

# Demo Doc - pipe interface

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# 1 Data

Mostly working with this data; but some others come in later to illustrate certain features.

```
library(pmtables)
library(yspec)
library(dplyr)
spec <- ys_help$spec()

data <- pmt_summarized
head(data)
```

```
## # A tibble: 6 x 9
##   STUDY      DOSE  FORM    N    WT   CRCL  AGE  ALB  SCR
##   <chr>    <chr> <chr>  <chr> <chr> <chr> <chr> <chr> <chr>
## 1 12-DEMO-001 100 mg tablet  80   71.4  104  33.7  4.20  1.06
## 2 12-DEMO-001 150 mg capsule 16   89.4  122  24.4  4.63  1.12
## 3 12-DEMO-001 150 mg tablet  48   81.7  104  34.4  3.83  0.910
## 4 12-DEMO-001 150 mg troche  16   94.0  93.2  27.4  4.94  1.25
## 5 12-DEMO-001 200 mg tablet  64   67.9  100  27.5  4.25  1.10
## 6 12-DEMO-001 200 mg troche  16   76.6  99.2  22.8  4.54  1.15
```

## 2 Simple table

```
data %>% st_new() %>% st_make(col_bold = TRUE, .cat = TRUE)
```

| STUDY       | DOSE   | FORM    | N   | WT   | CRCL | AGE  | ALB  | SCR   |
|-------------|--------|---------|-----|------|------|------|------|-------|
| 12-DEMO-001 | 100 mg | tablet  | 80  | 71.4 | 104  | 33.7 | 4.20 | 1.06  |
| 12-DEMO-001 | 150 mg | capsule | 16  | 89.4 | 122  | 24.4 | 4.63 | 1.12  |
| 12-DEMO-001 | 150 mg | tablet  | 48  | 81.7 | 104  | 34.4 | 3.83 | 0.910 |
| 12-DEMO-001 | 150 mg | troche  | 16  | 94.0 | 93.2 | 27.4 | 4.94 | 1.25  |
| 12-DEMO-001 | 200 mg | tablet  | 64  | 67.9 | 100  | 27.5 | 4.25 | 1.10  |
| 12-DEMO-001 | 200 mg | troche  | 16  | 76.6 | 99.2 | 22.8 | 4.54 | 1.15  |
| 12-DEMO-002 | 100 mg | capsule | 36  | 61.3 | 113  | 38.3 | 4.04 | 1.28  |
| 12-DEMO-002 | 100 mg | tablet  | 324 | 77.6 | 106  | 29.9 | 4.31 | 0.981 |
| 12-DEMO-002 | 50 mg  | capsule | 36  | 74.1 | 112  | 37.1 | 4.44 | 0.900 |
| 12-DEMO-002 | 50 mg  | tablet  | 324 | 71.2 | 106  | 34.1 | 4.63 | 0.868 |
| 12-DEMO-002 | 75 mg  | capsule | 36  | 72.4 | 105  | 38.2 | 3.89 | 0.900 |
| 12-DEMO-002 | 75 mg  | tablet  | 288 | 71.6 | 98.9 | 34.2 | 4.49 | 0.991 |
| 12-DEMO-002 | 75 mg  | troche  | 36  | 73.6 | 103  | 49.2 | 4.52 | 0.930 |

### 3 Annotate

- Arguments to identify the name of the generating R script and the output file name
- The output file name is retained as an attribute to be used later when saving the table data
- Arbitrary notes are also allowed (encouraged)

```
data %>%  
  st_data() %>%  
  st_files(r = "foo.R", output = "foo.tex") %>%  
  st_notes(  
    "Data were analyzed in quadruplicate.",  
    "The results are very clear."  
  ) %>%  
  st_make(.cat = TRUE)
```

| STUDY       | DOSE   | FORM    | N   | WT   | CRCL | AGE  | ALB  | SCR   |
|-------------|--------|---------|-----|------|------|------|------|-------|
| 12-DEMO-001 | 100 mg | tablet  | 80  | 71.4 | 104  | 33.7 | 4.20 | 1.06  |
| 12-DEMO-001 | 150 mg | capsule | 16  | 89.4 | 122  | 24.4 | 4.63 | 1.12  |
| 12-DEMO-001 | 150 mg | tablet  | 48  | 81.7 | 104  | 34.4 | 3.83 | 0.910 |
| 12-DEMO-001 | 150 mg | troche  | 16  | 94.0 | 93.2 | 27.4 | 4.94 | 1.25  |
| 12-DEMO-001 | 200 mg | tablet  | 64  | 67.9 | 100  | 27.5 | 4.25 | 1.10  |
| 12-DEMO-001 | 200 mg | troche  | 16  | 76.6 | 99.2 | 22.8 | 4.54 | 1.15  |
| 12-DEMO-002 | 100 mg | capsule | 36  | 61.3 | 113  | 38.3 | 4.04 | 1.28  |
| 12-DEMO-002 | 100 mg | tablet  | 324 | 77.6 | 106  | 29.9 | 4.31 | 0.981 |
| 12-DEMO-002 | 50 mg  | capsule | 36  | 74.1 | 112  | 37.1 | 4.44 | 0.900 |
| 12-DEMO-002 | 50 mg  | tablet  | 324 | 71.2 | 106  | 34.1 | 4.63 | 0.868 |
| 12-DEMO-002 | 75 mg  | capsule | 36  | 72.4 | 105  | 38.2 | 3.89 | 0.900 |
| 12-DEMO-002 | 75 mg  | tablet  | 288 | 71.6 | 98.9 | 34.2 | 4.49 | 0.991 |
| 12-DEMO-002 | 75 mg  | troche  | 36  | 73.6 | 103  | 49.2 | 4.52 | 0.930 |

Data were analyzed in quadruplicate.

The results are very clear.

