# Quick guide to functionality

*David Hugh-Jones*

*2/03/2017*

## Basic usage

### Creating a huxtable

```
ht_orig <- huxtable(a = c('Parsley', 'Sage', 'Rosemary', 'Thyme'), b = 10 ^ (2:5))
width(ht_orig) <- 0.25
ht_orig <- set_all_borders(ht_orig, 1:nrow(ht_orig), 1:ncol(ht_orig), 1)
ht_orig
```

| | |
|---|---|
| Parsley | 100.00 |
| Sage | 1000.00 |
| Rosemary | 10000.00 |
| Thyme | 100000.00 |

### Borders

```
ht <- ht_orig
ht <- set_all_borders(ht, 1:4, 1:2, 0)
top_border(ht) <- c(2, 0, 0, 1)
bottom_border(ht)[4,] <- 2
ht
```

| | |
|---|---|
| Parsley | 100.00 |
| Sage | 1000.00 |
| Rosemary | 10000.00 |
| Thyme | 100000.00 |

### Cell alignment

```
ht <- ht_orig
align(ht)[,1] <- 'left'
ht
```

| | |
|---|---|
| Parsley | 100.00 |
| Sage | 1000.00 |
| Rosemary | 10000.00 |
| Thyme | 100000.00 |

## Vertical alignment

```
ht <- ht_orig
row_height(ht) <- '50pt'
valign(ht)[,1] <- 'top'
valign(ht)[,2] <- 'bottom'
ht
```

```
## Warning in build_tabular(ht): In LaTex, huxtable cannot currently combine
## vertical alignment != "top" and proportional column widths. Try specifying
## the column width in points ("100pt") or pixels ("50px").
```

| | |
|---|---|
| Parsley | 100.00 |
| Sage | 1000.00 |
| Rosemary | 10000.00 |
| Thyme | 100000.00 |

## Column span

```
ht <- ht_orig
background_color(ht)[1,1] <- 'green'
colspan(ht)[1,1] <- 2
ht
```

| | |
|---|---|
| Parsley | |
| Sage | 1000.00 |
| Rosemary | 10000.00 |
| Thyme | 100000.00 |

## Row span

```
ht <- ht_orig
ht[1,1] <- 'A rather long block of text'
background_color(ht)[1,1] <- 'green'
rowspan(ht)[1,1] <- 2
ht
```

| | |
|---|---|
| A rather long block of text | 100.00 |
| | 1000.00 |
| Rosemary | 10000.00 |
| Thyme | 100000.00 |

## Table position

```
ht <- ht_orig
position(ht) <- 'left'
ht
```

| | |
|---|---|
| Parsley | 100.00 |
| Sage | 1000.00 |
| Rosemary | 10000.00 |
| Thyme | 100000.00 |

## Table width

```
ht <- ht_orig
width(ht) <- 0.5
ht
```

| | |
|---|---|
| Parsley | 100.00 |
| Sage | 1000.00 |
| Rosemary | 10000.00 |
| Thyme | 100000.00 |

## Column width

```
ht <- ht_orig
col_width(ht) <- c(.8, .2)
ht
```

| | |
|---|---|
| Parsley | 100.00 |
| Sage | 1000.00 |
| Rosemary | 10000.00 |
| Thyme | 100000.00 |

### Row height

```
ht <- ht_orig
height(ht) <- 0.2;
if (! is_latex) height(ht) <- '100px' # need a specific height for row heights to work in HTML
row_height(ht) <- c(.4, .2, .2, .2) * 0.2
ht
```

| | |
|---|---|
| Parsley | 100.00 |
| Sage | 1000.00 |
| Rosemary | 10000.00 |
| Thyme | 100000.00 |

### Text color, bold, italic, font size

```
ht <- ht_orig
text_color(ht)[,2] <- 'red'
bold(ht)[1,] <- TRUE
italic(ht)[3,] <- TRUE
font_size(ht)[2,] <- 14
font(ht)[4,] <- if (is_latex) 'phv' else 'times'
ht
```

| | |
|---|---|
| **Parsley** | **100.00** |
| Sage | 1000.00 |
| *Rosemary* | *10000.00* |
| Thyme | 100000.00 |

### Number formatting

```
ht <- ht_orig
ht[,2] <- ht[,2] + rnorm(4)
number_format(ht)[2,] <- 2
number_format(ht)[3,] <- '%011.4f'
number_format(ht)[4,] <- list(function(x) prettyNum(round(x, 3), big.mark = ','))

ht
```

| | |
|---|---|
| Parsley | 99.81 |
| Sage | 999.87 |
| Rosemary | 009998.5891 |
| Thyme | 99,999.81 |

