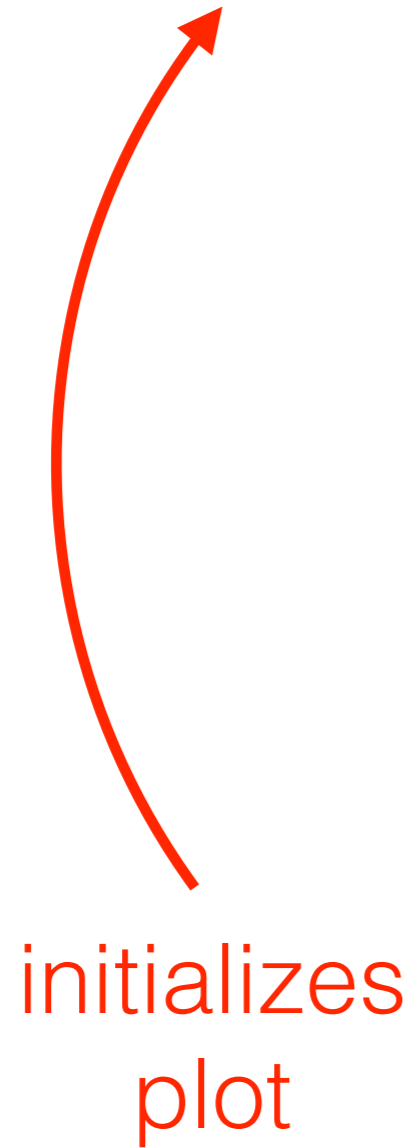
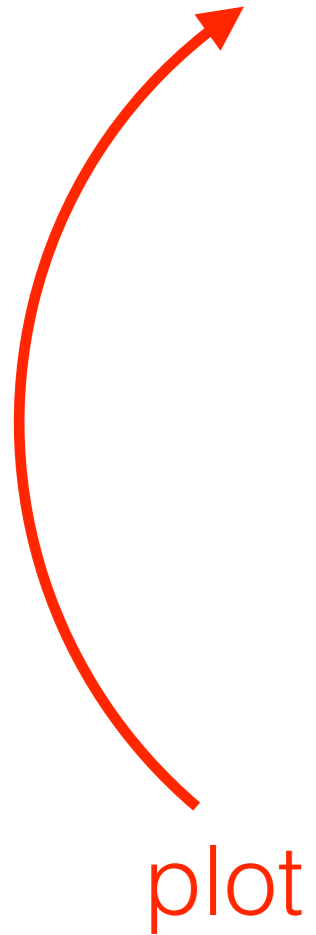
```
data.plot = ggplot(data, aes(      ))
```