Source code: foo.R

Source file: foo.tex

## 4 Notes in minipage

- By default, notes are put in the 3rd part of threeparttable
- Alternatively, we can put them in a minipage just below the table

```
data %>%  
  st_new() %>%  
  st_files("foo.R", "foo.tex") %>%  
  st_noteconf(type = "minipage", width = 0.65) %>%  
  st_notes(  
    "Data were analyzed in quadruplicate.",  
    "The results are very clear."  
  ) %>%  
  st_make(.cat = TRUE)
```

| STUDY       | DOSE   | FORM    | N   | WT   | CRCL | AGE  | ALB  | SCR   |
|-------------|--------|---------|-----|------|------|------|------|-------|
| 12-DEMO-001 | 100 mg | tablet  | 80  | 71.4 | 104  | 33.7 | 4.20 | 1.06  |
| 12-DEMO-001 | 150 mg | capsule | 16  | 89.4 | 122  | 24.4 | 4.63 | 1.12  |
| 12-DEMO-001 | 150 mg | tablet  | 48  | 81.7 | 104  | 34.4 | 3.83 | 0.910 |
| 12-DEMO-001 | 150 mg | troche  | 16  | 94.0 | 93.2 | 27.4 | 4.94 | 1.25  |
| 12-DEMO-001 | 200 mg | tablet  | 64  | 67.9 | 100  | 27.5 | 4.25 | 1.10  |
| 12-DEMO-001 | 200 mg | troche  | 16  | 76.6 | 99.2 | 22.8 | 4.54 | 1.15  |
| 12-DEMO-002 | 100 mg | capsule | 36  | 61.3 | 113  | 38.3 | 4.04 | 1.28  |
| 12-DEMO-002 | 100 mg | tablet  | 324 | 77.6 | 106  | 29.9 | 4.31 | 0.981 |
| 12-DEMO-002 | 50 mg  | capsule | 36  | 74.1 | 112  | 37.1 | 4.44 | 0.900 |
| 12-DEMO-002 | 50 mg  | tablet  | 324 | 71.2 | 106  | 34.1 | 4.63 | 0.868 |
| 12-DEMO-002 | 75 mg  | capsule | 36  | 72.4 | 105  | 38.2 | 3.89 | 0.900 |
| 12-DEMO-002 | 75 mg  | tablet  | 288 | 71.6 | 98.9 | 34.2 | 4.49 | 0.991 |
| 12-DEMO-002 | 75 mg  | troche  | 36  | 73.6 | 103  | 49.2 | 4.52 | 0.930 |

---

Data were analyzed in quadruplicate.

The results are very clear.

Source code: foo.R

Source file: foo.tex

## 5 Align

- Center everything except for
- STUDY (left)
- DOSE and SCR (right)

```
data %>%  
  st_new() %>%  
  st_align("c", STUDY = 'l', .r = "DOSE,SCR") %>%  
  st_make(.cat = TRUE)
```

| STUDY       | DOSE   | FORM    | N   | WT   | CRCL | AGE  | ALB  | SCR   |
|-------------|--------|---------|-----|------|------|------|------|-------|
| 12-DEMO-001 | 100 mg | tablet  | 80  | 71.4 | 104  | 33.7 | 4.20 | 1.06  |
| 12-DEMO-001 | 150 mg | capsule | 16  | 89.4 | 122  | 24.4 | 4.63 | 1.12  |
| 12-DEMO-001 | 150 mg | tablet  | 48  | 81.7 | 104  | 34.4 | 3.83 | 0.910 |
| 12-DEMO-001 | 150 mg | troche  | 16  | 94.0 | 93.2 | 27.4 | 4.94 | 1.25  |
| 12-DEMO-001 | 200 mg | tablet  | 64  | 67.9 | 100  | 27.5 | 4.25 | 1.10  |
| 12-DEMO-001 | 200 mg | troche  | 16  | 76.6 | 99.2 | 22.8 | 4.54 | 1.15  |
| 12-DEMO-002 | 100 mg | capsule | 36  | 61.3 | 113  | 38.3 | 4.04 | 1.28  |
| 12-DEMO-002 | 100 mg | tablet  | 324 | 77.6 | 106  | 29.9 | 4.31 | 0.981 |
| 12-DEMO-002 | 50 mg  | capsule | 36  | 74.1 | 112  | 37.1 | 4.44 | 0.900 |
| 12-DEMO-002 | 50 mg  | tablet  | 324 | 71.2 | 106  | 34.1 | 4.63 | 0.868 |
| 12-DEMO-002 | 75 mg  | capsule | 36  | 72.4 | 105  | 38.2 | 3.89 | 0.900 |
| 12-DEMO-002 | 75 mg  | tablet  | 288 | 71.6 | 98.9 | 34.2 | 4.49 | 0.991 |
| 12-DEMO-002 | 75 mg  | troche  | 36  | 73.6 | 103  | 49.2 | 4.52 | 0.930 |

## 6 Units

- Automatically put units under the column name

```
data %>%
  st_new() %>%
  st_center(STUDY = '1', .r = "DOSE,SCR") %>%
  st_units(WT = "kg", SCR = "mg/dL", DOSE = "mg") %>%
  st_make(.cat = TRUE)
```

| STUDY       | DOSE<br>(mg) | FORM    | N   | WT<br>(kg) | CRCL | AGE  | ALB  | SCR<br>(mg/dL) |
|-------------|--------------|---------|-----|------------|------|------|------|----------------|
| 12-DEMO-001 | 100 mg       | tablet  | 80  | 71.4       | 104  | 33.7 | 4.20 | 1.06           |
| 12-DEMO-001 | 150 mg       | capsule | 16  | 89.4       | 122  | 24.4 | 4.63 | 1.12           |
| 12-DEMO-001 | 150 mg       | tablet  | 48  | 81.7       | 104  | 34.4 | 3.83 | 0.910          |
| 12-DEMO-001 | 150 mg       | troche  | 16  | 94.0       | 93.2 | 27.4 | 4.94 | 1.25           |
| 12-DEMO-001 | 200 mg       | tablet  | 64  | 67.9       | 100  | 27.5 | 4.25 | 1.10           |
| 12-DEMO-001 | 200 mg       | troche  | 16  | 76.6       | 99.2 | 22.8 | 4.54 | 1.15           |
| 12-DEMO-002 | 100 mg       | capsule | 36  | 61.3       | 113  | 38.3 | 4.04 | 1.28           |
| 12-DEMO-002 | 100 mg       | tablet  | 324 | 77.6       | 106  | 29.9 | 4.31 | 0.981          |
| 12-DEMO-002 | 50 mg        | capsule | 36  | 74.1       | 112  | 37.1 | 4.44 | 0.900          |
| 12-DEMO-002 | 50 mg        | tablet  | 324 | 71.2       | 106  | 34.1 | 4.63 | 0.868          |
| 12-DEMO-002 | 75 mg        | capsule | 36  | 72.4       | 105  | 38.2 | 3.89 | 0.900          |
| 12-DEMO-002 | 75 mg        | tablet  | 288 | 71.6       | 98.9 | 34.2 | 4.49 | 0.991          |
| 12-DEMO-002 | 75 mg        | troche  | 36  | 73.6       | 103  | 49.2 | 4.52 | 0.930          |

