Introduction to R Software

Strings – Display and Formatting
:::
Replacement and Evaluation of Strings

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Operations with Strings

R has various functions for regular expression based match and replaces.

Some functions (e.g., `grep`, `grepl`, etc.) are used for searching for matches and functions whereas `sub` and `gsub` are used for performing replacement.

Operations with Strings

`grep` function:

The `grep` function is used for searching the matches.

(`sub` and `gsub` are used for performing replacement.)

`grep` **:** Globally search regular expression and print it

`grep(pattern, x)` search for matches to argument `pattern` within each element of a character vector `x`.

It returns an integer vector of the indices of the elements of x that yielded a match

Operations with Strings

`grep(pattern, x, value = TRUE)` returns a character vector containing the selected elements of x.

```
> str <- c("R Course", "exercises", "include
examples of R language")

> grep("ex", str, value=T)
[1] "exercises" "include examples of R language"
```

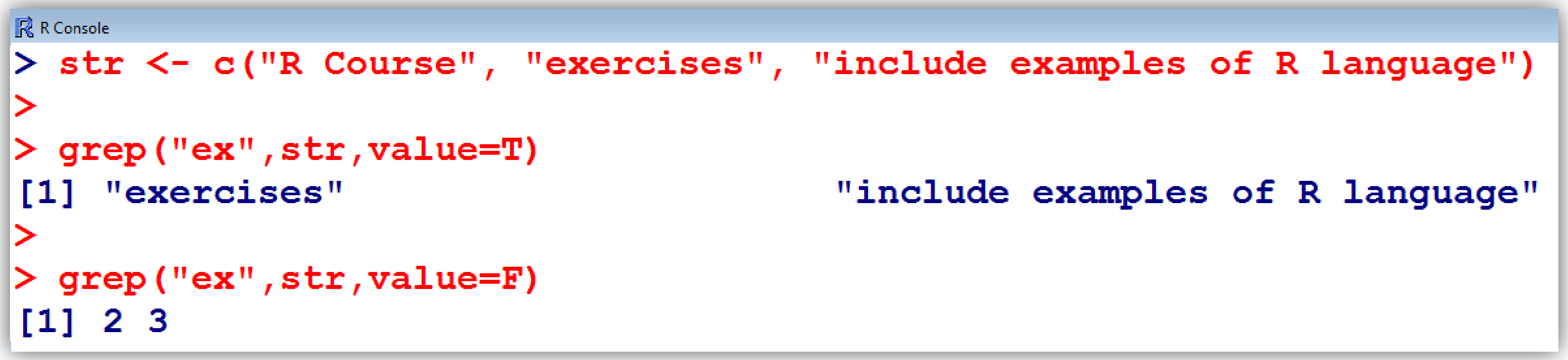
Operations with Strings

`grep(pattern, x, value = FALSE)` **returns an integer vector of the indices of the elements of x that yielded a match**

`value = FALSE` **is default.**

```
> str <- c("R Course", "exercises", "include
examples of R language")

> grep("ex", str, value=F)
[1] 2 3
```

Operations with Strings


R Console

```
> str <- c("R Course", "exercises", "include examples of R language")
>
> grep("ex",str,value=T)
[1] "exercises"                          "include examples of R language"
>
> grep("ex",str,value=F)
[1] 2 3
```

Operations with Strings

Example:

```
> x <- "R course 24.07.2017"
> y <- "Number of participants: 25"

> c(x,y)  # Combine the two strings
[1] "R course 24.07.2017"  "Number of
participants: 25"


> grep("our", c(x,y) )
[1] 1
```

"our" is in the 1st element (in the word "course"), therefore in x. There is no "our" in y.