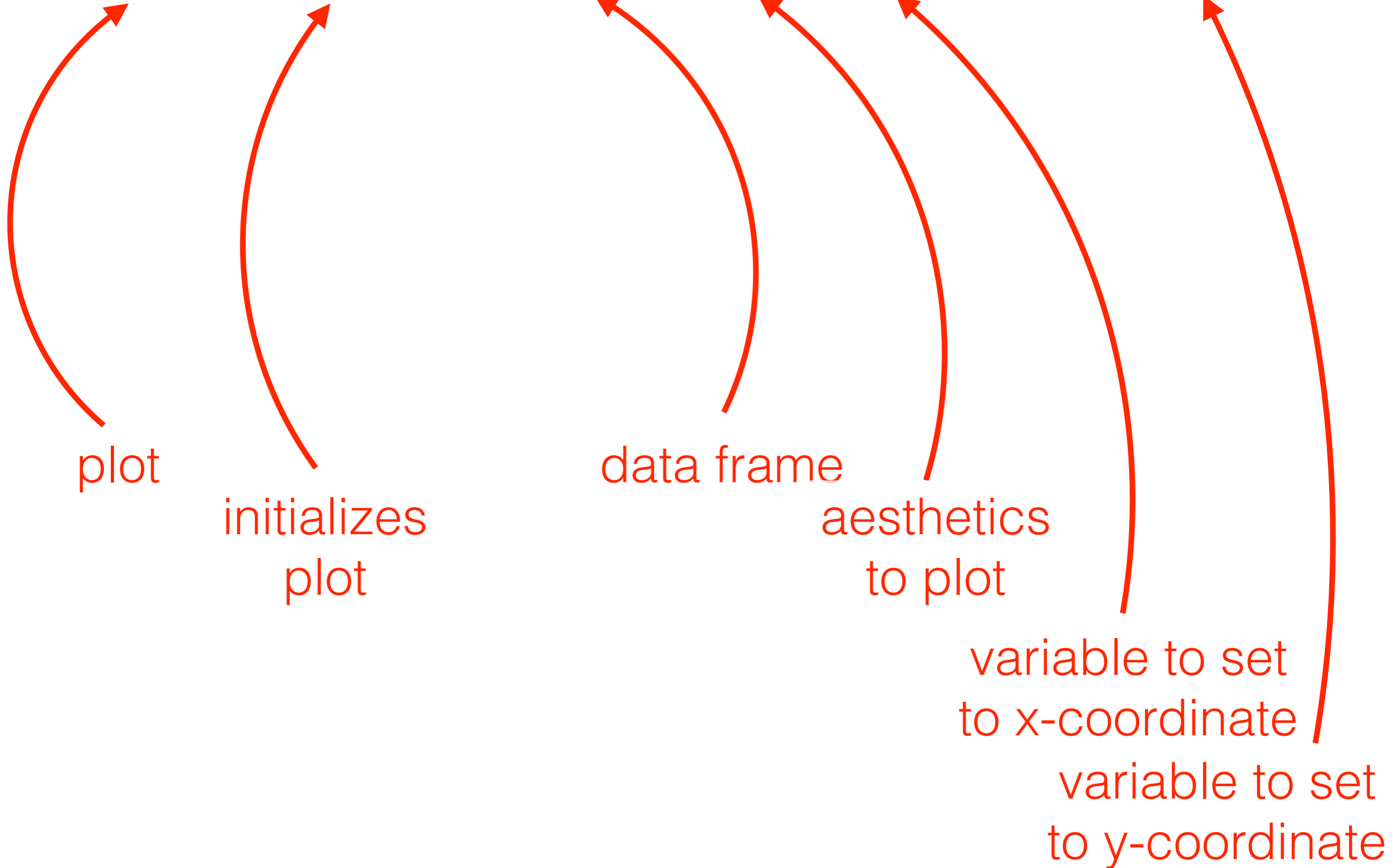
# ggplot2

```
data.plot = ggplot(data, aes(x=group
```