Alternatively

```
units <- ys_get_unit(spec, parens = TRUE)

data[1:3,] %>%
  st_new() %>%
  st_center(STUDY = '1', .r = "DOSE,SCR") %>%
  st_units(units) %>%
  st_make(.cat = TRUE)
```

| STUDY       | DOSE   | FORM    | N  | WT<br>(kg) | CRCL<br>(ml/min) | AGE<br>(years) | ALB<br>(g/dL) | SCR<br>(mg/dL) |
|-------------|--------|---------|----|------------|------------------|----------------|---------------|----------------|
| 12-DEMO-001 | 100 mg | tablet  | 80 | 71.4       | 104              | 33.7           | 4.20          | 1.06           |
| 12-DEMO-001 | 150 mg | capsule | 16 | 89.4       | 122              | 24.4           | 4.63          | 1.12           |
| 12-DEMO-001 | 150 mg | tablet  | 48 | 81.7       | 104              | 34.4           | 3.83          | 0.910          |



## 7 Expand header rows

- Multiline table header
- Unlimited number
- Use ... to break

```
data %>%  
  st_new() %>%  
  st_rename("Study...Number" = STUDY, "Serum...Albumin" = ALB) %>%  
  st_units(units) %>%  
  st_make(.cat = TRUE)
```

| Study<br>Number | DOSE   | FORM    | N   | WT<br>(kg) | CRCL<br>(ml/min) | AGE<br>(years) | Serum<br>Albumin<br>(g/dL) | SCR<br>(mg/dL) |
|-----------------|--------|---------|-----|------------|------------------|----------------|----------------------------|----------------|
| 12-DEMO-001     | 100 mg | tablet  | 80  | 71.4       | 104              | 33.7           | 4.20                       | 1.06           |
| 12-DEMO-001     | 150 mg | capsule | 16  | 89.4       | 122              | 24.4           | 4.63                       | 1.12           |
| 12-DEMO-001     | 150 mg | tablet  | 48  | 81.7       | 104              | 34.4           | 3.83                       | 0.910          |
| 12-DEMO-001     | 150 mg | troche  | 16  | 94.0       | 93.2             | 27.4           | 4.94                       | 1.25           |
| 12-DEMO-001     | 200 mg | tablet  | 64  | 67.9       | 100              | 27.5           | 4.25                       | 1.10           |
| 12-DEMO-001     | 200 mg | troche  | 16  | 76.6       | 99.2             | 22.8           | 4.54                       | 1.15           |
| 12-DEMO-002     | 100 mg | capsule | 36  | 61.3       | 113              | 38.3           | 4.04                       | 1.28           |
| 12-DEMO-002     | 100 mg | tablet  | 324 | 77.6       | 106              | 29.9           | 4.31                       | 0.981          |
| 12-DEMO-002     | 50 mg  | capsule | 36  | 74.1       | 112              | 37.1           | 4.44                       | 0.900          |
| 12-DEMO-002     | 50 mg  | tablet  | 324 | 71.2       | 106              | 34.1           | 4.63                       | 0.868          |
| 12-DEMO-002     | 75 mg  | capsule | 36  | 72.4       | 105              | 38.2           | 3.89                       | 0.900          |
| 12-DEMO-002     | 75 mg  | tablet  | 288 | 71.6       | 98.9             | 34.2           | 4.49                       | 0.991          |
| 12-DEMO-002     | 75 mg  | troche  | 36  | 73.6       | 103              | 49.2           | 4.52                       | 0.930          |

## 8 Math

- Columns with at least two \$ are “math” and will not be sanitized
- Otherwise they are functions to “prime” the data frame
- The default is to convert every column to character
- Then walk the columns, look for non-math columns and sanitize them

```
ptab <- readRDS("datasets/ptab.RDS")
ptab
```

```
## # A tibble: 4 x 6
##   .type      Parameter      Symbol  Math      Estimate    SE
##   <chr>      <chr>      <chr>   <chr>      <dbl> <dbl>
## 1 Fixed-effects Clearance    CL (L/h~ "$\\exp(\\thet~ 1.22 0.4
## 2 Fixed-effects Volume of distribu~ V2 (L)   "$\\exp(\\thet~ 5.87 0.89
## 3 Fixed-effects Absorption rate co~ KA (1/h~ "$\\theta_3$" 1.23 0.1
## 4 Unexplained varia~ Additive_error  RUV      "$\\sigma_1$" 0.02 0.01
```

```
ptab %>%
  st_data() %>%
  st_center(Parameter = col_ragged(3), .l = "Symbol") %>%
  st_panel(".type") %>%
  st_make(.cat = TRUE)
```

| Parameter                      | Symbol    | Math             | Estimate | SE   |
|--------------------------------|-----------|------------------|----------|------|
| <b>Fixed-effects</b>           |           |                  |          |      |
| Clearance                      | CL (L/hr) | $\exp(\theta_1)$ | 1.22     | 0.4  |
| Volume of distribution         | V2 (L)    | $\exp(\theta_2)$ | 5.87     | 0.89 |
| Absorption rate constant       | KA (1/hr) | $\theta_3$       | 1.23     | 0.1  |
| <b>Unexplained variability</b> |           |                  |          |      |
| Additive_error                 | RUV       | $\sigma_1$       | 0.02     | 0.01 |