Operations with Strings

Example:

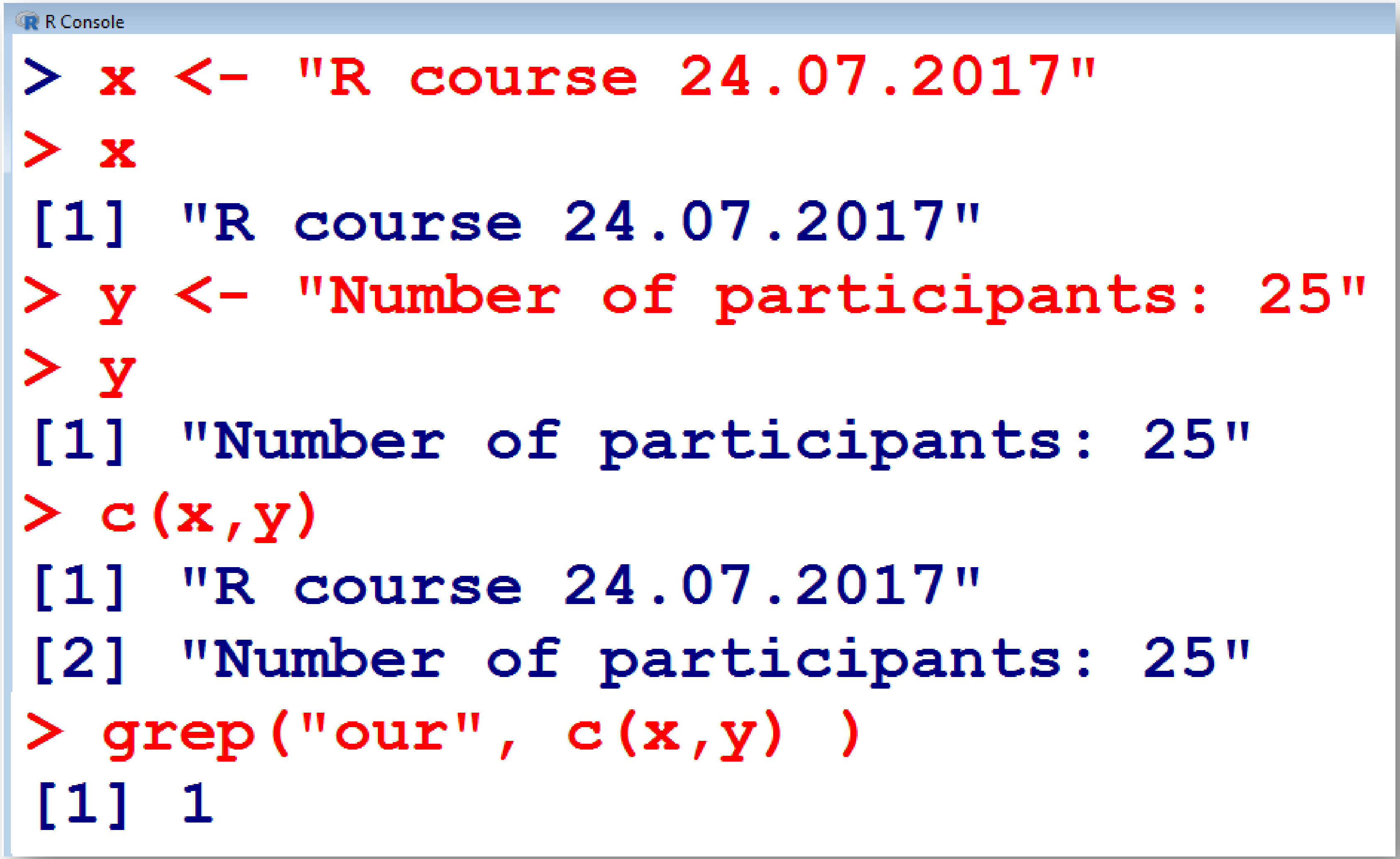
```
x <- "R course 24.07.2017"
y <- "Number of participants: 25"

> c(x,y)  # Combine the two strings
[1] "R course 24.07.2017"  "Number of
participants: 25"

> grep("Num", c(x,y) )
[1] 2
```

“Num" is in the 2nd element (in the word “Number”), therefore in y.

There is no “Num" in x.

