Foundations of R Software

Lecture 38

Strings – Display and Formatting

:::

String Splitting

Shalabh

Department of Mathematics and Statistics

Indian Institute of Technology Kanpur

Operations with Strings

Command `strsplit`, split the elements of a character vector.

"Split" can be a single character, or a character string:

Usage

```
strsplit(x, split, fixed = FALSE, …)
```

Arguments

`x`	**character vector, each element of which is to be split.**
`split`	**character vector containing regular expression(s) (unless fixed = TRUE) to use for splitting.**
`fixed`	**logical. If `TRUE` match split exactly, otherwise use regular expressions.**

Operations with Strings

- With a command `strsplit`, we can split a string in pieces.

```
> x = "The&!syntax&!of&!paste&!is!&available!
&inthe online-help"

> x
[1] "The&!syntax&!of&!paste&!is!&available!
&inthe online-help"

> strsplit(x, split="!")
[[1]]
[1] "The&"              "syntax&"    "of&"
[4] "paste&"            "is"         "&available"
[7] " &inthe online-help"
```

Operations with Strings

R Console

```
> x = "The&!syntax&!of&!paste&!is!&available! &inthe online-help"
> x
[1] "The&!syntax&!of&!paste&!is!&available! &inthe online-help"
> strsplit(x, split="!")
[[1]]
[1] "The&"                  "syntax&"               "of&"
[4] "paste&"                "is"                    "&available"
[7] " &inthe online-help"
```

Operations with Strings

```
> x = "The&!syntax&!of&!paste&!is!&available!
&inthe online-help"
> x
[1] "The&!syntax&!of&!paste&!is!&available!
&inthe online-help"

> strsplit(x, split = "&!")
[[1]]
[1] "The"
[2] "syntax"
[3] "of"
[4] "paste"
[5] "is!&available! &inthe online-help"
```

Operations with Strings

R Console

```
> x = "The&!syntax&!of&!paste&!is!&available! &inthe online-help"
> x
[1] "The&!syntax&!of&!paste&!is!&available! &inthe online-help"
> strsplit(x, split = "&!")
[[1]]
[1] "The"
[2] "syntax"
[3] "of"
[4] "paste"
[5] "is!&available! &inthe online-help"
```

Operations with Strings

```
> x = "The&!syntax&!of&!paste&!is!&available!
&inthe online-help"


> x
[1] "The&!syntax&!of&!paste&!is!&available!
&inthe online-help"

> y = strsplit(x, split = "!&")

> y
[[1]]
[1] "The&!syntax&!of&!paste&!is"    "available!
&inthe online-help"
```

Operations with Strings

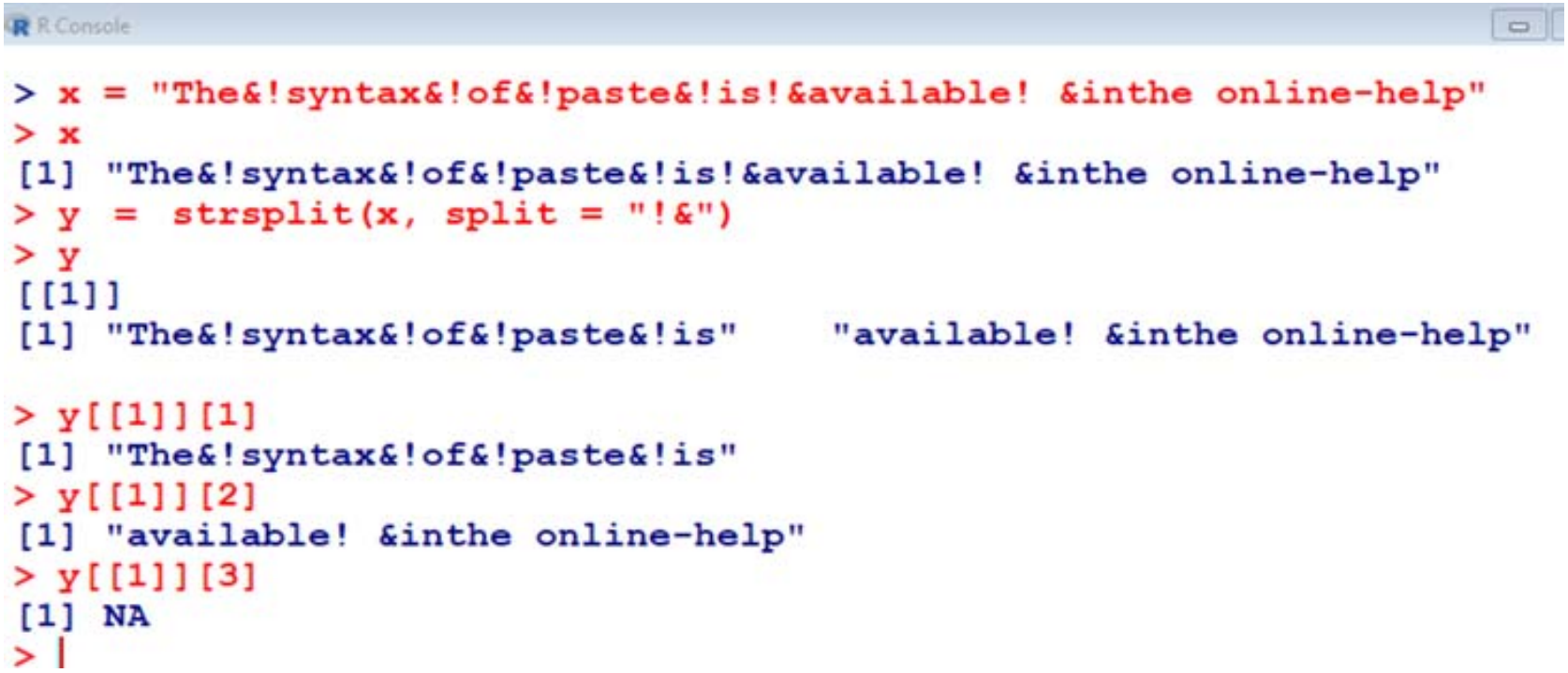
Notice the access to single components:

```
> y[[1]][1]
[1] "The&!syntax&!of&!paste&!is"

> y[[1]][2]
[1] "available! &inthe online-help"

> y[[1]][3]
[1] NA
```