## 9 hline from column

- Use the column to determine where the hline should go

```
st_new(data) %>%  
  st_hline(from = "STUDY") %>%  
  st_make(.cat = TRUE)
```

| STUDY       | DOSE   | FORM    | N   | WT   | CRCL | AGE  | ALB  | SCR   |
|-------------|--------|---------|-----|------|------|------|------|-------|
| 12-DEMO-001 | 100 mg | tablet  | 80  | 71.4 | 104  | 33.7 | 4.20 | 1.06  |
| 12-DEMO-001 | 150 mg | capsule | 16  | 89.4 | 122  | 24.4 | 4.63 | 1.12  |
| 12-DEMO-001 | 150 mg | tablet  | 48  | 81.7 | 104  | 34.4 | 3.83 | 0.910 |
| 12-DEMO-001 | 150 mg | troche  | 16  | 94.0 | 93.2 | 27.4 | 4.94 | 1.25  |
| 12-DEMO-001 | 200 mg | tablet  | 64  | 67.9 | 100  | 27.5 | 4.25 | 1.10  |
| 12-DEMO-001 | 200 mg | troche  | 16  | 76.6 | 99.2 | 22.8 | 4.54 | 1.15  |
| 12-DEMO-002 | 100 mg | capsule | 36  | 61.3 | 113  | 38.3 | 4.04 | 1.28  |
| 12-DEMO-002 | 100 mg | tablet  | 324 | 77.6 | 106  | 29.9 | 4.31 | 0.981 |
| 12-DEMO-002 | 50 mg  | capsule | 36  | 74.1 | 112  | 37.1 | 4.44 | 0.900 |
| 12-DEMO-002 | 50 mg  | tablet  | 324 | 71.2 | 106  | 34.1 | 4.63 | 0.868 |
| 12-DEMO-002 | 75 mg  | capsule | 36  | 72.4 | 105  | 38.2 | 3.89 | 0.900 |
| 12-DEMO-002 | 75 mg  | tablet  | 288 | 71.6 | 98.9 | 34.2 | 4.49 | 0.991 |
| 12-DEMO-002 | 75 mg  | troche  | 36  | 73.6 | 103  | 49.2 | 4.52 | 0.930 |

## 10 hline anywhere

- Give row numbers for hline

```
st_new(data) %>%  
  st_hline(at = c(3,nrow(data))-1) %>%  
  st_make(.cat = TRUE)
```

| STUDY       | DOSE   | FORM    | N   | WT   | CRCL | AGE  | ALB  | SCR   |
|-------------|--------|---------|-----|------|------|------|------|-------|
| 12-DEMO-001 | 100 mg | tablet  | 80  | 71.4 | 104  | 33.7 | 4.20 | 1.06  |
| 12-DEMO-001 | 150 mg | capsule | 16  | 89.4 | 122  | 24.4 | 4.63 | 1.12  |
| 12-DEMO-001 | 150 mg | tablet  | 48  | 81.7 | 104  | 34.4 | 3.83 | 0.910 |
| 12-DEMO-001 | 150 mg | troche  | 16  | 94.0 | 93.2 | 27.4 | 4.94 | 1.25  |
| 12-DEMO-001 | 200 mg | tablet  | 64  | 67.9 | 100  | 27.5 | 4.25 | 1.10  |
| 12-DEMO-001 | 200 mg | troche  | 16  | 76.6 | 99.2 | 22.8 | 4.54 | 1.15  |
| 12-DEMO-002 | 100 mg | capsule | 36  | 61.3 | 113  | 38.3 | 4.04 | 1.28  |
| 12-DEMO-002 | 100 mg | tablet  | 324 | 77.6 | 106  | 29.9 | 4.31 | 0.981 |
| 12-DEMO-002 | 50 mg  | capsule | 36  | 74.1 | 112  | 37.1 | 4.44 | 0.900 |
| 12-DEMO-002 | 50 mg  | tablet  | 324 | 71.2 | 106  | 34.1 | 4.63 | 0.868 |
| 12-DEMO-002 | 75 mg  | capsule | 36  | 72.4 | 105  | 38.2 | 3.89 | 0.900 |
| 12-DEMO-002 | 75 mg  | tablet  | 288 | 71.6 | 98.9 | 34.2 | 4.49 | 0.991 |
| 12-DEMO-002 | 75 mg  | troche  | 36  | 73.6 | 103  | 49.2 | 4.52 | 0.930 |

## 11 hline pattern

```
tmp <- readRDS("datasets/with-total.RDS")

st_new(tmp) %>%
  st_hline(pattern = "all", cols = "STUDY", n = 2) %>%
  st_make(.cat = TRUE)
```

| STUDY       | WT   | AGE  | CRCL | ALB  | SCR   |
|-------------|------|------|------|------|-------|
| 12-DEMO-001 | 80.2 | 28.4 | 104  | 4.40 | 1.10  |
| 12-DEMO-002 | 71.7 | 37.3 | 106  | 4.33 | 0.979 |
| all         | 75.9 | 32.8 | 105  | 4.37 | 1.04  |

## 12 hline multiple

```
tmp <- readRDS("datasets/with-total.RDS")

st_new(tmp) %>%
  st_hline(at = 3, n = 2) %>%
  st_make(.cat = TRUE)
```

| STUDY       | WT   | AGE  | CRCL | ALB  | SCR   |
|-------------|------|------|------|------|-------|
| 12-DEMO-001 | 80.2 | 28.4 | 104  | 4.40 | 1.10  |
| 12-DEMO-002 | 71.7 | 37.3 | 106  | 4.33 | 0.979 |
| all         | 75.9 | 32.8 | 105  | 4.37 | 1.04  |

## 13 Mark a summary row (cf sumrows)

```
tmp <- readRDS("datasets/with-total.RDS")

st_new(tmp) %>%
  st_hline(at = 3, n = 2) %>%
  st_bold(cols = "STUDY", pattern = "all") %>%
  st_edit(pattern = "all", replacement = "All studies") %>%
  st_make(.cat = TRUE)
```

| STUDY              | WT   | AGE  | CRCL | ALB  | SCR   |
|--------------------|------|------|------|------|-------|
| 12-DEMO-001        | 80.2 | 28.4 | 104  | 4.40 | 1.10  |
| 12-DEMO-002        | 71.7 | 37.3 | 106  | 4.33 | 0.979 |
| <b>All studies</b> | 75.9 | 32.8 | 105  | 4.37 | 1.04  |