### Replace NAs

```
ht <- ht_orig
ht[2,] <- NA
ht
```

| | |
|---|---|
| Parsley | 100.00 |
| | |
| Rosemary | 10000.00 |
| Thyme | 100000.00 |

```
na_string(ht) <- '--'
ht
```

| | |
|---|---|
| Parsley | 100.00 |
| – | – |
| Rosemary | 10000.00 |
| Thyme | 100000.00 |

### Pipe style with magrittr

```
if (require('magrittr')) {
ht <- ht_orig
ht %>%
      set_all_borders(1:4, 1:2, 0)            %>%
      set_top_border(1, 1:2, 1)               %>%
      set_bold(1, 1:2, TRUE)                  %>%
      set_background_color(1:4, 1:2, 'wheat') %>%
      set_number_format(1:4, 1:2, '%03.1d')   %>%
      set_align(1:4, 1, 'left')               %>%
      set_align(1:4, 2, 'right')
}
```

```
## Loading required package: magrittr
```

| | |
|---|---|
| **Parsley** | **100** |
| Sage | 1000 |
| Rosemary | 10000 |
| Thyme | 100000 |

## Quick themes

```
ht <- ht_orig
ht <- rbind(c("Herb", "Amount"), ht)
theme_minimal(ht)
```

| Herb | Amount |
|---|---|
| Parsley | 100.00 |
| Sage | 1000.00 |
| Rosemary | 10000.00 |
| Thyme | 100000.00 |

```
theme_striped(ht, header_col = FALSE)
```

| Herb | Amount |
|---|---|
| Parsley | 100.00 |
| Sage | 1000.00 |
| Rosemary | 10000.00 |
| Thyme | 100000.00 |

```
theme_article(ht)
```

| Herb | Amount |
|---|---|
| **Parsley** | 100.00 |
| **Sage** | 1000.00 |
| **Rosemary** | 10000.00 |
| **Thyme** | 100000.00 |

## Converting other objects to huxtables

```
defaults <- function(ht) {
  bottom_border(ht)[1,] <- 1
  background_color(ht)[seq(1, nrow(ht), 2), ] <- grey(.9)
  ht
}
```

```
defaults(as_hux(letters[1:5]))
```

| a |
|---|
| b |
| c |
| d |
| e |

```
defaults(as_hux(matrix(letters[1:10], 2)))
```

| a | c | e | g | i |
|---|---|---|---|---|
| b | d | f | h | j |

```
data(mtcars)
defaults(as_hux(mtcars[1:10,]))
```

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 21.00 | 6.00 | 160.00 | 110.00 | 3.90 | 2.62 | 16.46 | 0.00 | 1.00 |
| 21.00 | 6.00 | 160.00 | 110.00 | 3.90 | 2.88 | 17.02 | 0.00 | 1.00 |
| 22.80 | 4.00 | 108.00 | 93.00 | 3.85 | 2.32 | 18.61 | 1.00 | 1.00 |
| 21.40 | 6.00 | 258.00 | 110.00 | 3.08 | 3.21 | 19.44 | 1.00 | 0.00 |
| 18.70 | 8.00 | 360.00 | 175.00 | 3.15 | 3.44 | 17.02 | 0.00 | 0.00 |
| 18.10 | 6.00 | 225.00 | 105.00 | 2.76 | 3.46 | 20.22 | 1.00 | 0.00 |
| 14.30 | 8.00 | 360.00 | 245.00 | 3.21 | 3.57 | 15.84 | 0.00 | 0.00 |
| 24.40 | 4.00 | 146.70 | 62.00 | 3.69 | 3.19 | 20.00 | 1.00 | 0.00 |
| 22.80 | 4.00 | 140.80 | 95.00 | 3.92 | 3.15 | 22.90 | 1.00 | 0.00 |
| 19.20 | 6.00 | 167.60 | 123.00 | 3.92 | 3.44 | 18.30 | 1.00 | 0.00 |

```
car_table <- xtabs(~ cyl + gear, mtcars)
defaults(as_hux(car_table))
```

| 1.00 | 8.00 | 2.00 |
|---|---|---|
| 2.00 | 4.00 | 1.00 |
| 12.00 | 0.00 | 2.00 |

```
car_ft <- ftable(cyl ~ gear + vs, mtcars)
defaults(as_hux(car_ft))
```

| | | cyl | 4.00 | 6.00 | 8.00 |
|---|---|---|---|---|---|
| gear | vs | | | | |
| 3.00 | 0.00 | | 0.00 | 0.00 | 12.00 |
| | 1.00 | | 1.00 | 2.00 | 0.00 |
| 4.00 | 0.00 | | 0.00 | 2.00 | 0.00 |
| | 1.00 | | 8.00 | 2.00 | 0.00 |
| 5.00 | 0.00 | | 1.00 | 1.00 | 2.00 |
| | 1.00 | | 1.00 | 0.00 | 0.00 |