Operations with Strings



Operations with Strings

Example: Convert to matrix

```
> dates = c("2020-07-24", "2021-08-25", "2022-
09-26", "2023-10-27")
```

Split the dates

```
> datesplt  = strsplit(dates, "-")
> datesplt
[[1]]
[1] "2020" "07"   "24"

[[2]]
[1] "2021" "08"   "25"

[[3]]
[1] "2022" "09"   "26"

[[4]]
[1] "2023" "10"   "27"
```

Operations with Strings

Example: Convert to matrix

Create matrix of dates and outcome is that the elements are character

```
> datemat = matrix(unlist(datesplt), nrow = 4,
ncol=3, byrow=TRUE)

> datemat
     [,1]   [,2] [,3]
[1,] "2020" "07" "24"
[2,] "2021" "08" "25"
[3,] "2022" "09" "26"
[4,] "2023" "10" "27"
```

Operations with Strings

Example: Convert to matrix

Create matrix of dates and outcome is that the elements are numbers

```
> datematrix =
matrix(as.numeric(unlist(datesplt)), nrow = 4,
ncol=3, byrow=TRUE)

> datematrix
     [,1] [,2] [,3]
[1,] 2020    7   24
[2,] 2021    8   25
[3,] 2022    9   26
[4,] 2023   10   27
```

Operations with Strings

Example: Convert to matrix

R Console

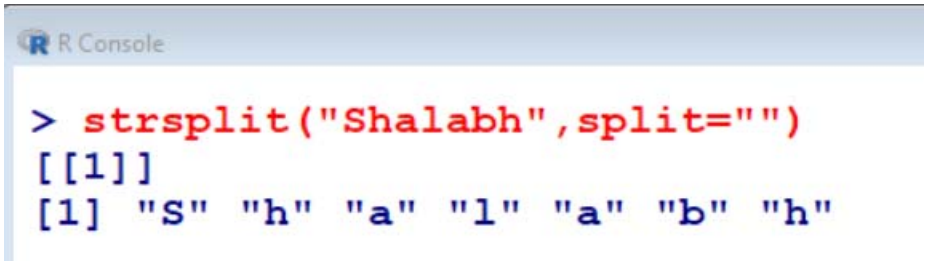
```
> dates = c("2020-07-24", "2021-08-25", "2022-09-26", "2023-10-27")
> dates
[1] "2020-07-24" "2021-08-25" "2022-09-26" "2023-10-27"
> datesplt  = strsplit(dates, "-")
> datesplt
[[1]]
[1] "2020" "07"   "24"

[[2]]
[1] "2021" "08"   "25"

[[3]]
[1] "2022" "09"   "26"

[[4]]
[1] "2023" "10"   "27"

> datemat = matrix(unlist(datesplt), nrow = 4, ncol=3, byrow=TRUE)
> datemat
     [,1]   [,2] [,3]
[1,] "2020" "07" "24"
[2,] "2021" "08" "25"
[3,] "2022" "09" "26"
[4,] "2023" "10" "27"
> datematrix = matrix(as.numeric(unlist(datesplt)), nrow = 4, ncol=3, byrow=TRUE)
> datematrix
     [,1] [,2] [,3]
[1,] 2020    7   24
[2,] 2021    8   25
[3,] 2022    9   26
[4,] 2023   10   27
>
```

Operations with Strings

```
> strsplit("Shalabh",split="")
[[1]]
[1] "S" "h" "a" "l" "a" "b" "h"
```