## 14 Remove duplicate values

- Discard repeating values in a column

```
data %>%  
  st_new() %>%  
  st_hline(from = "STUDY") %>%  
  st_clear_reps("STUDY") %>%  
  st_make(.cat = TRUE)
```

| STUDY       | DOSE   | FORM    | N   | WT   | CRCL | AGE  | ALB  | SCR   |
|-------------|--------|---------|-----|------|------|------|------|-------|
| 12-DEMO-001 | 100 mg | tablet  | 80  | 71.4 | 104  | 33.7 | 4.20 | 1.06  |
|             | 150 mg | capsule | 16  | 89.4 | 122  | 24.4 | 4.63 | 1.12  |
|             | 150 mg | tablet  | 48  | 81.7 | 104  | 34.4 | 3.83 | 0.910 |
|             | 150 mg | troche  | 16  | 94.0 | 93.2 | 27.4 | 4.94 | 1.25  |
|             | 200 mg | tablet  | 64  | 67.9 | 100  | 27.5 | 4.25 | 1.10  |
|             | 200 mg | troche  | 16  | 76.6 | 99.2 | 22.8 | 4.54 | 1.15  |
| 12-DEMO-002 | 100 mg | capsule | 36  | 61.3 | 113  | 38.3 | 4.04 | 1.28  |
|             | 100 mg | tablet  | 324 | 77.6 | 106  | 29.9 | 4.31 | 0.981 |
|             | 50 mg  | capsule | 36  | 74.1 | 112  | 37.1 | 4.44 | 0.900 |
|             | 50 mg  | tablet  | 324 | 71.2 | 106  | 34.1 | 4.63 | 0.868 |
|             | 75 mg  | capsule | 36  | 72.4 | 105  | 38.2 | 3.89 | 0.900 |
|             | 75 mg  | tablet  | 288 | 71.6 | 98.9 | 34.2 | 4.49 | 0.991 |
|             | 75 mg  | troche  | 36  | 73.6 | 103  | 49.2 | 4.52 | 0.930 |



## 15 Add styling to data frame

- `tex_bold` will make table cells bold when they match pattern
- `tex_it` will make table cells italics when they match pattern
- styling is only added when there is at least one character
- input must be string
- combine this with `clear_rep` and `hline_from` to partition the table

```
tmp <- ptdata()
tmp <- mutate(tmp, STUDY = tex_bold(as.character(STUDY)))
```

```
tmp %>%
  st_new() %>%
  st_clear_reps(STUDY) %>%
  st_hline(from = "STUDY") %>%
  st_make(.cat = TRUE)
```

| STUDY              | DOSE   | FORM    | N   | WT   | CRCL | AGE  | ALB  | SCR   |
|--------------------|--------|---------|-----|------|------|------|------|-------|
| <b>12-DEMO-001</b> | 100 mg | tablet  | 80  | 71.4 | 104  | 33.7 | 4.20 | 1.06  |
|                    | 150 mg | capsule | 16  | 89.4 | 122  | 24.4 | 4.63 | 1.12  |
|                    | 150 mg | tablet  | 48  | 81.7 | 104  | 34.4 | 3.83 | 0.910 |
|                    | 150 mg | troche  | 16  | 94.0 | 93.2 | 27.4 | 4.94 | 1.25  |
|                    | 200 mg | tablet  | 64  | 67.9 | 100  | 27.5 | 4.25 | 1.10  |
|                    | 200 mg | troche  | 16  | 76.6 | 99.2 | 22.8 | 4.54 | 1.15  |
| <b>12-DEMO-002</b> | 100 mg | capsule | 36  | 61.3 | 113  | 38.3 | 4.04 | 1.28  |
|                    | 100 mg | tablet  | 324 | 77.6 | 106  | 29.9 | 4.31 | 0.981 |
|                    | 50 mg  | capsule | 36  | 74.1 | 112  | 37.1 | 4.44 | 0.900 |
|                    | 50 mg  | tablet  | 324 | 71.2 | 106  | 34.1 | 4.63 | 0.868 |
|                    | 75 mg  | capsule | 36  | 72.4 | 105  | 38.2 | 3.89 | 0.900 |
|                    | 75 mg  | tablet  | 288 | 71.6 | 98.9 | 34.2 | 4.49 | 0.991 |
|                    | 75 mg  | troche  | 36  | 73.6 | 103  | 49.2 | 4.52 | 0.930 |

## 16 Add styling in the pipeline

```
tmp <- ptdata()
```

```
tmp %>%
  st_new() %>%
  st_clear_reps(STUDY, .now = TRUE) %>%
  st_hline(pattern = "\\S+", cols = "STUDY") %>%
  st_bold(cols = "STUDY") %>%
  st_it("DOSE") %>%
  st_edit("\\bmale", "dude") %>%
  st_edit("female", "gal") %>%
  st_make(.cat = TRUE)
```

| STUDY              | DOSE          | FORM    | N   | WT   | CRCL | AGE  | ALB  | SCR   |
|--------------------|---------------|---------|-----|------|------|------|------|-------|
| <b>12-DEMO-001</b> | <i>100 mg</i> | tablet  | 80  | 71.4 | 104  | 33.7 | 4.20 | 1.06  |
|                    | <i>150 mg</i> | capsule | 16  | 89.4 | 122  | 24.4 | 4.63 | 1.12  |
|                    | <i>150 mg</i> | tablet  | 48  | 81.7 | 104  | 34.4 | 3.83 | 0.910 |
|                    | <i>150 mg</i> | troche  | 16  | 94.0 | 93.2 | 27.4 | 4.94 | 1.25  |
|                    | <i>200 mg</i> | tablet  | 64  | 67.9 | 100  | 27.5 | 4.25 | 1.10  |
|                    | <i>200 mg</i> | troche  | 16  | 76.6 | 99.2 | 22.8 | 4.54 | 1.15  |
| <b>12-DEMO-002</b> | <i>100 mg</i> | capsule | 36  | 61.3 | 113  | 38.3 | 4.04 | 1.28  |
|                    | <i>100 mg</i> | tablet  | 324 | 77.6 | 106  | 29.9 | 4.31 | 0.981 |
|                    | <i>50 mg</i>  | capsule | 36  | 74.1 | 112  | 37.1 | 4.44 | 0.900 |
|                    | <i>50 mg</i>  | tablet  | 324 | 71.2 | 106  | 34.1 | 4.63 | 0.868 |
|                    | <i>75 mg</i>  | capsule | 36  | 72.4 | 105  | 38.2 | 3.89 | 0.900 |
|                    | <i>75 mg</i>  | tablet  | 288 | 71.6 | 98.9 | 34.2 | 4.49 | 0.991 |
|                    | <i>75 mg</i>  | troche  | 36  | 73.6 | 103  | 49.2 | 4.52 | 0.930 |