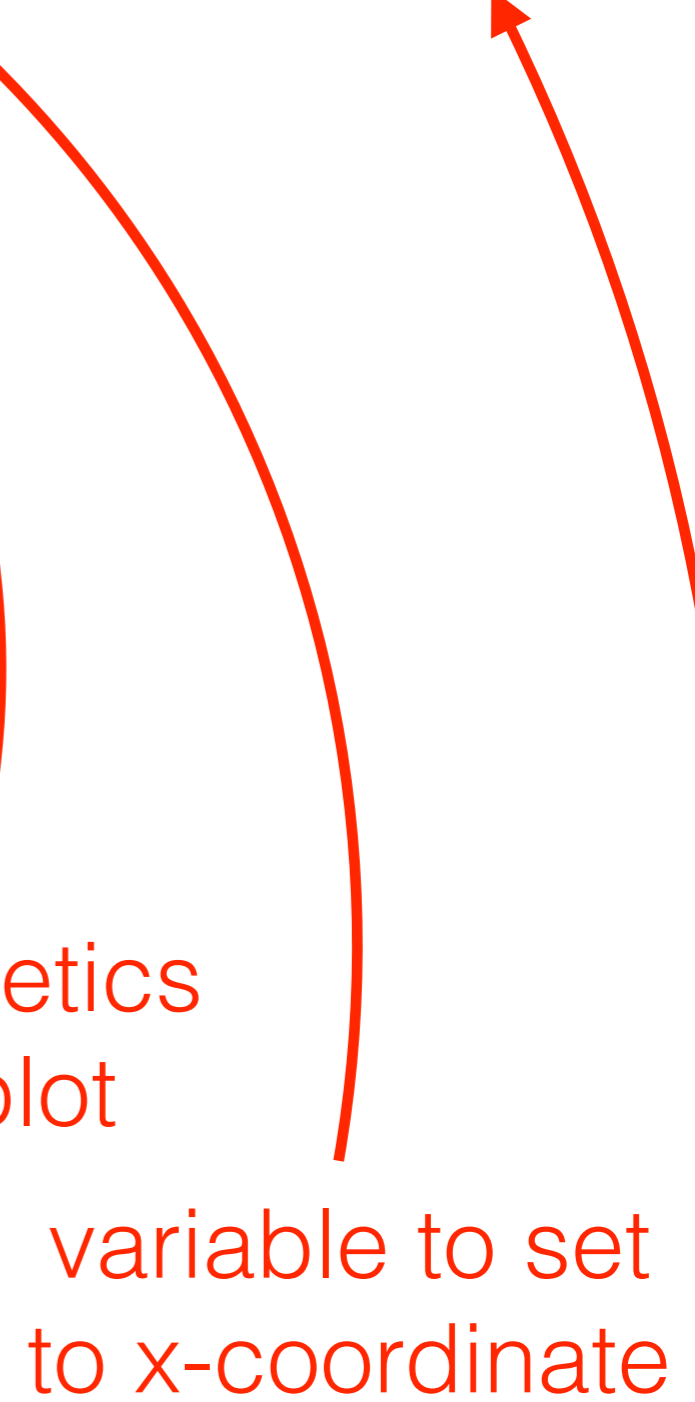
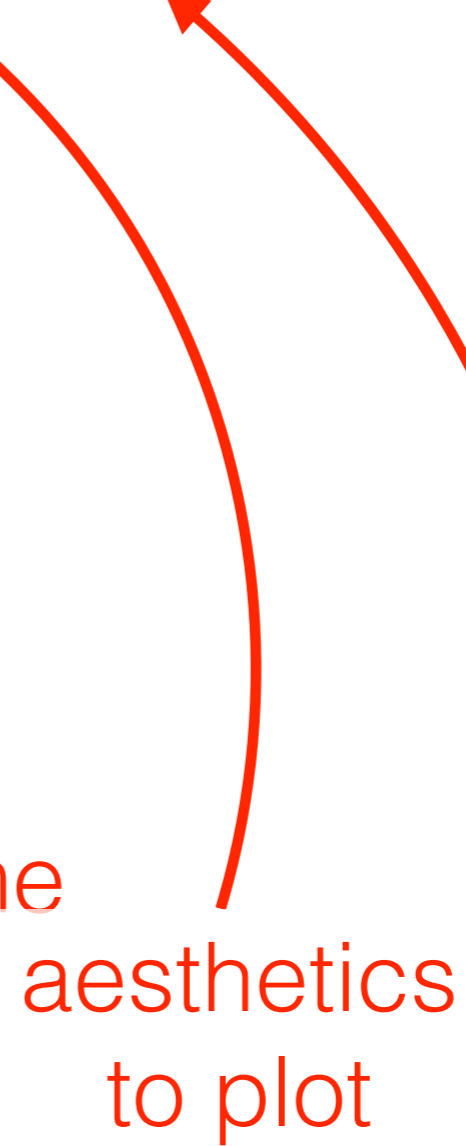
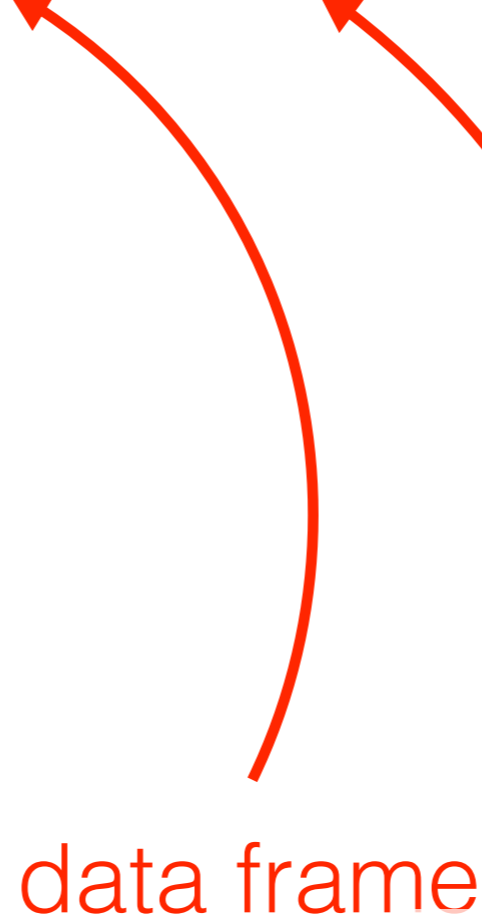