Operations with Strings

`grep` function:



R Console

```
> x <- "R course 24.07.2017"
> x
[1] "R course 24.07.2017"
> y <- "Number of participants: 25"
> y
[1] "Number of participants: 25"
> c(x,y)
[1] "R course 24.07.2017"
[2] "Number of participants: 25"
> grep("our", c(x,y) )
[1] 1
```

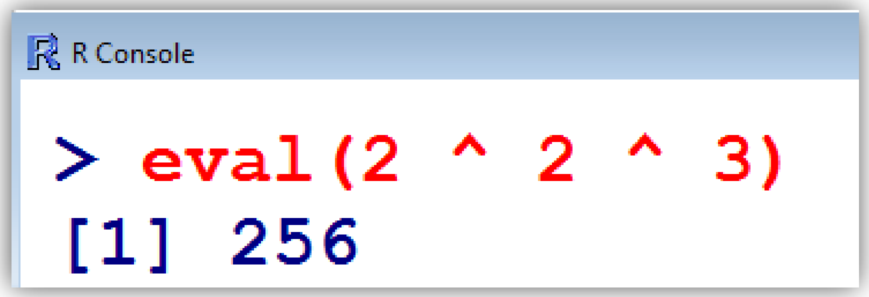
Operations with Strings

`eval` **function:**

`eval` **function evaluates an (Unevaluated) R expression in a specified environment.**

Example:

```
> eval(2 ^ 2 ^ 3)
[1] 256
```



```
> eval(2 ^ 2 ^ 3)
[1] 256
```

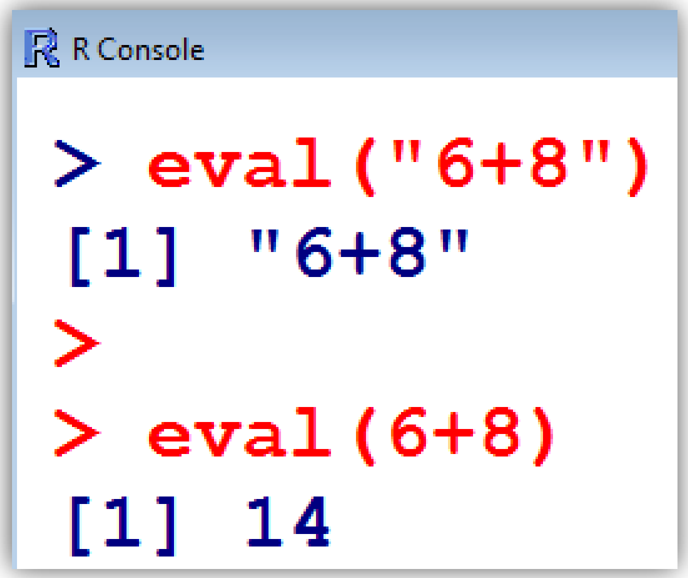
Operations with Strings

`eval` function:

Example:

```
> eval("6+8")
[1] "6+8"
```

```
> eval(6+8)
[1] 14
```



```
> eval("6+8")
[1] "6+8"
>
> eval(6+8)
[1] 14
```

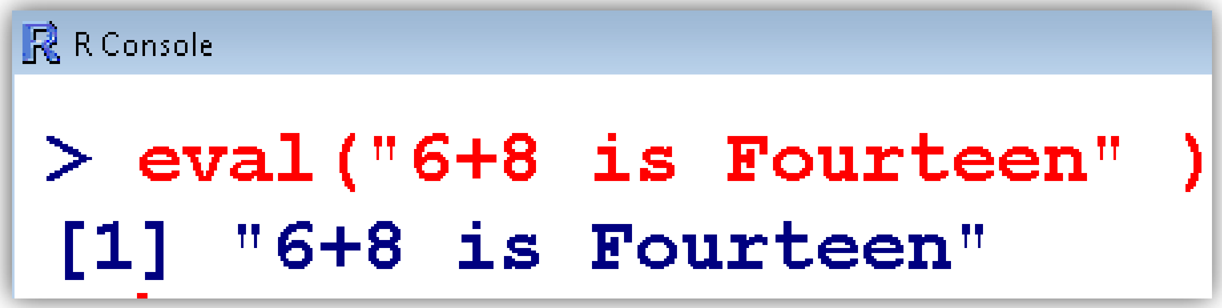
The `eval()` function evaluates an expression, but `"6+8"` is a string, not an expression whereas `6+8` is not an expression.