## 17 Panel

- Divide the table using column contents
- there's a bug somewhere there

```
data %>%  
  st_new() %>%  
  st_center(DOSE = 'l', SCR = 'r') %>%  
  st_panel("STUDY", prefix = "Study number: ") %>%  
  st_make(.cat = TRUE)
```

| DOSE                             | FORM    | N   | WT   | CRCL | AGE  | ALB  | SCR   |
|----------------------------------|---------|-----|------|------|------|------|-------|
| <b>Study number: 12-DEMO-001</b> |         |     |      |      |      |      |       |
| 100 mg                           | tablet  | 80  | 71.4 | 104  | 33.7 | 4.20 | 1.06  |
| 150 mg                           | capsule | 16  | 89.4 | 122  | 24.4 | 4.63 | 1.12  |
| 150 mg                           | tablet  | 48  | 81.7 | 104  | 34.4 | 3.83 | 0.910 |
| 150 mg                           | troche  | 16  | 94.0 | 93.2 | 27.4 | 4.94 | 1.25  |
| 200 mg                           | tablet  | 64  | 67.9 | 100  | 27.5 | 4.25 | 1.10  |
| 200 mg                           | troche  | 16  | 76.6 | 99.2 | 22.8 | 4.54 | 1.15  |
| <b>Study number: 12-DEMO-002</b> |         |     |      |      |      |      |       |
| 100 mg                           | capsule | 36  | 61.3 | 113  | 38.3 | 4.04 | 1.28  |
| 100 mg                           | tablet  | 324 | 77.6 | 106  | 29.9 | 4.31 | 0.981 |
| 50 mg                            | capsule | 36  | 74.1 | 112  | 37.1 | 4.44 | 0.900 |
| 50 mg                            | tablet  | 324 | 71.2 | 106  | 34.1 | 4.63 | 0.868 |
| 75 mg                            | capsule | 36  | 72.4 | 105  | 38.2 | 3.89 | 0.900 |
| 75 mg                            | tablet  | 288 | 71.6 | 98.9 | 34.2 | 4.49 | 0.991 |
| 75 mg                            | troche  | 36  | 73.6 | 103  | 49.2 | 4.52 | 0.930 |

## 18 Colspan

- Group columns

```
data %>%
  st_new() %>%
  st_left(.c = "WT,AGE,CRCL") %>%
  st_span("In final model", WT:CRCL) %>%
  st_make(.cat = TRUE)
```

| STUDY       | DOSE   | FORM    | N   | In final model |      | AGE  | ALB  | SCR   |
|-------------|--------|---------|-----|----------------|------|------|------|-------|
|             |        |         |     | WT             | CRCL |      |      |       |
| 12-DEMO-001 | 100 mg | tablet  | 80  | 71.4           | 104  | 33.7 | 4.20 | 1.06  |
| 12-DEMO-001 | 150 mg | capsule | 16  | 89.4           | 122  | 24.4 | 4.63 | 1.12  |
| 12-DEMO-001 | 150 mg | tablet  | 48  | 81.7           | 104  | 34.4 | 3.83 | 0.910 |
| 12-DEMO-001 | 150 mg | troche  | 16  | 94.0           | 93.2 | 27.4 | 4.94 | 1.25  |
| 12-DEMO-001 | 200 mg | tablet  | 64  | 67.9           | 100  | 27.5 | 4.25 | 1.10  |
| 12-DEMO-001 | 200 mg | troche  | 16  | 76.6           | 99.2 | 22.8 | 4.54 | 1.15  |
| 12-DEMO-002 | 100 mg | capsule | 36  | 61.3           | 113  | 38.3 | 4.04 | 1.28  |
| 12-DEMO-002 | 100 mg | tablet  | 324 | 77.6           | 106  | 29.9 | 4.31 | 0.981 |
| 12-DEMO-002 | 50 mg  | capsule | 36  | 74.1           | 112  | 37.1 | 4.44 | 0.900 |
| 12-DEMO-002 | 50 mg  | tablet  | 324 | 71.2           | 106  | 34.1 | 4.63 | 0.868 |
| 12-DEMO-002 | 75 mg  | capsule | 36  | 72.4           | 105  | 38.2 | 3.89 | 0.900 |
| 12-DEMO-002 | 75 mg  | tablet  | 288 | 71.6           | 98.9 | 34.2 | 4.49 | 0.991 |
| 12-DEMO-002 | 75 mg  | troche  | 36  | 73.6           | 103  | 49.2 | 4.52 | 0.930 |