# Joining, subsetting and manipulating huxtables

## Subsets

```
ht <- ht_orig
bottom_border(ht)[c(1,4),] <- 1
background_color(ht)[1,] <- 'wheat'

ht[1:3,1]
```

| Parsley |
|---|
| Sage |
| Rosemary |

## Joining

```
ht2 <- ht_orig
italic(ht2) <- TRUE
rbind(ht, ht2)
```

| Parsley | 100.00 |
|---|---|
| Sage | 1000.00 |
| Rosemary | 10000.00 |
| Thyme | 100000.00 |
| *Parsley* | *100.00* |
| *Sage* | *1000.00* |
| *Rosemary* | *10000.00* |
| *Thyme* | *100000.00* |

```
cbind(ht, ht2)
```

| Parsley | 100.00 | *Parsley* | *100.00* |
|---|---|---|---|
| Sage | 1000.00 | *Sage* | *1000.00* |
| Rosemary | 10000.00 | *Rosemary* | *10000.00* |
| Thyme | 100000.00 | *Thyme* | *100000.00* |

```
rbind(c("Oregano", 300), ht)
```

| | |
|---|---|
| Oregano | 300.00 |
| Parsley | 100.00 |
| Sage | 1000.00 |
| Rosemary | 10000.00 |
| Thyme | 100000.00 |

### Transpose

```
colspan(ht)[1, 1] <- 2
ht
```

| Parsley | |
|---|---|
| Sage | 1000.00 |
| Rosemary | 10000.00 |
| Thyme | 100000.00 |

```
t(ht)
```

| Parsley | Sage | Rosemary | Thyme |
|---|---|---|---|
| | 1000.00 | 10000.00 | 100000.00 |

## Advanced features

### Printing on screen

```
ht <- ht_orig
# Basic data:
print(ht)
```

```
##          a     b
## 1  Parsley 1e+02
## 2     Sage 1e+03
## 3 Rosemary 1e+04
## 4    Thyme 1e+05
```

```
# Pretty print:
print_screen(ht)
```

```
##  ------------------------
##  | Parsley  | 100.00    |
##  ------------------------
##  | Sage     | 1000.00   |
##  ------------------------
##  | Rosemary | 10000.00  |
##  ------------------------
##  | Thyme    | 100000.00 |
##  ------------------------
```

```
# Markdown:
print_md(ht)
```

```
## ------------------------------------------------------------------------
## Parsley                                100.00
## ------------------------------------- --------------------------------------
## Sage                                   1000.00
##
## Rosemary                               10000.00
##
## Thyme                                  100000.00
##
## ------------------------------------------------------------------------
```

## Padding

```
ht <- ht_orig
ht <- set_all_padding(ht, 1:4, 1:2, 0)
left_padding(ht)[,1] <- 40
right_padding(ht)[,2] <- 40
top_padding(ht) <- 20
bottom_padding(ht) <- 20
ht
```

| | |
|---|---|
| Parsley | 100.00 |
| Sage | 1000.00 |
| Rosemary | 10000.00 |
| Thyme | 100000.00 |

## Cell rotation

```
ht <- ht_orig
height(ht) <- 0.2 # necessary
if (! is_latex) height(ht) <- '300px'
col_width(ht) <- c(.25, .75)
rotation(ht)[,1] <- 90
ht
```

| | |
|---|---|
| Parsley | 100.00 |
| Sage | 1000.00 |
| Rosemary | 10000.00 |
| Thyme | 100000.00 |

## Border width

```
ht <- ht_orig
bottom_border(ht)[1,] <- 3
ht
```

| | |
|---|---|
| Parsley | 100.00 |
| Sage | 1000.00 |
| Rosemary | 10000.00 |
| Thyme | 100000.00 |

## Caption

```
ht <- ht_orig
caption(ht) <- 'A simple table'
ht
```

Table 1: A simple table

| | |
|---|---|
| Parsley | 100.00 |
| Sage | 1000.00 |
| Rosemary | 10000.00 |
| Thyme | 100000.00 |

## Caption below

```
ht <- ht_orig
caption(ht) <- 'A simple table'
caption_pos(ht) <- 'bottom'
ht
```

| | |
|---|---|
| Parsley | 100.00 |
| Sage | 1000.00 |
| Rosemary | 10000.00 |
| Thyme | 100000.00 |

Table 2: A simple table

### Label

```
ht <- ht_orig
caption(ht) <- 'Captions are required for labels to work'
label(ht) <- 'tab:mytable'
ht
```

Table 3: Captions are required for labels to work

| | |
|---|---|
| Parsley | 100.00 |
| Sage | 1000.00 |
| Rosemary | 10000.00 |
| Thyme | 100000.00 |

```
knitr::asis_output('If this is LaTeX we can see a reference to table \\ref{tab:mytable}.')
```

If this is LaTeX we can see a reference to table 3.

