Capturing

STRING MANIPULATION WITH STRINGR IN R

Charlotte Wickham

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Capturing

```
ANY_CHAR %R% "a"
```

```
<regex> .a
```

```
capture(ANY_CHAR) %R% "a"
```

```
<regex> (.)a
```

```
str_extract(c("Fat", "cat"),
    pattern = ANY_CHAR %R% "a")
```

```
"Fa" "ca"
```

```
str_extract(c("Fat", "cat"),
    pattern = capture(ANY_CHAR) %R% "a")
```

```
"Fa" "ca"
```

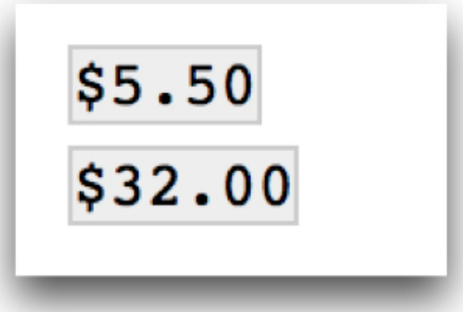
str_match()

```
str_match(c("Fat", "cat"),
    pattern = capture(ANY_CHAR) %R% "a")
```

```
     [,1] [,2]
[1,] "Fa" "F"
[2,] "ca" "c"
```

str_match()

```
pattern <- DOLLAR %R%
              DGT %R% optional(DGT) %R%
              DOT %R%
              dgt(2)
str_view(c("$5.50", "$32.00"), pattern = pattern)
```



str_match()

```
pattern <- DOLLAR %R%
             capture(DGT %R% optional(DGT)) %R%
             DOT %R%
             capture(dgt(2))
str_match(c("$5.50", "$32.00"), pattern = pattern)
```

```
     [,1]     [,2] [,3]
[1,] "$5.50"  "5"  "50"
[2,] "$32.00" "32" "00"
```

Non-capturing groups

```
or("dog", "cat")
```

```
<regex> (?:dog|cat)
```

Non-capturing groups

```
or("dog", "cat")
```

```
<regex> (?:dog|cat)
```

doglcat

Need parentheses to distinguish

(doglcat)
do(glc)at

```
or("dog", "cat", capture = TRUE)
```

```
<regex> (dog|cat)
```

```
capture(or("dog", "cat"))
```

```
<regex> ((?:dog|cat))
```

Let's practice!

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Backreferences

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Backreferences

```
REF1
```

```
<regex> \1
```

```
REF2
```

```
<regex> \2
```

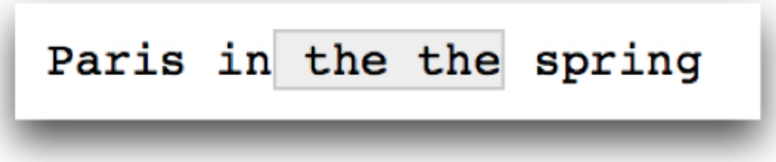
In a pattern

```
SPC %R%
one_or_more(WRD) %R%
SPC
```

In a pattern

```
SPC %R%
capture(one_or_more(WRD)) %R%
SPC %R%
REF1
```

```
str_view("Paris in the the spring",
  SPC %R%
  capture(one_or_more(WRD)) %R%
  SPC %R%
  REF1)
```



In a replacement

```
str_replace("Paris in the the spring",
  pattern  = SPC %R%
             capture(one_or_more(WRD)) %R%
             SPC %R%
             REF1,
  replacement = str_c(" ", REF1))
```

```
"Paris in the spring"
```

Let's practice!

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Unicode and pattern matching

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Unicode

- Associates each character with a code point

Character	Code point

Unicode

- Associates each character with a code point

Character	Code point
a	61

Unicode

- Associates each character with a code point

Character	Code point
a	61
μ	3BC

Unicode

- Associates each character with a code point

Character	Code point
a	61
μ	3BC
😀	1F600

Unicode in R

```
"\u03BC"
```

μ

```
"\U03BC"
```

μ

```
writeLines("\U0001F44F")
```

Unicode in R

```
as.hexmode(utf8ToInt("a"))
```

```
"61"
```

```
as.hexmode(utf8ToInt("μ"))
```

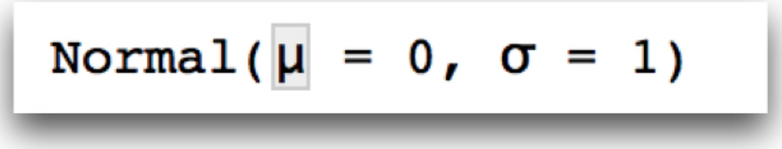
```
"3bc"
```

Matching Unicode

```
x <- "Normal(\u03BC = 0, \u03C3 = 1)
x
```

```
Normal( μ = 0, σ = 1)
```

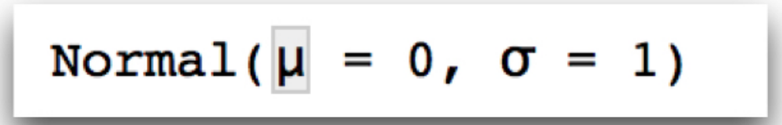
```
"str_view(x, pattern = "\u03BC")
```



- http://unicode.org/charts
- http://www.fileformat.info/info/unicode/char/search.htm

Matching Unicode groups

- Regular expression
  - Use `\p` followed by `{name}`
- rebus
  - `str_view_all(x, greek_and_coptic())`



- `?Unicode`
- `?unicode_property`
- `?unicode_general_category`

Let's practice!

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