## 19 Colspan - multiple

- Multiple groupings
- Multiple levels

```
data %>%
  st_new() %>%
  st_span("Meh", DOSE:WT) %>%
  st_span("Hrm", AGE:CRCL) %>%
  st_span("Huh", ALB:SCR) %>%
  st_span("Expert opinion", CRCL:SCR, level = 2) %>%
  st_make(.cat = TRUE)
```

| STUDY       | DOSE   | Meh     |     |      | Expert opinion |      |      |       |
|-------------|--------|---------|-----|------|----------------|------|------|-------|
|             |        |         |     |      | Hrm            |      | Huh  |       |
|             |        | FORM    | N   | WT   | CRCL           | AGE  | ALB  | SCR   |
| 12-DEMO-001 | 100 mg | tablet  | 80  | 71.4 | 104            | 33.7 | 4.20 | 1.06  |
| 12-DEMO-001 | 150 mg | capsule | 16  | 89.4 | 122            | 24.4 | 4.63 | 1.12  |
| 12-DEMO-001 | 150 mg | tablet  | 48  | 81.7 | 104            | 34.4 | 3.83 | 0.910 |
| 12-DEMO-001 | 150 mg | troche  | 16  | 94.0 | 93.2           | 27.4 | 4.94 | 1.25  |
| 12-DEMO-001 | 200 mg | tablet  | 64  | 67.9 | 100            | 27.5 | 4.25 | 1.10  |
| 12-DEMO-001 | 200 mg | troche  | 16  | 76.6 | 99.2           | 22.8 | 4.54 | 1.15  |
| 12-DEMO-002 | 100 mg | capsule | 36  | 61.3 | 113            | 38.3 | 4.04 | 1.28  |
| 12-DEMO-002 | 100 mg | tablet  | 324 | 77.6 | 106            | 29.9 | 4.31 | 0.981 |
| 12-DEMO-002 | 50 mg  | capsule | 36  | 74.1 | 112            | 37.1 | 4.44 | 0.900 |
| 12-DEMO-002 | 50 mg  | tablet  | 324 | 71.2 | 106            | 34.1 | 4.63 | 0.868 |
| 12-DEMO-002 | 75 mg  | capsule | 36  | 72.4 | 105            | 38.2 | 3.89 | 0.900 |
| 12-DEMO-002 | 75 mg  | tablet  | 288 | 71.6 | 98.9           | 34.2 | 4.49 | 0.991 |
| 12-DEMO-002 | 75 mg  | troche  | 36  | 73.6 | 103            | 49.2 | 4.52 | 0.930 |

## 20 Colspan - from cols

- we have some columns of the form tag.name

```
dotdata <- readRDS("datasets/with-dots.RDS")
head(dotdata, n=2)
```

```
## # A tibble: 2 x 7
##   STUDY      Normal.WT Normal.CRCL Normal.ALB ESRD.WT ESRD.CRCL ESRD.ALB
##   <chr>      <chr>      <chr>      <chr>      <chr>      <chr>      <chr>
## 1 12-DEMO-001 71.4      104      4.20      78.5      26.0      2.10
## 2 12-DEMO-001 81.7      104      3.83      89.9      26.1      1.92
```

```
dotdata %>%
  st_new() %>%
  st_span_split(sep = '.') %>%
  st_make(.cat = TRUE)
```

| STUDY       | Normal |      |      | ESRD |      |      |
|-------------|--------|------|------|------|------|------|
|             | WT     | CRCL | ALB  | WT   | CRCL | ALB  |
| 12-DEMO-001 | 71.4   | 104  | 4.20 | 78.5 | 26.0 | 2.10 |
| 12-DEMO-001 | 81.7   | 104  | 3.83 | 89.9 | 26.1 | 1.92 |
| 12-DEMO-001 | 89.4   | 122  | 4.63 | 98.4 | 30.6 | 2.32 |
| 12-DEMO-001 | 94.0   | 93.2 | 4.94 | 103  | 23.3 | 2.47 |
| 12-DEMO-001 | 67.9   | 100  | 4.25 | 74.7 | 25.1 | 2.13 |
| 12-DEMO-001 | 76.6   | 99.2 | 4.54 | 84.2 | 24.8 | 2.27 |
| 12-DEMO-002 | 77.6   | 106  | 4.31 | 85.4 | 26.4 | 2.16 |
| 12-DEMO-002 | 61.3   | 113  | 4.04 | 67.4 | 28.2 | 2.02 |
| 12-DEMO-002 | 71.2   | 106  | 4.63 | 78.3 | 26.4 | 2.32 |
| 12-DEMO-002 | 74.1   | 112  | 4.44 | 81.5 | 28.0 | 2.22 |
| 12-DEMO-002 | 71.6   | 98.9 | 4.49 | 78.8 | 24.7 | 2.25 |
| 12-DEMO-002 | 72.4   | 105  | 3.89 | 79.6 | 26.3 | 1.94 |
| 12-DEMO-002 | 73.6   | 103  | 4.52 | 81.0 | 25.8 | 2.26 |

## 21 Handle wide columns

### 21.1 descr is taking over the table

```
ptable <- readRDS("datasets/ptable.RDS")  
ptable %>% st_new() %>% st_make(.cat = TRUE)
```

| symbol | descr   | estimate | standard.error |
|--------|---|----------|----------------|
| CL (L) | Metabolic clearance in adults who graduated high school before 1973 and live in Muncie. | 100      | 200            |

### 21.2 Limit descr to 5 cm

```
ptable %>%  
  st_new() %>%  
  st_align(descr = col_ragged(5)) %>%  
  st_make(.cat = TRUE)
```

| symbol | descr   | estimate | standard.error | rse |
|--------|---|----------|----------------|-----|
| CL (L) | Metabolic clearance in adults who graduated high school before 1973 and live in Muncie. | 100      | 200            | 2   |

## 22 Identify a summary row

We can point to one or more rows and style it up as a “summary row”

```
df.total <- readRDS(file = "datasets/with-total.RDS")
df.total

## # A tibble: 3 x 6
##   STUDY      WT  AGE  CRCL  ALB  SCR
##   <chr>    <chr> <chr> <chr> <chr> <chr>
## 1 12-DEMO-001 80.2 28.4  104  4.40  1.10
## 2 12-DEMO-002 71.7 37.3  106  4.33  0.979
## 3 all        75.9 32.8  105  4.37  1.04

st_new(df.total) %>%
  st_sumrow(.$data$STUDY=="all", label = "All studies", bold = TRUE) %>%
  st_make(.cat = TRUE)
```

| STUDY              | WT   | AGE  | CRCL | ALB  | SCR   |
|--------------------|------|------|------|------|-------|
| 12-DEMO-001        | 80.2 | 28.4 | 104  | 4.40 | 1.10  |
| 12-DEMO-002        | 71.7 | 37.3 | 106  | 4.33 | 0.979 |
| <b>All studies</b> | 75.9 | 32.8 | 105  | 4.37 | 1.04  |