NB: references may not work if knitting PDFs in Rstudio.

## Testing corner cases

### Heights and padding

```
ht <- ht_orig

row_height(ht) <- c(.1, .05, .05, .05)
# top_padding(ht) <- 10
# bottom_padding(ht) <- 20
ht
```

| | |
|---|---|
| Parsley | 100.00 |
| Sage | 1000.00 |
| Rosemary | 10000.00 |
| Thyme | 100000.00 |

### Row and column span

```
ht <- ht_orig
ht[1,1] <- 'A rather long block of text'
background_color(ht)[1,1] <- 'green'
rowspan(ht)[1,1] <- 2
colspan(ht)[1,1] <- 2
ht
```

| A rather long block of text | |
|---|---|
| Rosemary | 10000.00 |
| Thyme | 100000.00 |

## Huge table of cross-validation

```
set_rowcol <- function(ht, fun, rc, value) {
  ht[1, rc] <- ht[rc, 1] <- paste(deparse(substitute(fun)), '=', value)
  ht <- fun(ht, rc, 1:ncol(ht), value)
  ht <- fun(ht, 1:nrow(ht), rc, value)
  ht
}

N <- 22
megahux <- as_hux(matrix("", N, N))
megahux[1:5,] <- 'Some text'
megahux[6:10,] <- rnorm(5*N)
megahux[11:15,] <- 'Some more text'
megahux[18:22, ] <- rnorm(5*N)
megahux[16:17, ] <- substring(stringi::stri_rand_lipsum(2*N), 0, 50)
# for (col in c(2,7,12,17,22)) test_hux[,col] <- sample(test_hux[,col])


megahux <- megahux                                    %>%
```

```
      set_rowcol(set_valign, 1, 'top')              %>%
      set_rowcol(set_align, 2, 'left')              %>%
      set_rowcol(set_top_border, 3, 1)              %>%
      set_rowcol(set_bottom_border, 4, 2)           %>%
      set_rowcol(set_left_border, 5, 1)             %>%
      set_rowcol(set_right_border, 6, 1)            %>%
      set_rowcol(set_background_color, 9, 'wheat')  %>%
      set_rowcol(set_text_color, 10, 'red')         %>%
      set_rowcol(set_top_padding, 12, 20)           %>%
      set_rowcol(set_bottom_padding, 13, 20)        %>%
      set_rowcol(set_left_padding, 14, 20)          %>%
      set_rowcol(set_right_padding, 15, 20)         %>%
      set_rowcol(set_escape_contents, 16, FALSE)    %>%
      set_rowcol(set_na_string, 17, 'N.a.')         %>%
      set_rowcol(set_bold, 18, TRUE)                %>%
      set_rowcol(set_italic, 19, TRUE)              %>%
      set_rowcol(set_font_size, 20, 20)             %>%
      set_rowcol(set_number_format, 21, '%9.6f')    %>%
      set_rowcol(set_font, 22, 'times')

colspan(megahux)[11, 4] <- 6
rowspan(megahux)[4, 11] <- 6
megahux[11,4] <- stringi::stri_rand_lipsum(1)
megahux[4, 11] <- stringi::stri_rand_lipsum(1)
megahux[,16] <- megahux[16,] <- '<b>Non escaped HTML</b>'
megahux[,17] <- megahux[17,] <- sample(c(1:10, rep(NA, 12)))

megahux
```

| | | |
|---|---|---|
| set_valign = top | set_align = left | set_top_border = |
| set_align = left | Some text | Some text |
| set_top_border = 1 | Some text | Some text |
| set_bottom_border = 2 | Some text | Some text |
| set_left_border = 1 | Some text | Some text |
| set_right_border = 1 | -1.06 | -1.22 |
| -0.10 | 0.17 | -0.32 |
| -1.36 | 1.45 | 1.51 |
| set_background_color = wheat | 1.11 | 0.54 |
| set_text_color = red | 1.15 | -2.67 |
| Some more text | Some more text | Some more text |
| set_top_padding = 20 | Some more text | Some more text |
| set_bottom_padding = 20 | Some more text | Some more text |
| set_left_padding = 20 | Some more text | Some more text |
| set_right_padding = 20 | Some more text | Some more text |
| Non escaped HTML | Non escaped HTML | Non escaped H |
| 6.00 | 7.00 | 9.00 |
| **set_bold = TRUE** | **1.28** | **0.74** |