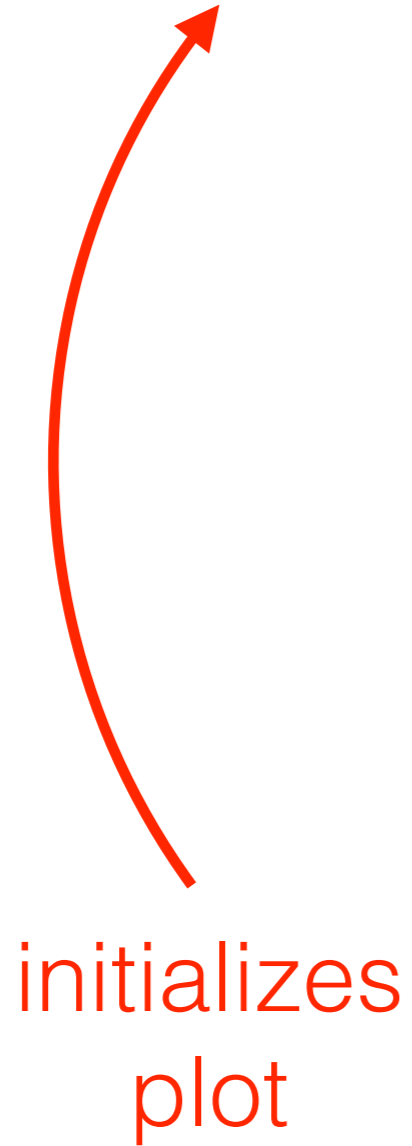
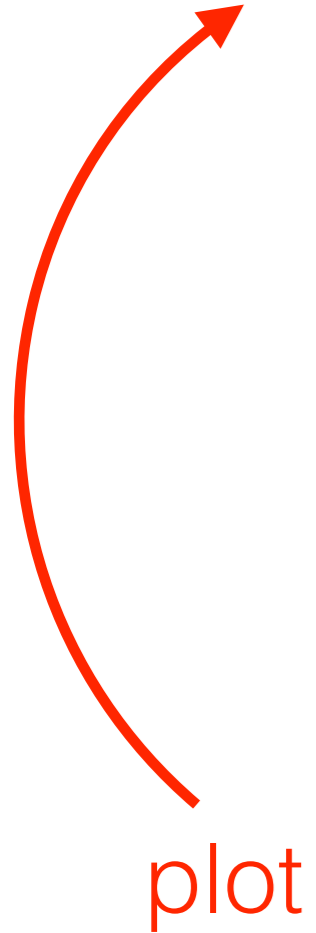
# ggplot2

```
data.plot = ggplot(data, aes(x=group, y=rt))
```



