Building tidy functions

Spot the differences

```
some_tibble %>%
   select(one_of("var1", "var2", "var3"))
mtcars[, "carb"]
install.packages("ggplot2")
```

Standard Evaluation (of a string)

```
some_tibble %>%
   select(var1, var2, var3)
mtcars$carb
library(ggplot2)
```

Non Standard Evaluation (NSE)

Example

- Adopted from Advanced R, by Hadley Wickam

```
paste("good", "morning", "riskified!")


cement <- function(...){
   args <- ensyms(...)
   paste(purrr::map(args, as.character), collapse = " ")
}

cement(good, morning, riskified)
```

Quiz, in pairs, which of the following arguments (in functions) are quoted and which evaluated?

```
library(dplyr)

library(ggplot2)

by_cyl <- mtcars %>%
   group_by(cyl) %>%
   summarise(mean = mean(mpg))

ggplot(by_cyl, aes(cyl, mean)) + geom_point()
```

6 minutes

Quiz, in pairs, which of the following arguments (in functions) are quoted and which evaluated? – answers

```
library(dplyr)

library(ggplot2)

by_cyl <- mtcars %>%
   group_by(cyl) %>%
   summarise(mean = mean(mpg))

ggplot(by_cyl, aes(cyl, mean)) + geom_point()
```

underline arguments are quoted

italics are evaluated

How to implement quotation and evaluation in a tidy manner?

- Use *enquo()* to tell the function that the argument should be quoted and not evaluated
- Use *!!* (bang-bang, or unquote) to use the argument in context
- Multiple arguments can be simply transferred via …
  - If needed, they can be unquoted using *enquos()* and *!!!*

```
prop <- function(data, group_by_var, ...){
   grouping_var <- enquo(group_by_var)
   data %>%
      count(!!grouping_var, …) %>%
      group_by(!!grouping_var) %>%
      mutate(prop_col = n/sum(n)) %>%
      select(-n)
}
```

Exercise – "tip of the iceberg"

- Open "04-Building tidy functions.R" (note the use of a script and not an RMarkdown – since we're building functions, easier to work with a script)
- Build a tidy function "like" *count* and *add_count* but for:
  - *simple_prop* – computes the proportion of variable values
  - *add_mean* – adds the mean of group as a new column