OBJECTS IN R

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OUTLINE

1. OBJECT
2. WHAT IS AN OBJECT?
   - Why use Objects?
   - Why avoid Objects?
3. OBJECT TYPES
4. OPERATIONS
   - Size-preserving
   - Size-increasing
   - Size-reducing
   - Size-altering
5. YOUR DATA
## Characteristics

- **Object**
- **What is an Object?**
- **Object Types**
- **Operations**
- **Your Data**
- **Why use Objects?**
- **Why avoid Objects?**
Characteristics

- Everything.
Characteristics

- Everything.
- Objects are realizations of a class.
- All objects have attributes.
Simplicity

Using objects simplifies many complicated problems.

1. Communication.
2. Comparison.
You have to put them somewhere.
Basic

- Numeric.
- String.
- Factor.
- Integer.
- Logical.
**CONTAINERS**

- Vector.
- Matrix.
- Array.
- Dataframe.
- List.
CREATION AND ASSIGNMENT

<-
Creation and Assignment

Examples

- my.new.object <- c(1:10)
- my.dear.friends <- c("Val", "Peter")
ARITHMETIC

EXAMPLES

- `num.1 <- 1`
- `num.2 <- 2`)
- `num.3 <- num.1 / num.2`
**Examples**

- `num.1 <- 1`
- `num.2 <- 2`
- `num.3 <- num.1 / num.2`

Arithmetic is **vectorized**. This is an example of **coercion**.

**Examples**

- `num.1 <- c(1:10)`
- `num.2 <- c(1:10)`
- `num.3 <- num.1 / num.2`
Objects can be combined or concatenated in various ways.
## COMBINATIONS

Objects can be combined or concatenated in various ways.

### Relevant Commands

- `cbind()`
- `rbind()`
Objects can be combined or concatenated in various ways.

**Relevant commands**

- `cbind()`
- `rbind()`
- `merge()`
SUBSETTING

[ ]

my.object <- c("A", "B", "C")
my.object[2]
my.object[2:3]
my.object[-1]
SUBSETTING

EXAMPLES

- my.object <- c("A", "B", "C")
- my.object[2]
- my.object[2:3]
- my.object[-1]
Sometimes objects are in the wrong shape.
Reshaping objects

Sometimes objects are in the wrong shape.

**RELEVANT FUNCTION**

- `reshape()`
YOUR DATA ARE ALSO AN OBJECT

R reads data from outside into objects, and writes objects to files.
Your data are also an **Object**

R reads data from outside into objects, and writes objects to files.

**RELEVANT FUNCTION**

- `read.csv()`
- `write.csv()`