

## Interrogating and coercing data

```
is.logical(), is.integer(), is.double(), is.character()  
as.logical(), as.integer(), as.double(), as.character()  
typeof()  
class()  
str()
```

## Basic data structures: vector

```
c(thing1, thing2, thing3, ...)  
c(name1=thing1, name2=thing2, name3=thing3, ...)  
length(a.vector)  
names(a.vector)  
[]  
seq(from, to)  
seq(from, to, by)  
:  
rep(a.vector, times)  
rep(a.vector, times, each)
```

## Basic data structures: factor

```
factor(a.vector)
```

```
levels(a.factor)
```

## Basic data structures: matrix

```
matrix(a.vector, nrow=how.many.rows)
matrix(a.vector, nrow=how.many.rows, byrow=TRUE)
nrow(), ncol()
rownames(), colnames()
[,]
rbind(), cbind()
t()
```

## Basic data structures: table

```
table()
```

```
prop.table(a.table)
```

```
margin.table(a.table)
```

## Basic data structures: list

```
list(name1=thing1, name2=thing2, name3=thing3, ...)  
length(a.list)  
names(a.list)  
[]  
[[]]  
$  
unlist()  
as.list()
```

## Basic data structures: data frame

```
data.frame(name1=vector1, name2=vector2,  
           name3=vector3, ..., stringsAsFactors=FALSE)
```

```
length(a.data.frame)
```

```
[[]]
```

```
$
```

```
rownames(a.data.frame), colnames(a.data.frame)
```

```
nrow(a.data.frame), ncol(a.data.frame)
```

```
[,]
```

```
rbind(), cbind()
```

```
as.data.frame()
```

```
head(), tail()
```