## 23 Fontsize

- Where's my glasses?

```
data %>% st_new() %>% st_sizes(font = "tiny") %>% st_make(.cat = TRUE)
```

| STUDY       | DOSE   | FORM    | N   | WT   | CRCL | AGE  | ALB  | SCR   |
|-------------|--------|---------|-----|------|------|------|------|-------|
| 12-DEMO-001 | 100 mg | tablet  | 80  | 71.4 | 104  | 33.7 | 4.20 | 1.06  |
| 12-DEMO-001 | 150 mg | capsule | 16  | 89.4 | 122  | 24.4 | 4.63 | 1.12  |
| 12-DEMO-001 | 150 mg | tablet  | 48  | 81.7 | 104  | 34.4 | 3.83 | 0.910 |
| 12-DEMO-001 | 150 mg | troche  | 16  | 94.0 | 93.2 | 27.4 | 4.94 | 1.25  |
| 12-DEMO-001 | 200 mg | tablet  | 64  | 67.9 | 100  | 27.5 | 4.25 | 1.10  |
| 12-DEMO-001 | 200 mg | troche  | 16  | 76.6 | 99.2 | 22.8 | 4.54 | 1.15  |
| 12-DEMO-002 | 100 mg | capsule | 36  | 61.3 | 113  | 38.3 | 4.04 | 1.28  |
| 12-DEMO-002 | 100 mg | tablet  | 324 | 77.6 | 106  | 29.9 | 4.31 | 0.981 |
| 12-DEMO-002 | 50 mg  | capsule | 36  | 74.1 | 112  | 37.1 | 4.44 | 0.900 |
| 12-DEMO-002 | 50 mg  | tablet  | 324 | 71.2 | 106  | 34.1 | 4.63 | 0.868 |
| 12-DEMO-002 | 75 mg  | capsule | 36  | 72.4 | 105  | 38.2 | 3.89 | 0.900 |
| 12-DEMO-002 | 75 mg  | tablet  | 288 | 71.6 | 98.9 | 34.2 | 4.49 | 0.991 |
| 12-DEMO-002 | 75 mg  | troche  | 36  | 73.6 | 103  | 49.2 | 4.52 | 0.930 |

## 24 Row space

```
s1 <- data %>% slice(1:3)
s1 %>% st_new() %>% st_make(.cat = TRUE)
```

| STUDY       | DOSE   | FORM    | N  | WT   | CRCL | AGE  | ALB  | SCR   |
|-------------|--------|---------|----|------|------|------|------|-------|
| 12-DEMO-001 | 100 mg | tablet  | 80 | 71.4 | 104  | 33.7 | 4.20 | 1.06  |
| 12-DEMO-001 | 150 mg | capsule | 16 | 89.4 | 122  | 24.4 | 4.63 | 1.12  |
| 12-DEMO-001 | 150 mg | tablet  | 48 | 81.7 | 104  | 34.4 | 3.83 | 0.910 |

```
s1 %>% st_new() %>% st_sizes(row = 0.9) %>% st_make(.cat = TRUE)
```

| STUDY       | DOSE   | FORM    | N  | WT   | CRCL | AGE  | ALB  | SCR   |
|-------------|--------|---------|----|------|------|------|------|-------|
| 12-DEMO-001 | 100 mg | tablet  | 80 | 71.4 | 104  | 33.7 | 4.20 | 1.06  |
| 12-DEMO-001 | 150 mg | capsule | 16 | 89.4 | 122  | 24.4 | 4.63 | 1.12  |
| 12-DEMO-001 | 150 mg | tablet  | 48 | 81.7 | 104  | 34.4 | 3.83 | 0.910 |

```
s1 %>% st_new() %>% st_sizes(row = 2 ) %>% st_make(.cat = TRUE)
```

| STUDY       | DOSE   | FORM    | N  | WT   | CRCL | AGE  | ALB  | SCR   |
|-------------|--------|---------|----|------|------|------|------|-------|
| 12-DEMO-001 | 100 mg | tablet  | 80 | 71.4 | 104  | 33.7 | 4.20 | 1.06  |
| 12-DEMO-001 | 150 mg | capsule | 16 | 89.4 | 122  | 24.4 | 4.63 | 1.12  |
| 12-DEMO-001 | 150 mg | tablet  | 48 | 81.7 | 104  | 34.4 | 3.83 | 0.910 |

## 25 Col space

```
data %>% st_new() %>% st_sizes(col = 20) %>% st_make(.cat = TRUE)
```

| STUDY       | DOSE   | FORM    | N   | WT   | CRCL | AGE  | ALB  |
|-------------|--------|---------|-----|------|------|------|------|
| 12-DEMO-001 | 100 mg | tablet  | 80  | 71.4 | 104  | 33.7 | 4.20 |
| 12-DEMO-001 | 150 mg | capsule | 16  | 89.4 | 122  | 24.4 | 4.63 |
| 12-DEMO-001 | 150 mg | tablet  | 48  | 81.7 | 104  | 34.4 | 3.83 |
| 12-DEMO-001 | 150 mg | troche  | 16  | 94.0 | 93.2 | 27.4 | 4.94 |
| 12-DEMO-001 | 200 mg | tablet  | 64  | 67.9 | 100  | 27.5 | 4.25 |
| 12-DEMO-001 | 200 mg | troche  | 16  | 76.6 | 99.2 | 22.8 | 4.54 |
| 12-DEMO-002 | 100 mg | capsule | 36  | 61.3 | 113  | 38.3 | 4.04 |
| 12-DEMO-002 | 100 mg | tablet  | 324 | 77.6 | 106  | 29.9 | 4.31 |
| 12-DEMO-002 | 50 mg  | capsule | 36  | 74.1 | 112  | 37.1 | 4.44 |
| 12-DEMO-002 | 50 mg  | tablet  | 324 | 71.2 | 106  | 34.1 | 4.63 |
| 12-DEMO-002 | 75 mg  | capsule | 36  | 72.4 | 105  | 38.2 | 3.89 |
| 12-DEMO-002 | 75 mg  | tablet  | 288 | 71.6 | 98.9 | 34.2 | 4.49 |
| 12-DEMO-002 | 75 mg  | troche  | 36  | 73.6 | 103  | 49.2 | 4.52 |