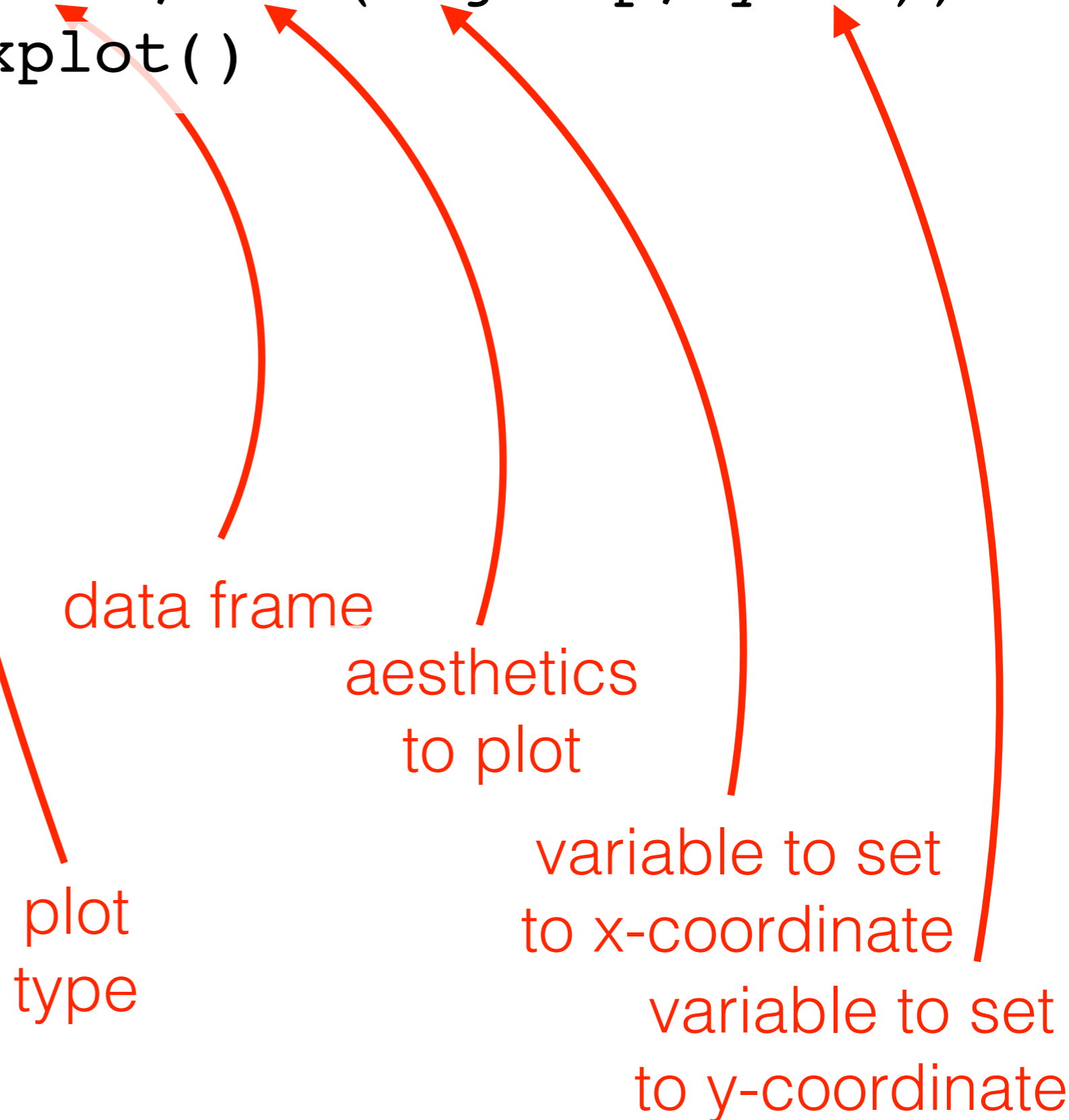
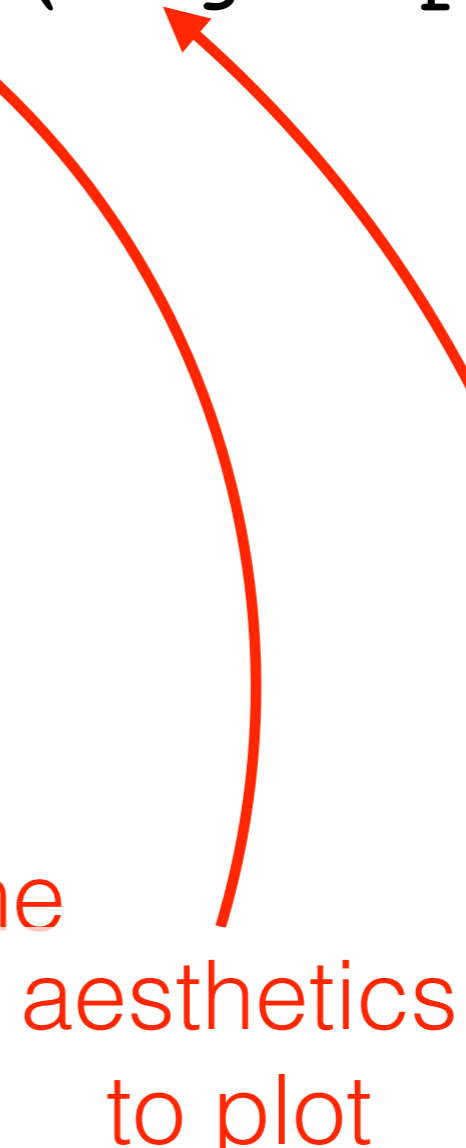
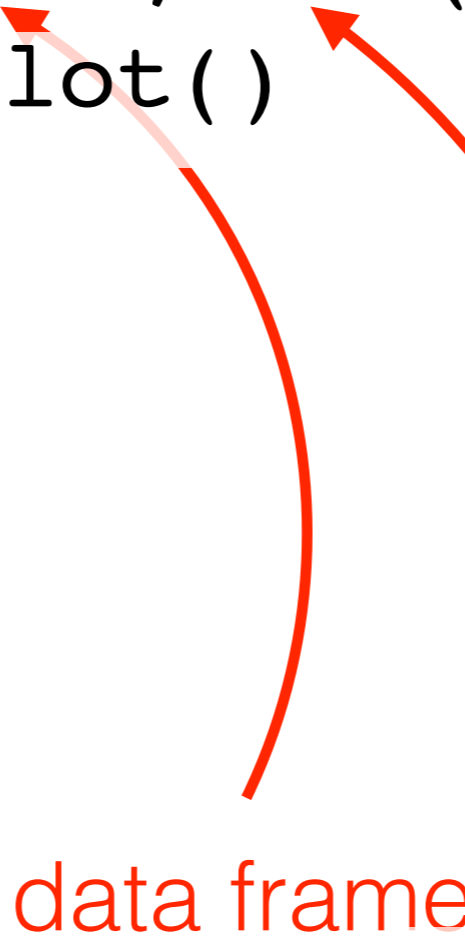
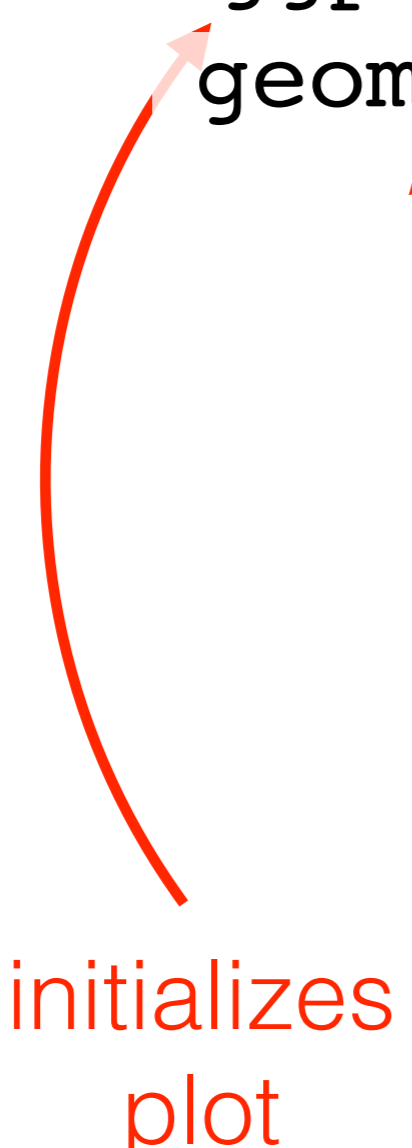
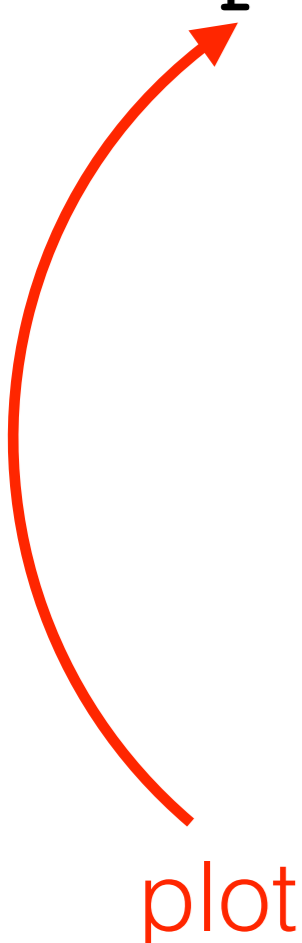
# ggplot2

```
data.plot = ggplot(data, aes(x=group, y=rt)) +
```



# ggplot2

```
data.plot = ggplot(data, aes(x=group, y=rt)) +  
geom_boxplot()
```



# ggplot2

```
data.plot = ggplot(data, aes(x=group, y=rt)) +  
geom_boxplot()
```

data.plot

plot

initializes  
plot

data frame

aesthetics  
to plot

call  
plot

plot  
type

variable to set  
to x-coordinate

variable to set  
to y-coordinate