Operations with Strings

`eval` function:

Example:

```
> eval("6+8 is Fourteen" )
[1] "6+8 is Fourteen"
```


R Console

```
> eval("6+8 is Fourteen" )
[1] "6+8 is Fourteen"
```

Operations with Strings

`parse` function:

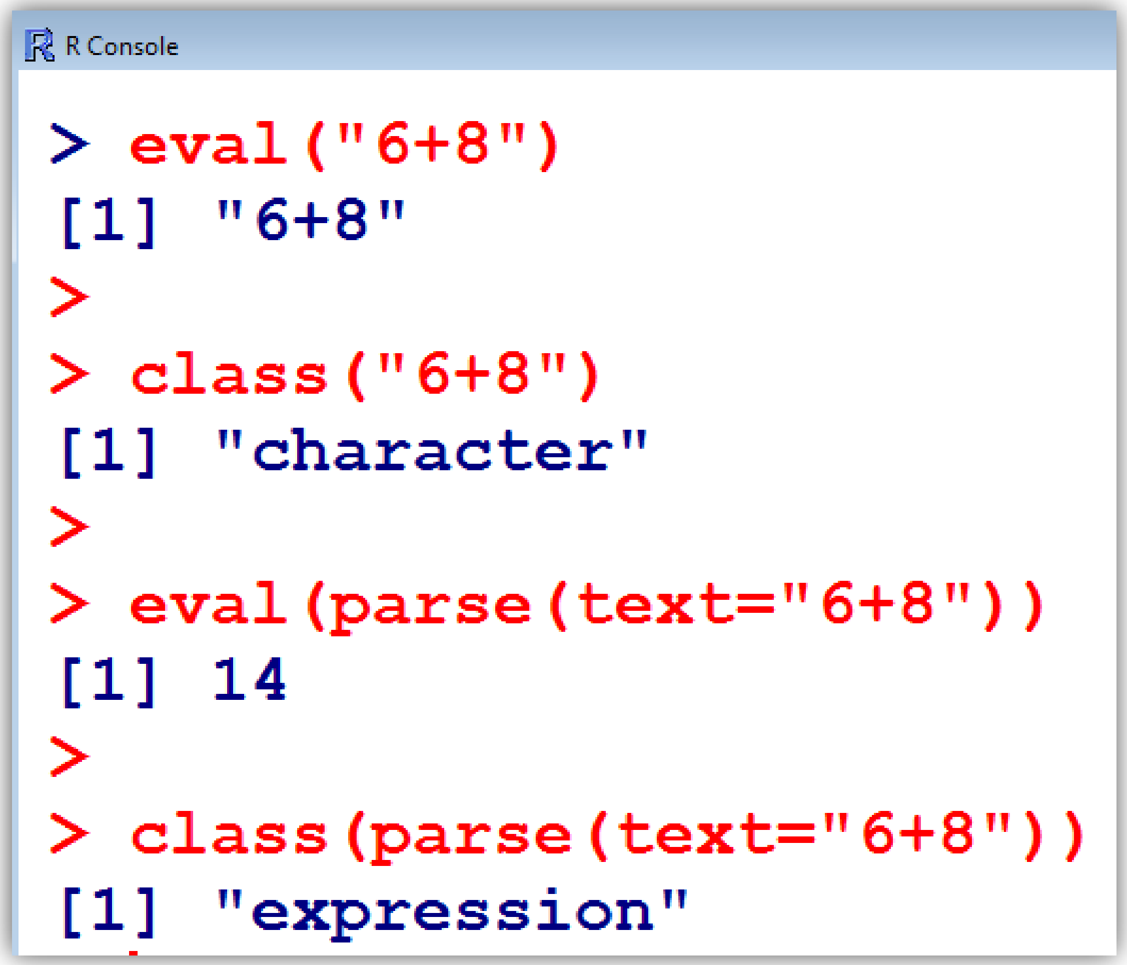
`parse()` with `text=string` is used to change the string into an expression.

Example:

```
> eval("6+8")
[1] "6+8"

> class("6+8")
[1] "character"

> eval(parse(text="6+8"))
[1] 14

> class(parse(text="6+8"))
[1] "expression"
```

Operations with Strings

`parse` **function:**



```
> eval("6+8")
[1] "6+8"
>
> class("6+8")
[1] "character"
>
> eval(parse(text="6+8"))
[1] 14
>
> class(parse(text="6+8"))
[1] "expression"
```